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THE ASSOCIATIONS BETWEEN REFLECTIVE RUMINATION AND
RELATED CONSTRUCTS

by

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A Thesis Submitted in Partial Fulfilment
of the Requirements for a Degree with Honors
(Psychology)

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Abstract

According to the Response Styles Theory, the way in which an individual responds to depressed mood influences the duration and severity of one's depressed mood (Nolen-Hoeksema, 1991). In particular, a ruminative response, or tendency to repeatedly think about the causes and consequences of one's depressed mood is hypothesized to worsen depressed mood (Nolen-Hoeksema, Wisco & Lyubomirsky, 2008). Research examining the measure of rumination using the Ruminative Response Scale (Nolen-Hoeksema & Morrow, 1991), Treynor, Gonzalez and Nolen-Hoeksema (2003) has yielded two distinct subtypes of rumination: brooding and reflection. Brooding was conceptualized as a maladaptive form of rumination, while reflection was thought to be more adaptive. While support for the maladaptive nature of brooding has generally been found, research on reflection has resulted in mixed findings. The goal of the present study was to examine the validity of reflection and reconcile prior mixed findings. Hypotheses were based on Treynor et al.'s (2003) conceptualization of reflection and prior findings. A diverse sample of adults from the US, were recruited via Amazon Mechanical Turk (MTurk) and completed self-report measures. In line with hypotheses, significant positive correlations were found between reflection and depression, emotional processing, and certain subscales of mindfulness (FFMQ Observe & KIMS Observe, PHLMS awareness). In contrast with hypotheses, significant positive associations were found between reflection and negative problem orientation, and avoidant and impulsive/careless problem solving. In contrast with hypotheses, reflection was not associated with emotion regulation, curiosity/exploration, self-esteem, or positive affect. Also in contrast with hypotheses, problem solving did not moderate the relationship between reflection and depression.

Dedication

To my family.

Thank you for your constant support and love.

I would not be who I am today without you.

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Depression is a chronic, costly disease that is debilitating for many individuals. Depression affects about 17% of the population of the United States at some point during the individual's lifetime (Forgeard et al., 2011). Common symptoms include: sadness, loss of interest or pleasure, and feelings of low self-worth for a period of two weeks or more (American Psychiatric Association, 2013). Depression is associated with negative outcomes including weight loss or gain, sleep disturbances, social withdrawal, self-harm and suicide.

Beyond the personal costs of depression (i.e. emotional suffering) depression is associated with a significant economic burden. Depression is a leading cause of disability among adults worldwide (World Health Organization, 2016). In 2015, depression cost the U.S. economy an estimated 210.5 billion dollars in workplace costs, medical claims, pharmaceutical costs and suicide-related costs (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). Depression is a complex disorder and many factors (e.g. biological, cognitive, interpersonal) contribute to the onset and maintenance of depression. A better understanding of the etiology of depression is needed so we can develop more effective methods to intervene and reduce individuals' vulnerability to depression.

Rumination and the Response Styles Theory

Various theories have been proposed to account for the onset and maintenance of depression. A leading theory is the Response Styles Theory (RST; Nolen-Hoeksema, 1991), which was originally proposed to help explain why women tend to experience depression more often than men. An aim of the RST was to describe the different responses individuals have to depressed mood. According to the RST, the way that

individuals respond to sadness or negative mood, may explain why some are vulnerable to depressive moods while others are not. (Verstraeten, Bijttebier, Vasey & Raes, 2011).

The RST (1991) proposes three responses styles that affect the onset and the maintenance of depression and depressive symptoms: distraction, problem-solving and rumination. Distraction is defined as focusing attention on something other than the emotion-eliciting event (Brans, Koval, Verdun, Lim, & Kuppens, 2013). Distracting activities may include participating in an activity with friends or focusing on work. The goal of distraction is to take one's mind off of the situation, event, feelings of sadness, or depressive symptoms. Morrow and Nolen-Hoeksema (1990) found in their laboratory study that engaging in a passive- (i.e. involving very little or no physical activity to shift the individual's attention away from how they're feeling) and active- (i.e. involving physical activity) distraction activity was related to lower levels of depression when compared to groups who ruminated.

A problem-solving response style refers to individuals who tend to analyze recent events and try to come up with a plan or a solution to relieve those negative emotions or thoughts (Schoofs, Hermans & Raes 2010). Unlike problem-solving, individuals who engage in rumination may think that they are coming up with solutions to their problems, they are more focused on negative thoughts, emotions, and symptoms rather than implementing solutions to their problems.

A ruminative response style is described as repetitively focusing on one's symptoms of depression, and on the "causes, meanings, and consequences of depressive symptoms" (p. 569, Nolen-Hoeksema, 1991). Rumination is theorized to lead to the onset and maintenance of depression in several ways. First, rumination may negatively affect

problem solving. Specifically, those who ruminate may be less likely to engage in active problem solving (i.e. increasing efforts to solve problems, coming up with a plan to solve problems) and may actually have a harder time coming up with solutions to life problems (Nolen-Hoeksema, 1991). For instance, Lyubomirsky, Tucker, Caldwell, & Berg (1999), found that individuals who ruminate reported that they were less likely to implement their solutions to current problems, and the researchers suggest that rumination may deplete their energy and motivation to solve their problems or implement solutions. Additionally, Lyubomirsky and Nolen-Hoeksema (1995) found that dysphoric students who ruminated, generated less effective solutions to interpersonal problems, while the dysphoric students who were engaged in a distraction task (i.e. focused their thoughts externally and not on symptoms or emotions) generated more effective solutions. Research involving a clinical sample of individuals with major depression ($n=36$) found that individuals with higher levels of rumination reported poorer moods and provided less effective solutions to problems (Donaldson & Lam, 2004). Additionally, a correlational study involving 161 undergraduate students in Japan, examined whether two subtypes of rumination (brooding and reflection) and social problem solving were prospectively associated with depressive symptoms (Hasegawa, Hattori, Nishimura, & Tanno, 2015). The researchers measured depressive symptoms, social problem solving ability and two subtypes of rumination (brooding and reflection) at baseline and then again six months later. Results showed that brooding was positively associated with negative problem orientation (i.e. viewing problems as threatening and unsolvable), and avoidance style (i.e. taking no action or procrastinating), while reflection was positively associated with positive problem orientation (i.e. viewing problems as challenges and solvable) and rational

problem solving (i.e. deliberately applying effective problem-solving techniques). These findings suggest that individuals who ruminate may have elevated levels of depression because they have a tendency to engage in an avoidance style or a negative approach to problem solving (Hasegawa et al. 2015).

In addition to impaired problem solving, other cognitive consequences of rumination have been examined. During attention tasks, individuals who ruminate were hypothesized to be distracted by their negative thoughts and show impairment in their ability to focus or concentrate for very long. In three laboratory studies where participants completed an academic test followed by self-report measures, dysphoric students who ruminated reported that they couldn't concentrate as well on academic tasks, needed more time to take tests and to read, and had overall impairment (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). It is important to note that in these studies, rumination alone did not produce these findings. This only occurred in individuals who were experiencing a depressed mood.

Rumination is also thought to increase vulnerability to depression by facilitating a pattern of negative thinking characterized by a negative and self-critical view of themselves, a tendency to blame oneself for problems, and have negative thoughts about the past, present, and future (Nolen-Hoeksema et al., 2008). According to Nolen-Hoeksema et al. (2008), by concentrating on the negative thoughts and the causes of those thoughts, the individual can enter a dangerous cycle, in which they replay negative thoughts that cause their mood to become or remain sad, which in turn leads to further negative thought patterns. Research has also suggested that individuals who ruminate in response to depressed mood have less desirable personality characteristics, including

being clingy, dependent and having aggressive tendencies and a desire for revenge (Nolen-Hoeksema et al., 2008). These characteristics could lead to loss of social support, another negative outcome of a ruminative response style.

Research suggests that rumination is a construct that remains stable even when levels of depression change (Bagby, Rector, Bacchioni, & McBride, 2004; Nolen-Hoeksema, Parker, & Larson, 1994). In a longitudinal study conducted by Nolen-Hoeksema and Davis (1999), recently bereaved individuals were followed 18 months after the passing of a loved one and their levels of depressive symptoms, as well as response styles were assessed. The Response Styles Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991) and the Inventory to Diagnose Depression (IDD; Zimmerman & Coryell, 1987) were used to measure response styles and depressive symptoms respectively. The intraclass correlation for the RSQ remained a 0.75 across five interviews, even though levels of depression had changed greatly over those 18 months. The stability of the RSQ over time led researchers to believe that rumination is best conceptualized as a trait.

Rumination has consistently been positively associated with depression (for a review see Nolen-Hoeksema et al., 2008). Individuals who ruminate when they are distressed may have longer episodes of depression or may develop depression (Just & Alloy, 1997; Kuehner & Weber, 1999; Nolan, Roberts, & Gotlib, 1998; Nolen-Hoeksema, 2000; Roberts, Gilboa, & Gotlib, 1998; Sarin, Abela, & Auerbach, 2005; Segerstrom, Tsao, Alden, & Craske, 2000; Spasojevic & Alloy, 2001; Wood, Saltzberg, Neale, Stone, & Rachmiel, 1990). Research also suggests that rumination interacts with negative cognitive styles (e.g., neuroticism, pessimism, self-criticism) to maintain

depression. Ciesla and Roberts (2002) measured levels of rumination, private self-consciousness, and, negative cognition before individuals with depression were treated with psychoeducation. Results found that the interaction between rumination and negative cognitive styles predicted a change in the severity of depressive symptoms over the course of the treatment program. The higher the rumination and negative cognitive style that an individual has, the worse the depression symptoms are. A second study conducted by Robinson and Alloy (2003), examined the interaction between negative cognitive styles and rumination in a sample of undergraduate students. Results showed that the interaction was predictive of the onset, duration, and number of depressive episodes. While some studies find that rumination predicts the onset of depression (Nolen-Hoeksema, 2000; Just & Alloy, 1997), there have been mixed findings about rumination predicting the duration of depression. Some studies have found that rumination predicts the duration of a depressive episode (Ciesla & Roberts, 2002; Robinson & Alloy, 2003; Kuehner & Weber, 1999), while others have found that rumination does not predict the duration of depression (Arnow, Spangler, Klein, & Burns, 2004; Bagby & Parker, 2001; Park, Goodyer, & Teasdale, 2004). Because rumination is a consistently positively associated with depression, researchers questioned if the most widely used measure of rumination, the Ruminative Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991) was actually confounded by items that measure depression (Treynor, Gonzalez, & Nolen-Hoeksema 2003).

Psychometric Studies Examining the Ruminative Response Scale (RRS)

In order to measure rumination, researchers most commonly used the 22-item RRS (Nolen-Hoeksema & Morrow, 1991). Sample items include, “Analyze recent events

to try to understand why you are depressed” and “Go someplace alone to think about your feelings”. Given the strong association between depression and rumination, Treynor et al. (2003) hypothesized that the correlation between rumination and depression may exist because the RRS was actually measuring depression and not rumination.

Treynor et al. (2003) conducted a psychometric study to examine the extent to which items on the RRS overlapped with depressive symptomatology. Twelve items were removed from the RRS because they were determined to be similar to items on the BDI, leaving ten items on the RRS including, “Think, What am I doing to deserve this” and “Write down what you are thinking and analyze it” (Treynor et al., 2003). Results of a principal components analysis supported a two-factor model of rumination. In addition, a scree plot revealed two factors (brooding and reflection, each with five items). The two 5-item factors were labeled brooding and reflection. Brooding was conceptualized as a “tendency to dwell on one’s symptoms of distress or negative mood”, while reflection was conceptualized as “a tendency to try to understand the reasons for one’s mood”. The items for both brooding and reflection can be found in Table 1.

Table 1. <i>Reflection and Brooding items from the RRS</i>	
Brooding	Reflection
1. Think “What am I doing to deserve this?”	1. Analyze recent events to try to understand why you are depressed
2. Think “Why do I always react this way”	2. Go away by yourself and think about why you feel this way
3. Think about a recent situation, wishing it had gone better	3. Write down what you are thinking and analyze it
4. Think “Why do I have problems other people don’t have?”	4. Analyze your personality and to try to understand why you are depressed
5. Think “Why can’t I handle things better?”	5. Go someplace alone to think about your feelings

In the same study, Treynor and colleagues (2003) examined the relationship between the two factors- brooding and reflection- and depression, concurrently and prospectively. A sample of 1,131 adults completed self-report measures at two different time periods in one year. Correlations showed that while brooding was positively associated with depression concurrently and prospectively, reflection was positively associated with depression concurrently, but negatively associated with depression prospectively. Additionally, brooding was found to mediate the relationship between gender and depression. Women were found to engage in brooding more than men, leading to greater levels of depression when compared to men.

Arney et al. (2009) sought to replicate the findings of Treynor and colleagues (2003) by conducting an exploratory factor analysis and structural equation modeling. The analyses supported a two-factor model of rumination with brooding and reflection being the two components of rumination. These findings validate what Treynor et al. (2003) had previously found when they eliminated items from the RRS.

Further examination of the RRS was done by Rude, Maestas, and Neff (2007) to gain a better understanding of what separates adaptive ruminative thinking (i.e. emotion processing) from harmful rumination. Upon examining the scale, the researchers found that many of the items on both the brooding and reflection scales contained self-critical or judgmental language (e.g., statements starting with “Why do I always. . . or Why do I have problems others don’t have?” may suggest self-criticism or judgment). In a study of 232 undergraduate students, Rude and colleagues examined correlations between reflection, brooding, and other variables like self-esteem and thought suppression. As predicted, based on previous research, reflection was positively correlated with

depression and thought suppression but to a lesser extent than brooding. In line with hypotheses, reflection was negatively associated with self-esteem, but to a lesser extent than brooding. The researchers created an adaptation of the RRS by rewording some of the items in order to lessen the judgment associated with these items. This adaptation was referred to as the RRS-nonjudging scale. In a second study of 463 undergraduate students, results showed the RRS-nonjudging scale was not correlated with depression and thought suppression, but was correlated with emotional processing and to a greater extent than the original reflection scale (RRS-Reflection subscale). These findings support the idea that negative judgments, as measured by the RRS brooding and reflection, may be where rumination becomes harmful, instead of simply focusing on the meanings of unhappiness (Rude et al., 2007). This psychometric study demonstrates that perhaps the content of the reflection items need to be examined in order to better understand what the reflection scales measure. The results of the first study do not fit with Treynor et al.'s (2003) theory that reflection is adaptive. When the judgment items were removed, however, the results (study 2) fit with the theory that reflection is adaptive (reflection was not associated with depression or thought suppression). These mixed findings reveal that the reflection subscale of the RRS needs to be examined further to help reconcile these mixed findings.

Schoofs, Hermans, and Raes (2010) also conducted two studies examining the psychometric properties of the RRS. There had been no previous research that conducted a confirmatory factor analysis for the RRS, even though the two-factor model (reflection and brooding as subtypes of rumination) was quickly accepted by researchers. The goal of the study was to test whether the factor structure of the RRS actually fit with the two-

factor model. Thus, researchers conducted a confirmatory factor analysis with a sample of 432 first-year psychology students. They predicted that the factor structure would be in line with the two-factor model with reflection and brooding being the two components and this would be a superior fit when compared to the one-factor model (rumination). Consistent with predictions, Study 1 showed that the two-factor model (brooding and reflection) fit the data better than a one-factor model (rumination alone) (Schoofs et al., 2010).

Study 1 also sought to examine the relationship between brooding and reflection and another measure of rumination (Trapnell and Campbell, 1999). While the RRS examines how individuals respond specifically to sad moods or depressive symptoms, the Self-reflection Rumination Reflection Questionnaire (RRQ; Trapnell and Campbell, 1999) measures an adaptive and maladaptive form of self-focus or self-attention. The maladaptive form of self-focus is conceptualized as self-rumination, while the adaptive form of self-focus is labelled self-reflection and is defined as intellectual self-attentiveness. Self-rumination and self-reflection, measured with the RRQ are the general tendencies that individuals have and are not necessarily responses to sad moods like reflection and brooding are. Results showed that brooding was more related to self-rumination (i.e. neurotic self-focus) than to self-reflection, a more open form of self-attention. Reflection, measured with the RRS, was more strongly related to Trapnell and Campbell's (1999) self-reflection than brooding, and brooding but not reflection predicted depressive symptoms. These findings are consistent with previous research showing that brooding is a more maladaptive subtype of rumination (Treynor et al., 2003; Burwell & Shirk, 2007; Verstraeten et al., 2011, Miranda & Nolen-Hoeksema, 2007;

Chan, Miranda, & Surrence, 2009; Crane, Barnhofer, & Williams, 2007, Feldman, Dunn, Stemke, Bell, & Greeson, 2014; Moberly & Watkins, 2008).

In study 2, Schoofs et al. (2010) sought to replicate their findings from Study 1 with a separate sample of 427 first-year psychology students. A confirmatory factor analysis revealed support for the two-factor model and validated the findings from the first study. In contrast to the findings of Study 1, results showed that both reflection and brooding were positively associated with depression, although brooding was more strongly related to depression than reflection. These results support the exploratory findings of Treynor et al. (2003) which found a two-factor model. The correlational results, however, only partially support Treynor et al.'s (2003) findings (e.g. in the current study reflection was associated with depressive symptoms concurrently but not prospectively, while in Treynor et al.'s (2003) study reflection was associated with depression both concurrently and prospectively) and provide grounds for further research with the reflection subscale.

While Schoofs et al. (2010) employed an undergraduate sample for their studies, Whitmer & Gotlib's (2011) psychometric study used a clinical sample. Whitmer and Gotlib conducted a factor analysis of the RRS using currently depressed (353 subjects), formerly depressed (70 subjects), and never depressed (377 subjects) adults. In line with Treynor et al.'s (2003) study, Whitmer and Gotlib found the same two-factor structure for the never depressed participants; however, these results did not hold for currently depressed individuals. For this group, the items did not separate into reflection and brooding, even though a parallel analysis, superior to the scree test used by Treynor et al. (2003), suggested a two-factor model. These results suggest that the distinction between

brooding and reflection may not be as clear in individuals who are currently depressed. Moreover, results also found that some of the RRS items loaded onto different factors. For instance, the item “Write down what you are thinking and analyze it”, which typically loads onto the reflection factor, did not load onto either brooding or reflection in either the currently or formerly depressed groups. Whitmer & Gotlib replaced this item with a new item, “isolate yourself and think about the reasons why you feel sad”, which loaded onto the reflection factor in both formerly and never depressed groups. These findings suggest that the individual’s depression status (e.g., never-depressed, formerly depressed or currently depressed) may impact whether reflection and brooding can be distinguished from one another as distinct ruminative subtypes. In non-depressed individuals, reflection and brooding may occur independently of one another. Whitmer & Gotlib (2011) suggest that once a person becomes depressed, the two factors may negatively affect each other. It is possible that when individuals who are depressed engage in brooding and reflection, these two types of repetitive thought interact and create a cycle of repetitive negative thoughts that are relatively indistinguishable.

Finally, Whitmer and Gotlib (2011) found that brooding was the more stable subtype of rumination. In each group, the brooding items loaded together, while two of the reflection items actually loaded on the brooding factor rather than the reflection factor (Whitmer & Gotlib, 2011). This suggests that further research is needed in order to better understand the differences between reflection and brooding, and to more clearly conceptualize reflection.

Reflection and Brooding: Relationship with Depression and Related Constructs

In line with Treynor et al.'s (2003) conceptualization, research has generally supported the notion that brooding is maladaptive. Brooding is consistently positively correlated with depression (Treynor et al., 2003; Burwell & Shirk, 2007; Verstraeten et al., 2011), negative affect (Feldman et al., 2014; Moberly & Watkins, 2008), and maladaptive behaviors like suicidal ideation and suicide attempts (Miranda & Nolen-Hoeksema, 2007; Chan et al., 2009; Crane et al., 2007).

Unlike brooding, and in contrast to Treynor et al. (2003), reflection has been associated with adaptive constructs, and maladaptive constructs. With respect to adaptive constructs, positive associations have been found between reflection and emotion processing (i.e. the ability to face distressing emotions) (Rude et al., 2007), problem solving, emotion expression, positive thinking, and cognitive restructuring (recognizing one's own thinking patterns and making efforts to change them) (Burwell & Shirk, 2007). Research has also found a negative association between reflection and vengeance (Ysseldyk, Matheson & Anisman, 2007).

Given the possible overlap between reflection (i.e. as a tendency to try to understand the reasons for one's mood) and mindfulness defined as "present-centered awareness" (Cardaciotto, Herbert, Forman, Moitra & Farrow, 2008), research has sought to examine possible associations. These efforts have also yielded mixed findings. Some research has found a positive relationship (Cardaciotto et al., 2008), while other research has found a negative association or no association at all (Brennan, Barnhofer, Crane, Duggan & Williams, 2015; Feldman et al., 2014).

With respect to maladaptive constructs, reflection was positively correlated with worry in a sample of 450 adults treated for anxiety and affective disorders (McEvoy &

Brans, 2013; Raes, 2010), and negative affect among a sample of 138 children ages 9-13 (Verstraeten et al., 2011). Negative correlations have been found between reflection and positive affect, effortful control, attentional control, all with the sample of 138 children (Verstraeten et al., 2011), and self-compassion, using a sample of 271 undergraduate students (Raes, 2010). Additionally, reflection has been found to be positively associated with suicide ideation and attempts in samples of both undergraduate students and community adults (Miranda and Nolan-Hoeksema, 2007; O'Connor & Noyce, 2008; Chan et al., 2009; Tucker, Wingate, O'Keefe, Mills, Rasmussen, Davidson, Grant, 2013). A potential explanation for these mixed findings might be due to differences in sample characteristics (e.g. adults, children, and undergraduate students).

One of the biggest inconsistencies with regards to reflection is whether it is positively or negatively correlated with depression. There has been research to support both sides. Research has shown a positive correlation between reflection and depression in numerous studies (Takano & Tanno, 2009; Burwell & Shirk, 2007; Chan et al., 2009; O'Connor & Noyce, 2008; Cox, Funasaki, Smith & Mezulis, 2012; Whitmer & Gotlib, 2011; Raes & Hermans, 2008; Pearson, Watkins & Mullan, 2010; Schoofs et al., 2010; Marroquin, Fontes, Scillea & Miranda, 2010). Some research has also supported a negative association between reflection and depression (Lo, Ho, & Hollon, 2008). See table 2 for a summary of these studies. Previous research examining the association between reflection and depression concurrently has found more positive than negative associations and this relationship has been found in samples of adults, adolescents, and undergraduate students. Negative associations between reflection and depression have been found with undergraduate students. Longitudinal studies have found that reflection

predicts depression both concurrently and prospectively, however, one longitudinal study found a negative relationship between reflection and depression. A majority of previous studies examining the relationship between reflection and depression reflect samples mostly comprised of mostly women (i.e. over 50% women). It is also possible that reflection is both adaptive and maladaptive at different times or in different situations. This still remains unclear, which brings us to the current study. A review of prior studies does not provide us with any clear answers as to whether or not reflection is adaptive or maladaptive.

Table 2. continued				
Sample information and methodology for studies finding an association between reflection and depression				
Study	Association	Sample	Gender (%) female	Methodology
Cakannan & Sanoa 2008	Positive	111 adolescents	72%	Concurrent, given RRS and Reflection time, positive association found
Mezulis 2012	Positive	111 adolescents	72%	Concurrent, given RRS and Reflection time, positive association found
Waters & Gattis 2010	Positive	353 adolescents	71%	Concurrent, given RRS and Reflection time, positive association found
Mullan 2010	Positive	377 never depressed, and 70 formerly depressed	71%	Concurrent, given RRS and Reflection time, positive association found
Raes & Hermans 2008	Positive	101 Belgian students	82%	Concurrent, given RRS and Reflection time, positive association found
Gonzalez, & Nolen-Hoeksema 2003)	Positive	432 undergraduates	79%	Concurrent, given RRS and Reflection time, positive association found
Burwell & Shirk 2007	Positive	168 adolescents	82%	Concurrent, given RRS and Reflection time, positive association found
Lo, & Hollon 2008	Negative	115 students and 38 patients with depressive disorders	58%	Concurrent, given RRS and Reflection time, positive association found
Marroquin, Chan, Miranda, & Surrence 2009	Positive	284 undergraduates	81%	Concurrent, given RRS and Reflection time, positive association found
O'Connor & Noyce 2008	Positive	232 healthy adults	73%	Concurrent, Center for epidemiological Studies Depression Scale, and RRS were given at one time; positive association found

The Present Study

The aim of the current study is to take a theoretically guided approach to examine the validity of the reflection subscale in order to help clarify previous findings. With a better understanding and conceptualization of reflection, we will gain further insight into reflective rumination and how it manifests in different individuals. This, in turn, will contribute to our understanding of the relationship between negative repetitive thought and depression.

The present study will examine the relationship between reflection defined as “a tendency to try to understand the reasons for one’s mood” (Treynor et al., 2003), and theoretically related constructs (e.g. problem solving, emotion regulation, emotion processing, curiosity and exploration, mindfulness, depression, positive affect, and self-esteem) These constructs were chosen based on Treynor et al.’s (2003) definition of reflection and consideration of related constructs found in the literature. Currently, there are no studies that have examined these specific relationships. If hypotheses are supported, this study will provide support for Treynor et al.’s (2003) conceptualization of reflection as an adaptive subtype of rumination.

Hypotheses

Reflection and problem solving. It is hypothesized that rational problem solving, positive problem orientation, and the social problem solving index (overall ability an individual has to solve problems) will be positively correlated with reflection. Additionally, it is hypothesized that reflection will be negatively correlated with impulsive/careless problem solving, avoidant problem solving and negative problem orientation.

Reflection and emotion regulation, emotional processing and curiosity and exploration. It is hypothesized that reflection will be positively correlated with emotional processing (i.e. the ability to face distressing emotions), emotion regulation, specifically cognitive reappraisal (i.e. interpreting potential emotional situations in a way that lessens the emotional impact), and curiosity and exploration (i.e. recognizing, pursuing, and integrating novel and challenging experiences and information). The relationships between reflection and emotion regulation and reflection and curiosity/exploration have not yet been examined, and the current study will contribute to the literature with these findings.

Reflection and mindfulness. Cardaciotto et al. (2008) found a positive association between reflection and mindfulness in a sample of adults, while Feldman et al. (2014) found a negative association with a sample of female undergraduates. An adult sample leads to greater confidence in results and greater generalizability than a sample of all female undergraduates. Additionally, mindfulness is considered to be an adaptive construct, leading to decreased psychological symptoms and better health and well-being (Baer et al., 2006). Based on these previous mixed findings examining the association between reflection and mindfulness and the nature of mindfulness, it is hypothesized that reflection will be positively correlated with mindfulness.

Reflection and depression. Previous studies that have examined the relationship between reflection and depression have generally found a positive association (Takano & Tanno, 2009; Burwell & Shirk, 2007; Chan et al., 2009; O'Connor & Noyce, 2008; Cox et al., 2012; Whitmer & Gotlib, 2011; Raes & Hermans, 2008; Pearson et al., 2010; Schoofs et al., 2010; Marroquin et al., 2010). Within these studies samples have been

composed of undergraduate students, adolescents, adults, and a clinical sample. Research finding a negative association between reflection and depression used a sample composed mostly of students (Lo et al., 2008). A wide variety of samples has consistently shown reflection to be positively associated with depression. A majority of the subjects were women in each of these studies. According to the Response Styles Theory (1999), women tend to engage in rumination and experience depressive symptoms more often than men. Based on this, women may also engage in reflection more often than men, but this may turn into brooding and lead to more depressive symptoms. This is a possible explanation for the previous studies finding a positive association between reflection and depression because the samples are composed of mostly women. Based on this prior research and theory, it is hypothesized that reflection will be positively correlated with depression.

Reflection and positive affect and self-esteem. It is hypothesized that reflection will be negatively correlated with positive affect and self-esteem. Previous research has found negative relationships between reflection and positive affect and reflection and self-esteem and the previous study aims to validate these findings.

Self-reflection: rumination-reflection questionnaire (RRQ). Schoofs et al. (2010) found that reflection was positively associated with self-reflection. This is in line with Treynor et al.'s (2003) definition of reflection (i.e. "a tendency to try to understand the reasons for one's mood") as self-reflection is defined as intellectual self-attentiveness (Rude et al., 2007). Based on previous findings, it is hypothesized that reflection will be positively correlated with self-reflection.

Given that the Response Styles Theory (1999) was proposed to account for the differential prevalence rates of depression among men and women, the current study will

examine correlations for the total sample and separately by gender. Correlations between reflection and each construct were examined within the total sample and in each gender as well.

Problem solving as a moderator. Previous research has not yet examined problem solving as a moderator between reflection and depression. In order to examine whether reflection is adaptive or maladaptive under certain circumstances due to the hypothesized relationship between rumination and problem solving, a linear regression will be used to determine if problem solving moderates the relationship between reflection and depression. It is hypothesized that problem solving will moderate the relationship between reflection and depression.

Method

Participants

A power analysis was done through G*power to determine that approximately 150 people would be suffice to detect a moderate effect size with sufficient power ($b = .95$) (Faul, Erdfelder, Buchner, & Lang, 2009). A total of 151 participants 18 years old and older were recruited through Amazon Mechanical Turk (Mturk) from the United States. The sample was composed of 64 women (42.4%), and 87 men (57.7%). Participant's ages ranged from 19 to 69 ($M = 35.36$, $SD = 11.68$). The racial composition was as follows: White (78.1%), African American/Black (9.3%), Asian (7.3 %), Native American or Alaska Native (0.7%), Native Hawaiian or other Pacific Islander (0.7%), multiple races (3.3%), and none listed (0.7%). Additionally, 6.6% of the sample considered themselves to be Hispanic or Latino.

Procedure

Study procedures were approved by the University of Maine IRB (#2015-06-06). Please refer to Appendix B for the IRB approval. The current study was conducted through MTurk, an online labor market. Studies conducted through MTurk are low cost, have access to a large, diverse sample, and help to speed up the time between theory development and executing experiments (Mason & Suri 2012).

Participants who were at least 18 years of age were recruited over the course of one week through MTurk where they were invited to participate in a 45-minute online study in exchange for \$2.50. Participants were told that the goal of the study was to examine typical thought processes and emotions associated with mood states and were informed that they could cease participation at any time during the study. Participants completed 15 self-report measures through Qualtrics. Self-report measures included questions about depressive symptomatology, typical responses to depressed mood, emotion regulation, emotion processing, curiosity, problem-solving skills, mindfulness, positive and negative affect, self-esteem, and symptoms of anxiety. All of the self-report measures will be described in the measures section. At the end of the study, participants are given a list of international crisis hotlines that they can choose to call if they are feeling distressed.

Measures

Full measures can be found in the Appendix.

Demographic information

Participants were asked to provide demographic information including age, gender, race/ethnicity, and education.

Depression

The Beck Depression Inventory-II (BDI-II; Beck, Steer & Brown, 1996) is a 21-item self-report measure that is composed of items related to symptoms of depression, cognitions, and physical symptoms. Participants reported their current level of depression over the past two weeks, including the day they completed the measure, using a 0-3 scale for each item. The BDI-II has good internal consistency with alphas found to be ≥ 0.90 (Osman, Kopper, Barrios, Gutierrez, & Bagge, 2004).

Anxiety and Depression

The Mood and Anxiety Symptoms Questionnaire-Short Form (MASQ-SF; Watson & Clark, 1991) is a 62-item self-report measure that contains two depression scales (general distress: depressive symptoms and anhedonic depression) and two anxiety scales (general distress: anxious symptoms and anxious arousal). The measure assesses the tripartite model of depression and anxiety. This model groups symptoms into three groups: general distress, specific anxiety and specific depression. Participants rated each item on a scale ranging from 1 (not at all) to 5 (extremely) scale based on how they felt and what they experienced in the past week, including the day they participated. Reliability coefficients for all scales are found to be 0.80 or greater (Watson & Clark, 1991).

Response Styles

Self-reflection: Rumination-Reflection Questionnaire (RRQ). The Self-reflection: Ruminative-Reflection Questionnaire (RRQ; Trapnell & Campbell, 1999), is a 25-item self-report that measures negative recurrent thoughts. Within this scale, there are two subscales which are self-reflection and self-rumination. Participants rate each item on

a scale ranging from 1 (strongly disagree) to 5 (strongly agree). Alphas for reliability for both scales were found to be greater than 0.90 (Trapnell & Campbell, 1999).

Ruminative Response Scale (RRS). The Ruminative Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991) is a 22-item measure that assesses the extent to which an individual engages in two subtypes of rumination: reflection and brooding. Participants rated what they generally do using a scale ranging from 1 (almost never) to 4 (almost always). The alpha coefficient for the reflection scale was 0.72, while the brooding scale was 0.77 (Treyner et al., 2003). Brooding and reflection are derived from the RRS. Cronbach's alphas for the current study are 0.88 for brooding and 0.79 for reflection.

Curiosity and Exploration

The Curiosity and Exploration Inventory-II (CEI-II; Kashdan et al., 2009), is a 10-item self-report measure that assesses individual differences in the recognition, pursuit, and integration of novel and challenging experiences and information. The CEI-II is composed of two scales: stretching (seeking out new knowledge and experience) and embracing (embracing the nature of everyday life). Participants were asked to complete this measure about their general thoughts and feelings using a scale ranging from 1 (very slightly or not at all) to 5 (extremely). The reliability alpha for CEI-II stretching is 0.79, CEI-II embracing was 0.76 and the CEI-II total was 0.83 (Kashdan et al., 2009).

Emotion Regulation

The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) is a 10-item measure that assesses individual differences in the habitual use of two emotion regulation strategies: cognitive reappraisal and expressive suppression. Participants rated each item

about their emotional lives using a scale ranging from 1 (strongly disagree) to 5 (strongly agree). Gross and John (2003) found reliability alphas of 0.79 for cognitive reappraisal, 0.73 for expressive suppression, and 0.69 for the two scales combined.

Mindfulness

Five Facet Mindfulness Questionnaire (FFMQ). The Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer & Toney, 2006) is a 39-item self-report measure that examines five factors that appear to represent elements of mindfulness: observing, describing, acting with awareness, non-judging of inner experience, and non-reactivity to inner experience. Participants rated what is “generally true for them” using a scale ranging from 1 (never or very rarely true) to 5 (very often or always true). The five factors were found to have good internal consistency with alpha scores of 0.83 (observing), 0.91 (describing), 0.87 (acting with awareness), 0.87 non-judging of inner experience, and 0.75 (non-reactivity to inner experience) (Baer et al., 2006).

Kentucky Inventory of Mindfulness Skills (KIMS). The Kentucky Inventory of Mindfulness (KIMS; Baer, Smith, & Allen, 2004) is 39-item self-report measure that assesses four skills associated with mindfulness: observe, describe, act with awareness, and accept without judgment. Participants rated what is “generally true for them” using a scale ranging from 1 (never or very rarely true) to 5 (very often or always true). Alpha coefficients for the four facets measured were 0.91 (observe), 0.84 (describe), 0.83 (act with awareness), and 0.87 (accept without judgment) (Baer et al., 2004).

Philadelphia Mindfulness Scale (PHLMS). The Philadelphia Mindfulness Scale (PHLMS; Cardaciotto et al., 2008) is a 20-item self-report measure that assesses key

components of mindfulness, specifically, the measure was designed to tap either present-moment awareness or acceptance. Participants used a scale ranging from 1 (never) to 5 (very often) to indicate how frequently they experienced each item over the past week. Both subscales had Cronbach's alphas suggesting good internal consistency: 0.85 (awareness), and 0.90 (acceptance) (Cardaciotto et al., 2008).

Social Problem Solving

The Social Problem Solving Inventory-Revised (SPSI-R; D'Zurilla, Nezu & Maydeu-Olivares, 2002) is a 52-item self-report measure that examines both adaptive and maladaptive dimensions of problem solving: Positive Problem Orientation (PPO), Rational Problem Solving (RPS), Negative Problem Orientation (NPO), Impulsive-careless Style (ICS), and Avoidance Style (AS). Participants were asked to rate each item based on how they "usually think, feel, and act when faced with important problems". The SPSI-R uses a likert-type scale from 0 (not at all true) to (extremely true). Internal reliability was found to be good for the SPSI-R with an alpha of > 0.75 (Hawkins, Sofronoff, Sheffield, 2009).

Emotional Processing

The Emotional Approach Coping Scales (EACS; Stanton, Kirk, Cameron & Danoff-Burg, 2000) is a 4-item self-report measure used to measure constructs of emotional processing. Participants completed the measure about their usual behavior using a scale ranging from 1 (I usually don't do this at all) to 5 (I usually do this a lot). Cronbach's alpha was found to be 0.91 (Stanton et al., 2000).

Positive Affect

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) is a 20-item self-report measure that assesses an individual's positive and negative affect. Participants rated how they generally feel on a scale ranging from 1 (very slightly or not at all) to 5 (extremely). The reliability alphas for the PANAS were 0.86 for positive affect and 0.87 for negative affect (Watson et al., 1988).

Self-Esteem

The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) is a 10-item self-report measure that assesses feelings of self-worth and self-acceptance. It provides a straightforward measure of global self-esteem. Participants rated items on a scale ranging from 1 (strongly agree) to 4 (strongly disagree). Reliability for the RSES was found to be 0.82 (Rosenberg, 1965).

Results

Statistical Analyses

Correlational analyses were used to examine the relationship between reflection, brooding and the select theoretically related variables used in the study. Correlations were examined for the total sample and separately by gender for each construct. In addition, a linear regression was used to determine if rational problem solving moderated the relationship between ruminative subtypes – reflection and brooding - and depression, respectively. PROCESS was used to probe a significant interaction.

Means and standard deviations are presented in Table 3. The sample of 151 individuals was found to be minimally depressed, according to cutoff scores for the BDI-II (0-13 indicate minimal levels of depression). In terms of anxious arousal, measured with the MASQ-SF, the sample was on the lower end of the scale (mean=24) with the

highest possible score being 85 (higher the scores correspond to higher, anxious arousal). Additionally, anxious symptoms were measured with the MASQ-SF and the sample was also on the lower end of the scale (mean=18) with the highest possible score being 55 (the higher the score, the more anxious symptoms). Means and standard deviations of constructs are presented in Table 3 and 4.

Table. 3		
<i>Sample Descriptive Statistics</i>		
Construct (Measure used)	M	SD
Depression (BDI-II)	12.29	12.38
Brooding (RRS)	9.69	3.73
Reflection (RRS)	9.59	3.37
Self-Reflection (RRQ)	38.38	10.90
Self-Rumination (RRQ)	36.03	12.54
Anxious Arousal (MASQ-SF)	24.44	10.13
Anxious Symptoms (MASQ-SF)	18.87	8.19
Social Problem Solving Index (SPSIR-Index)	13.33	3.25
Self-esteem (RSES)	20.66	8.39
Positive Affect (PANAS-PA)	29.91	9.16
Negative Affect (PANAS-NA)	16.44	7.16
Curiosity/Exploration-Stretch (CEI-Stretch)	13.38	3.66
Curiosity/Exploration-Embrace (CEI-Embrace)	13.27	4.54
Emotion Processing (EACS)	10.64	3.29
Emotion Regulation (ERQ-Reappraisal)	28.75	7.18
Emotion Regulation (ERQ-Suppression)	14.71	6.03

Note: M = Mean; SD = Standard Deviation; BDI-II = Beck Depression Inventory-II; RRS = Ruminative Response Scale; RRQ = Self-Reflection: Rumination-Reflection Questionnaire; MASQ-SF = Mood and Anxiety Symptoms Questionnaire – Short Form; SPSIR-Index = Social Problem Solving Inventory – Index; RSES = Rosenberg Self-Esteem Scale; PANAS-PA = Positive and Negative Affect Schedule – Positive Affect; PANAS-NA = Positive and Negative Affect Schedule – Negative Affect; CEI-Stretch = Curiosity and Exploration Inventory – Stretch; CEI-Embrace = Curiosity and Exploration Inventory – Embrace; EACS = Emotional Approach Coping Scale; ERQ-Reappraisal = Emotion Regulation Questionnaire – Reappraisal; ERQ-Suppression = Emotion Regulation Questionnaire - Suppression

Table 4. <i>Sample Descriptive Statistics continued</i>		
Construct (Measure used)	M	SD
Observe (KIMS)	38.52	9.48
Describe (KIMS)	28.01	7.57
Awareness (KIMS)	33.46	5.87
Acceptance without Judgment (KIMS)	32.09	8.11
Observe (FFMQ)	25.58	6.62
Awareness (FFMQ)	30.03	6.63
Nonjudging of Inner Experience (FFMQ)	28.83	7.57
Nonreactivity of Inner Experience (FFMQ)	20.84	5.29
Describe (FFMQ)	27.43	7.50
Awareness (PHLMS)	33.76	7.64
Acceptance (PHLMS)	32.49	7.36

Note: M = Mean; SD = Standard Deviation; KIMS = Kentucky Inventory of Mindfulness Skills; FFMQ = Five Facet Mindfulness Questionnaire; PHLMS = Philadelphia Mindfulness Scale

Correlations

Total Sample

Reflection. In line with hypotheses, reflection was significantly positively correlated with emotional processing (EACS), depression (BDI-II), self-reflection (RRQ-Reflection), and certain aspects of problem solving: negative problem solving orientation (SPSIR-NPO), impulsive and careless problem solving (SPSIR-ICS), and avoidant problem solving (SPSIR-AS). In contrast with hypotheses, significant negative correlations were found between reflection and social problem solving (SPSI-R Index)

Please see Table 5 for correlations between reflection and emotional processing, depression, and self-reflection and Table 8 for problem solving correlations.

A positive association was hypothesized between reflection and mindfulness, and results were partially in line with this hypothesis. Significant positive correlations were found between reflection and several mindfulness subscales, specifically, KIMS and FFMQ observe and PHLMS awareness. Additionally, reflection was significantly negatively correlated with aspects of mindfulness, specifically FFMQ awareness, FFMQ non-judgment, KIMS awareness, and acceptance without judgment, and PHLMS acceptance. Correlations between reflection and mindfulness can be found in Tables 6 and 7.

In contrast with hypotheses, reflection was not positively associated with emotion regulation, curiosity and exploration, rational problem solving, positive problem orientation, or the social problem solving index. Although a relationship was not hypothesized, reflection was significantly positively correlated with brooding. Correlations between reflection and emotion regulation, and curiosity and exploration can be found in Table 5, while correlations between reflection and problem solving can be found in Table 8.

Also in contrast with hypotheses, reflection was not negatively associated with positive affect or self-esteem.

Brooding in comparison with reflection. While the aim of the current study was not to hypothesize about brooding and its associations, results are reported to compare to reflection. Brooding was found to be significantly positively correlated with self-rumination (RRQ-Rumination) ($r = 0.641$, $p < 0.001$), self-reflection (RRQ-Reflection),

and depression (see Table 5). Significant positive correlations were also found between brooding and the suppression strategy of emotion regulation (ERQ-Suppression) (see Table 5), negative affect ($r = 0.531$, $p < 0.001$), and self-esteem (see Table 9). Brooding was also significantly positively correlated with certain aspects of problem solving, specifically, impulsive and careless problem solving (SPSIR-ICS), avoidant problem solving (SPSIR-AS), and negative problem solving orientation (SPSI-NPO) (see Table 8).

Significant negative correlations were found between brooding and positive affect (see Table 9) and the appraisal strategy of emotion regulation (see Table 5). Additionally, significant negative correlations were found between brooding and both the embracing and stretching components of curiosity and exploration (CEI-embrace and CEI-stretch) (see Table 5). Brooding was also significantly negatively correlated with certain facets of mindfulness: FFMQ and KIMS Awareness, FFMQ non-judging, FFMQ non-reactivity, FFMQ and KIMS describe, KIMS acceptance without judgment, and PHLMS acceptance (see Tables 6 and 7). Finally, brooding was significantly negatively correlated with problem solving (SPSIR-Index), positive problem solving orientation (SPSI-PPO) and rational problem solving (SPSIR-RPS) (see Table 8). Brooding was not associated with FFMQ observe, PHLMS awareness, KIMS observe, and EACS (see Tables 6 and 7 for mindfulness correlations and Table 5 for EACS).

Associations by Gender

In males, a positive association was found between reflection and depression, $r = 0.339$, $p < 0.01$, while no association was found in females. In females there was a significant positive association found between reflection and rational problem solving

(SPSIR-RPS), $r = 0.293$, $p < 0.001$, while there was no association between reflection and rational problem solving in males. Significant positive associations were found in males between reflection and impulsive/careless problem solving, $r = 0.276$, $p = 0.01$, as well as avoidant problem solving, $r = 0.285$, $p < 0.01$, while no association was found between these constructs in females. Additionally, a significant negative association was found between reflection and the social problem solving index in males, $r = -0.247$, $p < 0.05$, while no association was found in females.

Differences were evident between males and females when considering the relationships with mindfulness. In males, significant positive associations were found between reflection and FFMQ observe, KIMS observe, and PHLMS awareness $r = 0.456$, $p < 0.001$; $r = 0.401$, $p < 0.001$; $r = 0.245$, $p < 0.05$, respectively. There were no associations found between reflection and FFMQ and KIMS observe or PHLMS awareness in females. A significant negative association was found between reflection and KIMS awareness in females, $r = -0.257$, $p < 0.05$, while no association was found in males.

Additional associations were found that mirrored results for the total sample. The association between reflection and emotional processing was found to be significant and positive in both men and women ($r = 0.428$, $p < 0.01$; $r = 0.336$, $p < 0.01$, respectively). Significant positive associations were also found between reflection and self-reflection in both men and women ($r = 0.378$, $p < 0.01$; $r = 0.465$, $p < 0.01$, respectively). Reflection was not associated with emotion regulation-suppression in men or women ($r = -0.110$, $p = 0.311$; $r = -0.098$, $p = 0.442$, respectively), or emotion regulation-reappraisal in men or women ($r = -0.036$, $p = 0.744$; $r = 0.037$, $p = 0.770$, respectively). Additionally, reflection

was not associated with curiosity and exploration-stretch in men or women ($r = -0.033$, $p = 0.763$; $r = 0.148$, $p = 0.243$, respectively), or curiosity and exploration-embrace in men or women ($r = 0.201$, $p = 0.062$; $r = 0.052$, $p = 0.684$, respectively).

Linear Regression

A linear regression was used to determine if rational problem solving moderates the relationship between reflection and depression. It was hypothesized that problem-solving would moderate the relationship between reflection and depression. Reflection and rational problem solving were entered into block 1 of the linear regression. The interaction between reflection and rational problem solving was entered into block 2 of the regression. All predictor variables were centered around their means (Aiken & West, 1991).

Both reflection and rational problem solving predicted depressive symptoms, $\beta = 0.287$, $p < 0.001$ and $\beta = -0.364$, $p < 0.001$, respectively. The interaction of reflection and rational problem solving was not statistically significant. Rational problem solving does not seem to moderate the relationship between reflection and depression. In terms of gender, rational problem solving did not seem to moderate the relationship between reflection and depression in males or females separately ($\beta = -0.101$, $p = 0.334$; $\beta = -0.050$, $p = 0.911$, respectively), as results were not significant. This could be because as two separate groups, the power was not great enough for results to be significant. Regressions for the total sample are reported in Tables 10 and 11.

A linear regression was used to determine if rational problem solving moderates the relationship between brooding and depression. Brooding and rational problem solving were entered into block 1 of the regression. The interaction between brooding and

rational problem solving was entered into block 2 of the linear regression. All predictor variables were centered around their means (Aiken & West, 1991). PROCESS was used to probe a significant interaction between brooding and rational problem solving. PROCESS is a software program that can be used to probe significant interactions in order to determine if those interactions remain significant at both one standard deviation above or below the mean.

Both brooding and rational problem solving were predictive of depressive symptoms ($\beta = 0.539, p < 0.001$ and $\beta = -0.263, p < 0.001$, respectively). The interaction of brooding and rational problem solving statistically predicted depressive symptoms. Rational problem solving did not seem to moderate the relationship between reflection and depression in males or females as separate groups ($\beta = -0.096, p = 0.256$; $\beta = -0.388, p = 0.183$, respectively). Tests of simple effects suggested that there was a positive relation between brooding and depression at low levels (1 SD below the mean) of rational problem solving, $b = 2.262, p < 0.001$, as well as high levels (1 SD above the mean) of rational problem solving, $b = 1.390, p < 0.001$.

Table 5.

Hypothesized Positive Correlations between Reflection and other Constructs in the Total Sample

Construct	1	2	3	4	5	6	7	8	9
1. Reflection	-	0.498**	0.255**	0.394**	0.018	-0.122	0.137	0.061	0.419**
2. Brooding	0.498**	-	0.578**	-0.058	-0.317**	0.190*	-0.183*	-0.324**	0.166*
3. BDI-II	0.255**	0.578**	-	-0.265**	-0.540**	0.354**	-0.272**	-0.462**	-0.073
4. EACS	0.394**	-0.058	-0.265**	-	0.319**	-0.258**	0.358**	0.490**	0.452**
5. ERQ-Reappraisal	0.018	-0.317**	-0.540**	0.319**	-	-0.355**	0.241**	0.401**	0.230**
6. ERQ-suppression	-0.122	0.190*	0.354**	-0.258**	-0.355**	-	-0.207*	-0.223**	-0.193*
7. CEI-embrace	0.137	-0.183*	-0.272**	0.358**	0.241**	-0.207*	-	0.600**	0.343**
8. CEI-Stretch	0.061	-0.324**	-0.462**	0.490**	0.401**	-0.223**	0.600**	-	0.411**
9. RRQ-Reflection	0.419**	0.166*	-0.073	0.452**	0.230**	-0.193*	0.343**	0.411**	-

Note: BDI-II = Beck Depression Inventory-II; EACS = Emotional Approach Coping Scale; ERQ-Reappraisal = Emotion Regulation Questionnaire – Reappraisal; ERQ-Suppression = Emotion Regulation Questionnaire – Suppression; CEI-Embrace = Curiosity and Exploration Inventory – Embrace CEI-Stretch = Curiosity and Exploration Inventory – Stretch; RRQ = Self-Reflection; Rumination-Reflection Questionnaire * $p < 0.05$, ** $p < 0.01$

Construct	1	2	3	4	5	6
1. Reflection	-	0.498**	0.275**	-0.209*	-0.340**	0.048
2. Brooding	0.498**	-	-0.042	-0.405**	-0.575**	-0.270**
3. KIMS Observe	0.275**	-0.042	-	0.220**	-0.103	0.513**
4. KIMS Awareness	-0.209*	-0.405**	0.220**	-	0.395**	0.431**
5. KIMS Acceptance without judgment	-0.340**	-0.575**	-0.103	0.395**	-	0.352**
6. KIMS Describe	0.048	-0.270**	0.513**	0.431**	0.352**	-

Note: KIMS = Kentucky Inventory of Mindfulness Skills. * $p < 0.05$, ** $p < 0.01$

Table 9.				
<i>Hypothesized Negative Correlations between Reflection and other Constructs in the Total Sample</i>				
	1	2	3	4
1. Reflection	-	0.498**	-0.19	0.030
2. Brooding	0.498**	-	-0.408**	0.318**
3. PANAS-PA	-0.19	-0.408**	-	-0.587**
4. RSES-(Self-Esteem)	0.030	0.318**	-0.587**	-

Note: PANAS-PA = PANAS-PA= Positive and Negative Affect Schedule – Positive Affect; RSES = Rosenberg Self-Esteem Scale. * $p < 0.05$, ** $p < 0.01$

Table 10.				
<i>Rational Problem Solving as a Moderator between Reflection and Depression in the Total Sample</i>				
Step	Variable	β	t	Adjusted R ²
1	Reflection	0.287	3.826	0.19
1	SPSI-R-RPS	-0.364	-4864	0.19
2	SPSI-R-RPS x Reflection	-0.084	0.283	0.20

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Table 11. <i>Rational Problem Solving as a Moderator between Brooding and Depression in the Total Sample</i>				
Step	Variable	β	t	Adjusted R ²
1	Brooding	0.539	8.278	0.39
1	SPSI-R-RPS	-0.263	-4.043	0.39
2	SPSI-R-RPS x Brooding	-0.131	-2.048*	0.41

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Discussion

The goal of the current study was to advance our understanding of reflection, defined as “a tendency to try to understand the reasons for one’s mood” by Treynor et al. (2003), a proposed subtype of rumination. Prior research indicates that reflection has inconsistent associations with related constructs like depression and mindfulness. Previous research has found that reflection is significantly positively correlated with depression (Takano & Tanno, 2009; Burwell & Shirk, 2007; Chan et al., 2009; O’Connor & Noyce, 2008; Cox et al., 2012; Whitmer & Gotlib, 2011; Raes & Hermans, 2008; Rose & Weir, 2012; Pearson et al., 2010; Schoofs et al., 2010). While the results of the current correlational analysis are consistent with previous research, other studies have found a negative relationship (Lo et al., 2008; Marroquin et al., 2010).

There are several possible explanations for the previous findings that have shown a negative relationship between depression and reflection. One factor might be that the level of depression effects how easy it is to distinguish between brooding and reflection

(Whitmer & Gotlib 2011). In individuals who are not depressed, reflection may be adaptive and easily distinguished from brooding which is maladaptive. In those who are depressed, both brooding and reflection may be maladaptive. This makes it harder to distinguish between the two constructs in individuals who are depressed.

Another factor that may lead to mixed findings with the association between reflection and depression may be due to the influence of gender. A majority of the studies that have examined the relationship between reflection and depression have been comprised of mostly female samples, whether they are an undergraduate, community, or clinical sample (Burwell & Shirk 2007; O'Connor & Noyce 2008; Cox et al., 2012; Whitmer & Gotlib 2011; Raes & Hermans 2008; Rose & Weir 2012; Pearson et al., 2010; Schoofs et al., 2010; Lo et al., 2008; Marroquin et al., 2010). Treynor et al. (2003) found that women engage in brooding more often than men. Due to the fact that reflection is a subtype of rumination, Treynor and colleagues proposed that women may tend to reflect more than men, but in women this reflection leads to brooding, thus leading to more depressive symptoms. According to the Response Styles Theory (1991), women tend to experience depression and depressive symptoms more often than men. This, in turn, could be where some of the inconsistencies with results lie. In men, reflection may not lead to brooding as it may do for women, but this could be a result of previous studies examining mostly female samples. If samples were composed of mostly men, or were equal in gender distribution, results may differ, as they did in the current study. Perhaps men do brood as much as women, but it has not yet been examined, because the previous samples were mostly female.

In the current study, there was a significant positive association between reflection and depression in males, but not in females. This is interesting considering that many of the previous studies are composed of mostly women and have found a positive relationship between reflection and depression (Burwell & Shirk 2007; O'Connor & Noyce 2008; Cox et al., 2012; Whitmer & Gotlib 2011; Raes & Hermans 2008; Rose & Weir 2012; Pearson et al., 2010; Schoofs et al., 2010; Lo et al., 2008; Marroquin et al., 2010). The results of the current study could be due to the fact that men may not want to report the extent to which they brood, but may report more of their reflecting habits. Although they may not know the difference between the two, the wording may affect the way in which they answer. Perhaps men look at the items and believe those under the brooding category are “bad” while the reflection items are “good”. This could mean that men brood as much as women, but they may not report it as much as women do. If men are brooding, this could lead to depression, as Treynor et al. (2003) suggests. The relationship between reflection and depression should be examined further in males and females as separate groups in order to gain a better understanding of the relationship between reflection and depression. Looking at this relationship longitudinally and in different samples (i.e. clinical, adult, undergraduate) would help to gain a better understanding of if and when the relationship differs in men and women.

Differences in methodological approaches might influence the inconsistent findings between reflection and depression. Cross-sectional studies that have examined the association between reflection and depression have found positive associations between reflection and depression (Chan et al., 2009; Whitmer & Gotlib, 2011; Raes & Hermans, 2008; Schoofs et al., 2010; Marroquin et al., 2010; Burwell & Shirk, 2007;

O'Connor & Noyce, 2008; Cox et al., 2012); with the exception of one study which found a negative association between reflection and depression (Lo et al., 2008). Unlike the other studies, Lo et al. (2008) examined a sample of students as well as a smaller number (n=38) of individuals who had depressive disorders all from Japan. Each of the other studies had samples from the United States or Europe, which might account for the different results.

Longitudinal studies have found a positive association between reflection and depression where Time 1 reflection predicted Time 2 depression (Pearson et al., 2010; Treynor et al., 2003). Another longitudinal study found that Time 2 reflection negatively predicted Time 2 depression (high reflection predicted low depression) (Takano & Tanno, 2009). Different methodological approaches (correlational compared to longitudinal) may provide some insight in regards to the mixed findings.

The current study had almost an equally divided sample of men and women, with slightly more men (57.7%) and examined associations using a cross-sectional design. The results are similar to what most studies have found when looking at the total sample: a positive association between reflection and depression. The current study examined the association between reflection and depression in the total sample as well as in men and women separately, while previous studies have examined the association within the total samples. This sample was comprised of mostly men, while most of the previous studies examining the relationship between reflection and depression have been mostly women. Due to the fact that the sample was comprised of more men than women, results can be generalized to men, as opposed to previous studies that could generalize to women.

Reflection and Mindfulness

With respect for mindfulness, we predicted that reflection would be positively associated with mindfulness. Partial support was found for this hypothesis. Reflection was positively correlated with some aspects of mindfulness while it was negatively correlated with others. The current findings are consistent with previous research where some studies have found a positive relationship with reflection and mindfulness (Cardaciotto et al., 2008), while other studies found a negative relationship or no relationship at all (Brennan et al., 2015; Feldman et al., 2014).

The present study also found significant positive associations with reflection and the FFMQ observe and the KIMS observe subscales. The observe subscales measure the extent to which individuals notice or attend to internal phenomena and external stimuli. The current study also found a significant positive relationship between reflection and the PHLMS Awareness subscale. The awareness subscale examines the extent to which individuals are monitoring their current experiences. Cardaciotto et al. (2008) also found that reflection was significantly positively correlated with the Philadelphia Mindfulness Awareness subscale in a sample of nonclinical students.

The results from this study also found a significant negative relationship between reflection and the FFMQ non-judgment scale. This scale examines the extent to which individuals accept experiences without labels (good/bad) and accept reality for what it is without trying to change it. The results are in line with Feldman et al. (2014) who found in an undergraduate sample that reflection was significantly negatively correlated with the FFMQ non-judgment subscale.

In contrast with hypotheses, significant negative correlations were found between reflection and the FFMQ awareness, KIMS awareness, KIMS acceptance, KIMS describe, and PHLMS acceptance subscales.

Overall in line with prior research, the current study has found reflection to be associated with different facets of mindfulness in different ways. Although reflection was hypothesized to be positively associated with mindfulness, patterns did emerge with the results. Reflection was positively associated with the observe subscales, and negatively associated with the acceptance and nonjudgment scales from two different measures of mindfulness. In terms of awareness, reflection was significantly negatively correlated with two of the three scales used, and a positive association was found with the third scale. These results suggest that individuals who engage in reflection may notice what is happening around them as well as in their bodies (observe), but they may not be able to monitor those experiences (awareness), accept them without labeling them (nonjudging), or accept them as reality (nonjudging). Perhaps reflection allows individuals to make that first step in becoming aware of their experiences (observe), but they may not take it further (awareness, nonjudgment, acceptance).

Mindfulness and reflection by gender. When looking at the associations between reflection and the different facets of mindfulness between the genders, there were some notable differences. Significant positive associations were found between reflection and FFMQ observe, KIMS observe, and PHLMS awareness in men, while no associations were found in women. In the overall sample, these associations were also significant and positive. Additionally, there was a significant negative association found between reflection and KIMS awareness in women, while there was no association in

men. In the overall sample, this association was also significant and negative. These results are in line with the overall sample as well as previous studies, in which results were mixed when looking at the association between reflection and mindfulness. When comparing the two genders, perhaps men who reflect, tend to engage in the observing and awareness facets of mindfulness more often than women. As mentioned previously, there seems to be a pattern emerging with the association between reflection and certain aspects of mindfulness. Reflection was positively associated with the observe subscales, and negatively associated with the acceptance and nonjudgment scales. In addition, reflection was negatively correlated with two of the three awareness subscales. Perhaps there would have been more significant associations found if the sample was larger. When separating the two groups, there may not be enough power to show significant relationships.

Reflection and Emotion Processing

Emotion processing defined as the ability to face distressing emotions (Rude et al., 2007) was hypothesized to be positively correlated with reflection because it is in line with Treynor et al.'s (2003) definition of reflection. Results were consistent with this hypothesis. To our knowledge, this study is the first to examine the relationship between reflection and emotion processing, and results provide support for Treynor et al.'s (2003) conceptualization of reflection as the more adaptive subtype of rumination. Individuals who engage in reflection are able to face distressing emotions (emotional processing), as can be inferred from this positive association. Emotional processing may be an opposite of rumination. When one engages in rumination, the individual becomes focused on their

depressed or sad moods, while emotional processing would involve the ability to face and handle the sad moods.

Reflection, Self-esteem and Positive Affect

In contrast with hypotheses, reflection was not associated with self-esteem, or positive affect. The results were inconsistent with previous findings, which found that reflection was negatively associated with positive affect (Verstraeten et al., 2011) and self-esteem (Rude et al., 2007). The discrepancy might be due to differences in the samples. Verstraeten et al. (2011) had a sample of children and Rude et al. (2007) had a sample of undergraduate students while the current study had a sample of adults from the United States. There is scant research examining these relationships and it is suggested that further research be conducted in order to validate findings.

Reflection, Emotion Regulation and Curiosity and Exploration

Based on Treynor et al.'s (2003) definition of reflection, it was predicted that emotion regulation and curiosity and exploration would be positively associated with reflection. Results were not in line with predictions. The results of the current study found that reflection was not related to any of these constructs. Perhaps individuals who engage in reflection are able to face distressing emotions (emotional processing), but they may not be able to examine their response and reinterpret the situation (emotion regulation). In addition, perhaps those who engage in reflection do not seek out and integrate new or challenging experiences, but also do not shut them out completely.

Reflection and Problem-solving

While reflection was associated with problem solving, it was not associated with adaptive problem solving as predicted. Reflection was found to be significantly positively

correlated with the negative problem solving orientation (SPSIR-NPO), impulsive and careless problem solving (SPSIR-ICS), and avoidant problem solving (SPSIR-AS). In contrast, reflection was negatively correlated with the social problem solving index which is the total score for the Social Problem Solving Inventory – Revised as well as rational problem solving. According to the RST (1991), individuals who ruminate may be less likely to engage in active problem solving. Because reflection is considered a subtype of rumination, this could be a possible explanation for the results of the current study in terms of the relationship between reflection and problem solving. These results are in contrast with results found by Hasegawa et al. (2015), who found reflection was significantly positively associated with positive problem orientation and rational problem solving. Perhaps these conflicting results are due to the samples in each of the studies. While both samples had an average BDI-II score considered to be in the minimal depression range, Hasegawa (2015) used a nonclinical undergraduate sample from Japan while the current study used a community sample of adults from the United States.

Reflection, problem solving, and gender. When looking at the associations between reflection and problem solving in men and women, there were also notable differences. There was a significant positive association between reflection and rational problem solving found in women, while there was no association found in men. This relationship was significant but negative in the overall sample. There was a significant negative association between reflection and the social problem solving index in men, while there was no association found in women. This mirrored the association found in the overall sample. Additionally, there were significant positive associations found between reflection and impulsive/careless problem solving and reflection and avoidance

style problem solving in men, while there were no associations found in women. These associations were also significant and positive in the overall sample. It may be that men who reflect have a better overall ability to problem solve (i.e. the social problem solving index score would be higher for men than women), but they may approach their problems with a more negative outlook than women. On the other hand, women who reflect may engage in more rational problem solving than men do. Again, when considering these associations, the sample may not have had enough power to show significant relationships and the results may have been different with a larger sample.

Brooding as Compared to Reflection

When compared to reflection, brooding had a stronger positive relationship with depression, as well as stronger negative correlations with mindfulness and positive affect. Reflection was not associated at all with positive affect and findings were mixed with mindfulness, as previously mentioned. Finally, brooding had stronger associations with the negative facets of social problem solving when compared to reflection. These associations between brooding and related constructs are in line with previous findings, supporting the theory that brooding is a more maladaptive subtype of rumination (Treyner et al., 2008; Burwell & Shirk 2007; Verstraeten et al., 2011, Miranda & Nolen-Hoeksema 2007; Chan et al., 2009; Crane et al., 2007, Feldman et al., 2014; Moberly & Watkins 2008).

Rational Problem Solving, Reflection, and Depression

In contrast with hypotheses, rational problem solving did not moderate the relationship between reflection and depression, as the hierarchical multiple regression was non-significant. However, rational problem solving did moderate the relationship

between brooding and depression. Brooding and depression had a positive relationship at both high and low levels of rational problem solving, but the relationship was stronger at lower levels of rational problem solving. Brooding predicted depression regardless of an individual's problem solving ability. This provides further support for brooding as the more maladaptive subtype of rumination and provides further support for the two ruminative subtypes, since problem solving did not moderate the relationship between reflection and depression. As previously mentioned, the RST (1991) suggests that rumination affects problem solving in negative ways. Individuals may not engage in active problem solving if they are ruminators. In addition, they may be less likely to implement solutions to their problems and these two factors together could contribute to more depression or depressive symptoms (Nolen-Hoeksema 1991; Lyubomirsky et al., 1999; Hasegawa et al., 2015). Because both reflection and brooding are subtypes of rumination, it would be expected that problem solving would moderate both relationships between the subtypes and depression. Results might be due to the fact that brooding had stronger relationships with the negative facets of problem solving than reflection did. It could also be due to the fact that certain negative facets of problem solving (avoidant and negative problem orientation) may not be viewed as negative or have negative results for those who engage in reflection as opposed to brooding. In line with Treynor et al.'s (2003) definition of reflection, individuals who are reflectors may engage in these facets of problem solving, without the negative outcomes that would occur with brooding. Another possibility is that gender may moderate the relationship between reflection and depression. According to the Response Styles Theory (1991) women engage in rumination more often than men and experience more depressive symptoms. Perhaps

women engage in reflection more often than men and maybe this leads to more depressive symptoms. In contrast when men engage in reflection, this may lead to depressive symptoms, but less so than for women. The association between reflection and problem solving should be examined further to determine other potential moderators.

The significant positive correlations between reflection, emotion processing, and aspects of mindfulness, suggest that reflection is an adaptive construct. On the other hand, reflection was also correlated positively with depression and negative aspects of problem solving, which may support the notion that reflection is a maladaptive construct. This could vary depending on gender and if these associations were examined longitudinally instead of using a correlational design. In the current study, however, reflection may be both adaptive and maladaptive.

Study Strengths

The current study used a theoretically based approach to examining reflection. As such, this study examined variables that have not yet been examined explicitly with reflection including, problem solving, emotion regulation, curiosity/exploration, and emotional processing. The study was well-powered and comprised of a large, diverse sample from the United States population, which increases the external validity of the results. Racial percentages from this study are close to the breakdown of race for the United States and are representative of the population: White (77.4%), African American/Black (13.2%), Asian (5.4%), Native American or Alaska Native (1.2%), Native Hawaiian or other Pacific Islander (0.2%), multiple races (2.5%), Hispanic or Latino (17.4%) (United States Census Bureau 2014).

Study Limitations

Several important limitations should be noted. The primary limitation was the cross-sectional study design. A longitudinal study would help to provide insight as to when reflection is adaptive and or maladaptive and if it remains stable over time, or if its associations change over time. For example, a longitudinal design could be used to see if reflection predicted less depression over time. Similarly, main analyses were correlations, which do not allow inferences about causation, although they do provide further understanding of reflection. Another limitation with this study is due to the nature of self-report measures. There could have been social desirability biases and demand characteristics that came into play when participants were responding to the measures. Additionally, although there was a large sample, this study was limited to participants from the U.S. The sample was composed of community subjects and not a clinical sample which leads to limited generalizability. In addition, MTurk Workers have also been found to be more “logically consistent in their decisions” than laboratory subjects (Mason & Suri, 2012). While workers are found on most continents, a majority are from the United States and India and tend to be younger than thirty, “overeducated, underemployed and more liberal than the general population” (Paolacci & Chandler, 2014). In addition, workers on MTurk may answer questions to certain measures based on their experiences and participation with previous studies (Paolacci & Chandler 2014).

Future Directions

The current study has provided further understanding about the nature of reflection through examining constructs that have not been looked at with reflection. The results of this study are in line with results from previous studies, in which there are mixed results with reflection and its associations. The present study supports the findings

of Rude et al. (2007), suggest that the content of the reflection items needs to be examined further, in order to better understand what the reflection subscale is measuring. This would give insight into mixed findings. This study examined current depressive symptoms, and other constructs using a cross-sectional design. A suggestion for further research would be to look at reflection and these constructs longitudinally as well as within a lab. Perhaps the results of a study that does such would be different and in line with what Treynor and colleagues (2003) found. Further suggestions would be to examine reflection and its related constructs with women and men as separate groups. Treynor et al. (2003) also found that women tend to ruminate more than men and they suggest that perhaps reflection can become contemplative and become brooding, which could lead to more depression among women. This could also be examined within a longitudinal study. Further research examining reflection and its association with different types or styles of problem solving would also be suggested. A laboratory study could be conducted with individuals who score high on reflection, in which researchers bring in subjects and have them complete a problem solving task. This would further examine the relationship between reflection and problem solving. Comparing these results to brooding would be interesting as well. Finally, looking at reflection and its associations with a clinical sample would also shed more light on reflection and its adaptive and maladaptive nature.

The present study has found support for both adaptive and maladaptive natures of reflection. With the current findings, reflection is a construct that needs further examination. A better understanding of reflection and brooding would give clinicians an opportunity to isolate brooding and reflecting tendencies within their clients. The current

study has helped to shed light on the positive and negative aspects of reflection and it further expands our knowledge of this construct.

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Appendix A

Measures

Demographic Information

To start with, we would like to get some background information from you.

1. What is your age? ____ 2. Gender? _____ 3. What is your date of birth? __/__/__

4. What is your current marital situation (please check one)?

____ Married ____ Separated ____ Never married/Single
 ____ Common law marriage ____ Divorced ____ Widowed

5. Do you consider yourself to be Hispanic or Latino (see definition below)? ☐ Yes ☐ No

Hispanic or Latino. A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture of origin, regardless of race.

6. Do you consider yourself to be Franco-American (see definition below)? ☐ Yes ☐ No

Hispanic or Latino. A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture of origin, regardless of race.

7. What is your race? (please check one)

- | | |
|--|---|
| <input type="checkbox"/> Native American or Alaska Native | A person having origins in any of the original peoples of North, Central, or South America. |
| <input type="checkbox"/> Asian | A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam. |
| <input type="checkbox"/> Black or African American | A person having origins in any of the black racial groups of Africa. |
| <input type="checkbox"/> Native Hawaiian or Other Pacific Islander | A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. |
| <input type="checkbox"/> White | A person having origins in any of the original peoples of Europe, the Middle East, or North Africa. |
| <input type="checkbox"/> Multiple races | |

☐ None of the above

7. What is the highest grade in school you have completed (please check one)?

_____ Less than High School (**record actual grade**)

_____ High School

_____ 1 year of college or technical school

_____ 2 or more years of college but did not graduate

_____ 4 years of college with degree

_____ Postgraduate, M.D., Ph.D.

_____ A.A. or other degree that is not a B.A. or B.S.

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Bubble in the number beside the statement you have picked. If several statements in the groups seems to apply equally well, bubble in the highest number for that group. Be sure that you do not choose more than one statement for any group, including 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness

- (0) I do not feel sad.
- (1) I feel sad much of the time.
- (2) I am sad all the time.
- (3) I am so sad or unhappy that I can't stand it.

2. Pessimism

- (0) I am not discouraged about my future.
- (1) I feel more discouraged about my future than I used to be.
- (2) I do not expect things to work out for me.
- (3) I feel my future is hopeless and will only get worse.

3. Past Failure

- (0) I do not feel like a failure
- (1) I have failed more than I should have.
- (2) As I look back, I see a lot of failures.
- (3) I feel I am a total failure as a person.

4. Loss of Pleasure

- (0) I get as much pleasure as I ever did from the things I enjoy.
- (1) I don't enjoy things as much as I used to.
- (2) I get very little pleasure from the things I used to enjoy.
- (3) I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

- (0) I don't feel particularly guilty.
- (1) I feel guilty over many things I have done or should have done.
- (2) I feel quite guilty most of the time.
- (3) I feel guilty all of the time.

6. Punishment Feelings

- (0) I don't feel like I am being punished.
- (1) I feel I may be punished.
- (2) I expect to be punished.
- (3) I feel I am being punished.

7. Self-Dislike

- (0) I feel the same about myself as ever.
- (1) I have lost confidence in myself.
- (2) I am disappointed with myself.
- (3) I dislike myself.

8. Self-criticalness

- (0) I don't criticize or blame myself more than usual.
- (1) I am more critical of myself than I used to be.
- (2) I criticize myself for all of my faults.
- (3) I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

- (0) I don't have any thoughts of killing myself.
- (1) I have thoughts of killing myself, but I would not carry them out.
- (2) I would like to kill myself.
- (3) I would kill myself if I had the chance.

10. Crying

- (0) I don't cry anymore than I used to.
- (1) I cry more than I used to.
- (2) I cry over every little thing.
- (3) I feel like crying, but I can't

1. Agitation

- (0) I am no more restless or wound up than usual.
- (1) I feel more restless or wound up than usual.
- (2) I am so restless or agitated that it's hard to stay still.
- (3) I am so restless or agitated that I have to keep moving or doing something.

2. Loss of Interest

- (0) I have not lost interest in other people or activities.
- (1) I am less interested in other people or things than before.
- (2) I have lost most of my interest in other people or things.
- (3) It's hard to get interested in anything.

3. Indecisiveness

- (0) I make decisions about as well as ever.
- (1) I find it more difficult to make decisions than usual.
- (2) I have much greater difficulty in making decisions than I used to.
- (3) I have trouble making any decisions.

4. Worthlessness

- (0) I do not feel I am worthless.
- (1) I don't consider myself as worthwhile and useful as I used to.
- (2) I feel more worthless as compared to other people.
- (3) I feel utterly worthless.

5. Loss of Energy

- (0) I have as much energy as ever.
- (1) I have less energy than I used to have.
- (2) I don't have enough energy to do very much.
- (3) I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

(also circle a or b where appropriate)

- (0) I have not experienced any change in my sleeping pattern.
- (1) a. I sleep somewhat more than usual.
b. I sleep somewhat less than usual.
- (2) a. I sleep a lot more than usual.
b. I sleep a lot less than usual.
- (3) a. I sleep most of the day.
b. I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

- (0) I am no more irritable than usual.
- (1) I am more irritable than usual.
- (2) I am much more irritable than usual.
- (3) I am irritable all the time.

18. Changes in Appetite

(also circle a or b where appropriate)

- (0) I have not experienced any change in my appetite.
- (1) a. My appetite is somewhat less than usual.
b. My appetite is somewhat greater than usual.
- (2) a. My appetite is much less than usual.
b. My appetite is much greater than usual.
- (3) a. I have no appetite at all.
b. I crave food all the time.

19. Concentration Difficulty

- (0) I can concentrate as well as ever.
- (1) I can't concentrate as well as usual.
- (2) It's hard to keep my mind on anything for very long.
- (3) I find I can't concentrate on anything.

20. Tiredness or Fatigue

- (0) I am no more tired or fatigued than usual.
- (1) I get tired or fatigued more easily than usual.
- (2) I am too tired or fatigued to do a lot of the things I used to do.
- (3) I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

- (0) I have not noticed any recent change in my interest in sex.
- (1) I am less interested in sex than I used to be.
- (2) I am much less interested in sex now.
- (3) I have lost interest in sex completely.

Below is a list of feelings, sensations, problems, and experiences that people sometimes have. Read each item and then mark the appropriate choice in the space next to that item. Use the choice that best describes how much you have felt or experienced things this way during the past week, including today.

- 1 = Not at all
- 2 = A little bit
- 3 = Moderately
- 4 = Quite a bit
- 5 = Extremely

- 1. Felt Sad
- 2. Startled easily
- 3. Felt cheerful
- 4. Felt afraid
- 5. Felt discouraged
- 6. Hands were shaky
- 7. Felt optimistic
- 8. Had diarrhea
- 9. Felt worthless
- 10. Felt really happy
- 11. Felt nervous
- 12. Felt depressed
- 13. Was short of breath
- 14. Felt uneasy
- 15. Was proud of myself
- 16. Had a lump in my throat
- 17. Felt faint
- 18. Felt unattractive
- 19. Had hot or cold spells
- 20. Had an upset stomach
- 21. Felt like a failure
- 22. Felt like I was having a lot of fun
- 23. Blamed myself for a lot of things
- 24. Hands were cold or sweaty
- 25. Felt withdrawn from other people
- 26. Felt keyed up, "on edge"
- 27. Felt like I had a lot of energy
- 28. Was trembling or shaking
- 29. Felt inferior to others
- 30. Had trouble swallowing
- 31. Felt like crying
- 32. Was unable to relax
- 33. Felt really slowed down
- 34. Was disappointed in myself

35. Felt nauseous
36. Felt hopeless
37. Felt dizzy or lightheaded
38. Felt sluggish or tired
39. Felt really “up” or lively
40. Had pain in my chest
41. Felt really bored
42. Felt like I was choking
43. Looked forward to things with enjoyment
44. Muscles twitched or trembled
45. Felt pessimistic about the future
46. Had a very dry mouth
47. Felt like I had a lot of interesting things to do
48. Was afraid I was going to die
49. Felt like I had accomplished a lot
50. Felt like it took extra effort to get started
51. Felt like nothing was very enjoyable
52. Heart was racing or pounding
53. Felt like I had a lot to look forward to
54. Felt numbness or tingling in my body
55. Felt tense or “high-strung”
56. Felt hopeful about the future
57. Felt like there wasn’t anything interesting or fun to do
58. Seemed to move quickly and easily
59. Muscles were tense or sore
60. Felt really good about myself
61. Thought about death or suicide
62. Had to urinate frequently

Instructions

For each of the following statements, rate your level of agreement using the following scale:

- 1= Strongly disagree
- 2= Disagree
- 3= Neutral
- 4= Agree
- 5= Strongly agree

Items

Rumination

1. My attention is often focused on aspects of myself I wish I'd stop thinking about.
2. I always seem to be rehashing in my mind recent things I've said or done.
3. Sometimes it is hard for me to shut off thoughts about myself.
4. Long after an argument or disagreement is over with, my thoughts keep going back to what happened.
5. I tend to "ruminate" or dwell over things that happen to me for a really long time afterward.
6. I don't waste time rethinking things that are over and done with.
7. Often I'm playing back over in my mind how I acted in a past situation.
8. I often find myself reevaluating something I've done.
9. I never ruminate or dwell on myself for very long.
10. It is easy for me to put unwanted thoughts out of my mind.
11. I often reflect on episodes in my life that I should no longer concern myself with.
12. I spend a great deal of time thinking back over my embarrassing or disappointing moments.

Reflection

13. Philosophical or abstract thinking doesn't appeal to me that much.
14. I'm not really a meditative type of person.
15. I love exploring my "inner" self.
16. My attitudes and feelings about things fascinate me.
17. I don't really care for introspective or self-reflective thinking.
18. I love analyzing why I do things.
19. People often say I'm a "deep," introspective type of person.
20. I don't care much for self-analysis.
21. I'm very self-inquisitive by nature.
22. I love to meditate on the nature and meaning of things.
23. I often love to look at my life in philosophical ways.
24. Contemplating myself isn't my idea of fun.
25. Reverse-scored item

People think and do many different things when they feel depressed. Please read each of the items below and indicate whether you almost never, sometimes, often, or almost 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 = Almost Never

2 = Sometimes

3 = Often

4 = Almost Always

- 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

Instructions: Rate the statements below for how accurately they reflect the way you generally feel and behave. Do not rate what you think you should do, or wish you do, or things you no longer do. Please be as honest as possible.

- 1 = Very Slightly or Not at All
- 2 = A Little
- 3 = Moderately
- 4 = Quite A Bit
- 5 = Extremely

1. I actively seek as much information as I can in new situations.
2. I am the type of person who really enjoys the uncertainty of everyday life.
3. I am at my best when doing something that is complex or challenging.
4. Everywhere I go, I am out looking for new things or experiences.
5. I view challenging situations as an opportunity to grow and learn.
6. I like to do things that are a little frightening.
7. I am always looking for experiences that challenge how I think about myself and the world.
8. I prefer jobs that are excitingly unpredictable.
9. I frequently seek out opportunities to challenge myself and grow as a person.
10. I am the kind of person who embraces unfamiliar people, events, and places.

Five Facet Mindfulness Questionnaire

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

- 1 = never or very rarely true
 2 = rarely true
 3 = sometimes true
 4 = often true
 5 = very often or always true

- _____ 1. When I'm walking, I deliberately notice the sensations of my body moving.
- _____ 2. I'm good at finding words to describe my feelings.
- _____ 3. I criticize myself for having irrational or inappropriate emotions.
- _____ 4. I perceive my feelings and emotions without having to react to them.
- _____ 5. When I do things, my mind wanders off and I'm easily distracted.
- _____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.
- _____ 7. I can easily put my beliefs, opinions, and expectations into words.
- _____ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
- _____ 9. I watch my feelings without getting lost in them.
- _____ 10. I tell myself I shouldn't be feeling the way I'm feeling.
- _____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
- _____ 12. It's hard for me to find the words to describe what I'm thinking.
- _____ 13. I am easily distracted.
- _____ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.

Kentucky Inventory of Mindfulness Skills

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1 = Never or very rarely true

2 = Rarely true

3 = Sometimes true

4 = Often true

5 = Very often or always true

- _____ 1. I notice changes in my body, such as whether my breathing slows down or speeds up.
- _____ 2. I'm good at finding the words to describe my feelings.
- _____ 3. When I do things, my mind wanders off and I'm easily distracted.
- _____ 4. I criticize myself for having irrational or inappropriate emotions.
- _____ 5. I pay attention to whether my muscles are tense or relaxed.
- _____ 6. I can easily put my beliefs, opinions, and expectations into words.
- _____ 7. When I'm doing something, I'm only focused on what I'm doing, nothing else.
- _____ 8. I tend to evaluate whether my perceptions are right or wrong.
- _____ 9. When I'm walking, I deliberately notice the sensations of my body moving.
- _____ 10. I'm good at thinking of words to express my perceptions, such as how things taste, smell, or sound.
- _____ 11. I drive on "automatic pilot" without paying attention to what I'm doing.
- _____ 12. I tell myself that I shouldn't be feeling the way I'm feeling.
- _____ 13. When I take a shower or bath, I stay alert to the sensations of water on my body.
- _____ 14. It's hard for me to find the words to describe what I'm thinking.
- _____ 15. When I'm reading, I focus all my attention on what I'm reading.
- _____ 16. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.
- _____ 17. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
- _____ 18. I have trouble thinking of the right words to express how I feel about things.
- _____ 19. When I do things, I get totally wrapped up in them and don't think about anything else.
- _____ 20. I make judgments about whether my thoughts are good or bad.
- _____ 21. I pay attention to sensations, such as the wind in my hair or sun on my face.
- _____ 22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.
- _____ 23. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
- _____ 24. I tend to make judgments about how worthwhile or worthless my experiences are.
- _____ 25. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.

- _____ 26. Even when I'm feeling terribly upset, I can find a way to put it into words.
- _____ 27. When I'm doing chores, such as cleaning or laundry, I tend to daydream or think of other things.
- _____ 28. I tell myself that I shouldn't be thinking the way I'm thinking.
- _____ 29. I notice the smells and aromas of things.
- _____ 30. I intentionally stay aware of my feelings.
- _____ 31. I tend to do several things at once rather than focusing on one thing at a time.
- _____ 32. I think some of my emotions are bad or inappropriate and I shouldn't feel them.
- _____ 33. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
- _____ 34. My natural tendency is to put my experiences into words.
- _____ 35. When I'm working on something, part of my mind is occupied with other topics, such as what I'll be doing later, or things I'd rather be doing.
- _____ 36. I disapprove of myself when I have irrational ideas.
- _____ 37. I pay attention to how my emotions affect my thoughts and behavior.
- _____ 38. I get completely absorbed in what I'm doing, so that all my attention is focused on it.
- _____ 39. I notice when my moods begin to change.

Philadelphia Mindfulness Scale

Instructions: Indicate how frequently you experienced each item over the past week using the following scale:

- 1 = Never
- 2 = Rarely
- 3 = Sometimes
- 4 = Often
- 5 = Very often

1. I am aware of what thoughts are passing through my mind.
2. I try to distract myself when I feel unpleasant emotions.
3. When talking with other people, I am aware of their facial and body expressions.
4. There are aspects of myself I don't want to think about.
5. When I shower, I am aware of how the water is running over my body.
6. I try to stay busy to keep thoughts or feelings from coming to mind.
7. When I am startled, I notice what is going on inside my body.
8. I wish I could control my emotions more easily.
9. When I walk outside, I am aware of smells or how the air feels against my face.
10. I tell myself that I shouldn't have certain thoughts.
11. When someone asks how I am feeling, I can identify my emotions easily.
12. There are things I try not to think about.
13. I am aware of thoughts I'm having when my mood changes.
14. I tell myself that I shouldn't feel sad.
15. I notice changes inside my body, like my heart beating faster or my muscles getting tense.
16. If there is something I don't want to think about, I'll try many things to get it out of my mind.
17. Whenever my emotions change, I am conscious of them immediately.
18. I try to put my problems out of mind.
19. When talking with other people, I am aware of the emotions I am experiencing.
20. When I have a bad memory, I try to distract myself to make it go away.

Social Problem-Solving Inventory-Revised

Instructions: Below are some ways that you might think, feel, and act when faced with **PROBLEMS** in everyday living. We are **not** talking about the common 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, appearance, or health), your relationships with other people (such as your family, friends, teachers, or boss), or your environment and the things that you own (such as your house, car, property, money). Please read each statement carefully and choose one of the numbers below which 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**. Put the number that you choose on the line before the statement.

- 0 = Not at all true of me
- 1 = Slightly true of me
- 2 = Moderately true of me
- 3 = Very true of me
- 4 = Extremely true of me

1. I spend too much time worrying about my problems instead of trying to solve them.
2. I feel threatened and afraid when I have an important problem to solve.
3. When making decisions, I do **not** evaluate all my options carefully enough.
4. When I have a decision to make, I fail to consider the effects that each option is likely to have on the well-being of other people.
5. When I am trying to solve a problem, I often think of different solutions and then try to combine some of them to make a better solution.
6. I feel nervous and unsure of myself when I have an important decision to make.
7. 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.
8. When I am attempting to solve a problem, I act on the first idea that occurs to me.
9. Whenever I have a problem, I believe that it can be solved.
10. I wait to see if a problem will resolve itself first, before trying to solve it myself.
11. When I have a problem to solve, one of the things I do is analyze the situation and try to identify what obstacles are keeping me from getting what I want.
12. When my first efforts to solve a problem fail, I get very frustrated.
13. 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.
14. When a problem occurs in my life, I put off trying to solve it for as long as possible.
15. After carrying out a solution to a problem, I do **not** take the time to evaluate all of the results carefully.
16. I go out of my way to avoid having to deal with problems in my life.

17. Difficult problems make me very upset.
18. When I have a decision to make, I try to predict the positive and negative consequences of each option.
19. When problems occur in my life, I like to deal with them as soon as possible.
20. When I am attempting to solve a problem, I try to be creative and think of new or original solutions.
21. When I am trying to solve a problem, I go with the first good idea that comes to mind.
22. When I try to think of different possible solutions to a problem, I **cannot** come up with many ideas.
23. I prefer to avoid thinking about the problems in my life instead of trying to solve them.
24. When making decisions, I consider both the immediate consequences and the long-term consequences of each option.
25. After carrying out my solution to a problem, I analyze what went right and what went wrong.
26. After carrying out my solution to a problem, I examine my feelings and evaluate how much they have changed for the better.
27. Before carrying out my solution to a problem, I practice the solution in order to increase my chances of success.
28. When I am faced with a difficult problem, I believe I will be able to solve it on my own if I try hard enough.
29. When I have a problem to solve, one of the first things I do is get as many facts about the problem as possible.
30. I put off solving problems until it is too late to do anything about them.
31. I spend more time avoiding my problems than solving them.
32. When I am trying to solve a problem, I get so upset that I cannot think clearly.
33. Before I try to solve a problem, I set a specific goal so that I know exactly what I want to accomplish.
34. When I have a decision to make, I do **not** take the time to consider the pros and cons of each option.
35. When the outcome of my solution to a problem is not satisfactory, I try to find out what went wrong and then I try again.
36. I hate having to solve the problems that occur in my life.
37. 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.
38. 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.
39. 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.
40. When I have a decision to make, I weigh the consequences of each option and compare them against each other.
41. I become depressed and immobilized when I have an important problem to solve.
42. When I am faced with a difficult problem, I go to someone else for help in solving it.

43. When I have a decision to make, I consider the effects that each option is likely to have on my personal feelings.
44. When I have a problem to solve, I examine what factors or circumstances in my environment might be contributing to the problem.
45. When making decisions, I go with my "gut feeling" without thinking too much about the consequences of each option.
46. When making decisions, I use a systematic method for judging and comparing alternatives.
47. When I am trying to solve a problem, I keep in mind what my goal is at all times.
48. When I am attempting to solve a problem, I approach it from as many different angles as possible.
49. When I am having trouble understanding a problem, I try to get more specific and concrete information about the problem to help clarify it.
50. When my first efforts to solve a problem fail, I get discouraged and depressed.
51. When a solution that I have carried out does not solve my problem satisfactorily, I do **not** take the time to examine carefully why it did not work.
52. I am too impulsive when it comes to making decisions.

EACS
Emotional Approach Coping Scales-Emotional Processing Subscale

We are interested in how people respond when they confront stressful experiences. By “stressful” we mean situations that are difficult or troubling to you, either because they upset you or because it takes considerable effort to deal with them. There are many ways to deal with stress. This questionnaire asks you to indicate what you generally do, feel, and think when you experience stressful situations. Obviously, different experiences may bring out different responses, but think about what you usually do when you are under a lot of stress.

- 1 = I usually don't do this at all
- 2 = I usually do this a little bit
- 3 = I usually do this a medium amount
- 4 = I usually do this a lot

Emotional Processing

- ☐ 1. I take time to figure out what I'm really feeling.
- ☐ 2. I delve into my feelings to get a thorough understanding of them.
- ☐ 3. I realize that my feelings are valid and important.
- ☐ 4. I acknowledge my emotions.

PANAS
Positive and Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way at this time for each descriptor. Use the following scale to record your answers.

- 1 = Very Slightly
2 = A Little
3 = Moderately
4 = Quite a Bit
5 = Extremely

_____ interested	_____ irritable
_____ distressed	_____ alert
_____ excited	_____ ashamed
_____ upset	_____ inspired
_____ strong	_____ nervous
_____ guilty	_____ determined
_____ scared	_____ attentive
_____ hostile	_____ jittery
_____ enthusiastic	_____ active
_____ proud	_____ afraid

RSES
Rosenberg Self-Esteem Scale

Rate the items using the following scale:

- 1 = strongly agree
- 2 = agree
- 3 = disagree
- 4 = strongly disagree

- _____ 1. I feel that I am a person of worth, at least on an equal basis with others.
- _____ 2. I feel that I have a number of good qualities.
- _____ 3. All in all, I am inclined to feel that I am a failure.
- _____ 4. I am able to do things as well as most other people.
- _____ 5. I feel I do not have much to be proud of.
- _____ 6. I take a positive attitude toward myself.
- _____ 7. On the whole, I am satisfied with myself.
- _____ 8. I wish I could have more respect for myself.
- _____ 9. I certainly feel useless at times.
- _____ 10. At times I think I am no good at all.

Appendix B

IRB Approval

(KEEP THIS PAGE AS ONE PAGE – DO NOT CHANGE MARGINS/FONTS!!!!!!!!!!)

APPLICATION FOR APPROVAL OF RESEARCH WITH HUMAN SUBJECTS
Protection of Human Subjects Review Board, 114 Alumni Hall, 581-1498

PRINCIPAL INVESTIGATOR: Victoria Quinones

EMAIL: victoria.quinones@umit.maine.edu

TELEPHONE: 516-528-0845

CO-INVESTIGATOR(S): n/a

FACULTY SPONSOR (Required if PI is a student): Emily Haigh

TITLE OF PROJECT: The Associations between Reflective Rumination and Related Constructs

START DATE: ~~June 20, 2015~~ 7/22/2015

PI DEPARTMENT: Psychology

MAILING ADDRESS: Department of Psychology, University of Maine, 301 Little Hall, Orono, ME, 04469-5742

FUNDING AGENCY (if any):

STATUS OF PI:

FACULTY/STAFF/GRADUATE/UNDERGRADUATE: Graduate

1. If PI is a student, is this research to be performed:

☐

for an honors thesis/senior thesis/capstone?

☐

for a doctoral dissertation?

☒other (specify) Pilot Study☐

for a master's thesis?

☐

for a course project?

2. Does this application modify a previously approved project? No. (Y/N). If yes, please give assigned number (if known) of previously approved project: n/a.

3. Is an expedited review requested? No. (Y/N).

SIGNATURES: All procedures performed under the project will be conducted by individuals qualified and legally entitled to do so. No deviation from the approved protocol will be undertaken without prior approval of the IRB.

Faculty Sponsors are responsible for oversight of research conducted by their students. By signing this application page, the Faculty Sponsor ensures that he/she has read the application and that the conduct of such research will be in accordance with the University of Maine's *Policies and Procedures for the Protection of Human Subjects of Research*.6/3
DateVictoria Quinones
Principal InvestigatorEmily Haigh
Faculty Sponsor_____
Co-Investigator_____
Co-Investigator*****
FOR IRB USE ONLY Application # 2015-06-06 Date received 6/5/15 Review (F/E): E
Expedited Category: _____

ACTION TAKEN:

☒ Judged Exempt; category 2. Modifications required? Y (Y/N) Accepted (date) 7/22/15
____ Approved as submitted. Date of next review: by _____. Degree of Risk: _____
____ Approved pending modifications. Date of next review: by _____. Degree of Risk: _____
____ Modifications accepted (date): _____
____ Not approved. (See attached statement.)
____ Judged not research with human subjectsDate: 7/21/15 Chair's Signature: Cynthia A. Endley

12/2012

Author's Biography

Bryanna Paige Plummer was born in Portland, Maine on November 9, 1993. She graduated from Lake Region High School in Naples, Maine in 2012. She was a Psychology major with an abnormal/social concentration and a minor in Child Development and Family Relations. Bryanna was a member of UMaine Alternative Breaks, Psi Chi International Honors Society, and the National Society of Collegiate Scholars.

Upon graduation, Bryanna will be in Sebago, Maine where she plans to gain experience in the field before continuing on to an advanced degree.