

# Rumination and the Development and Maintenance of the Depressive Schema

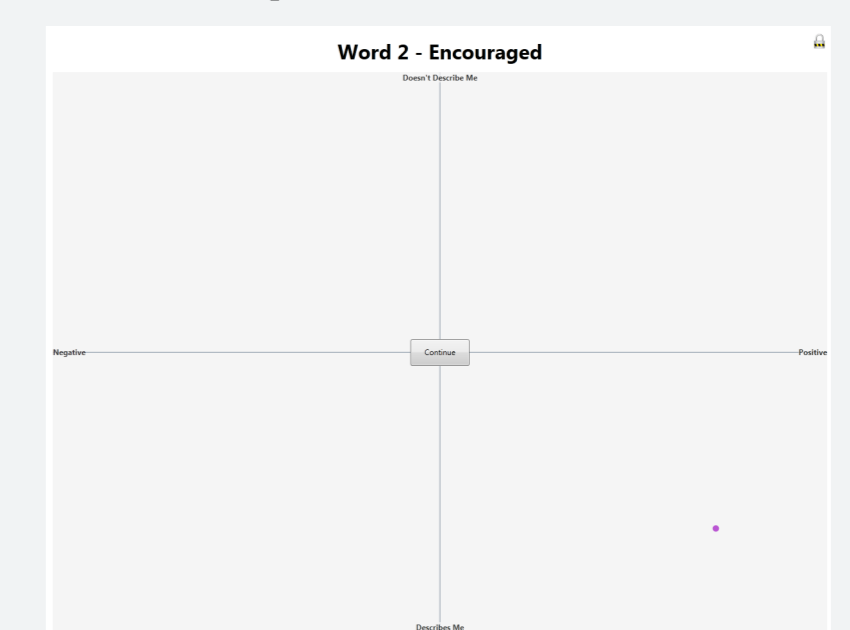
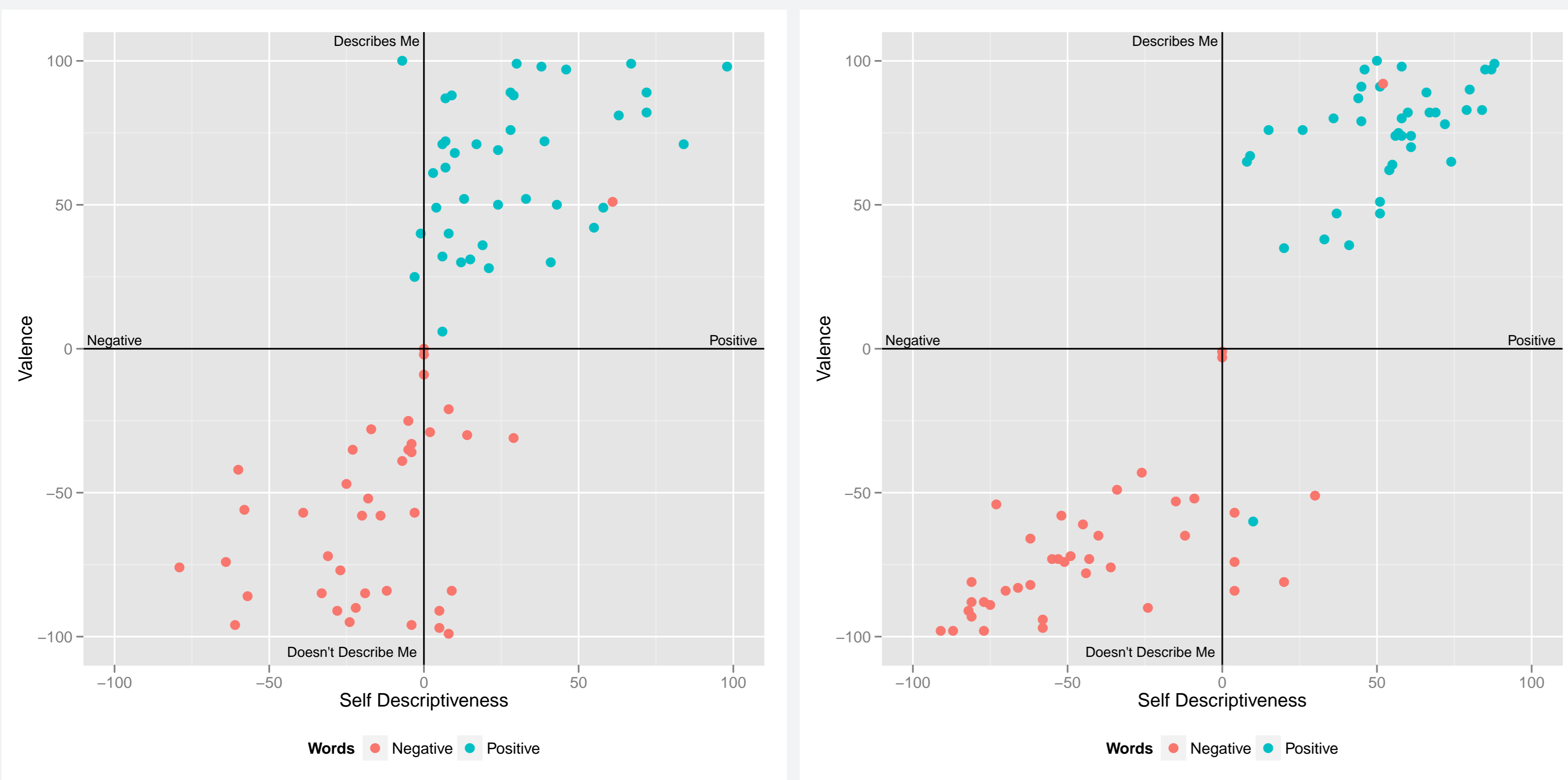
## Introduction

The self-schema is a mental representation of the self. For individuals with depression, their self-schema is a tightly organized network of negative, self-referent information. The **depressive schema** is considered to be a critical vulnerability to the experience and maintenance of depression because it directs attention to negative information, and fosters efficient encoding, storing and recall of this information. Presumably, negative experiences provide the content of the depressive schema, but little is known about how or why depressive schemas develop.

**Rumination** is a style of thinking marked by repetitive, recurrent, intrusive and uncontrollable thoughts. This style of thinking could act as a form of rehearsal or memorization. If the content of thoughts is self-referent and negative, it becomes elaborative rehearsal. In much the same way that students study for deeper learning of a subject, individuals with a ruminative thought style who experience negative events may develop deep, interconnected structures for this information.

This project tested the influence of an experimentally induced ruminative process on the structure of the self-schema. Key to this project is the induction of a ruminative process without simultaneously increasing negative mood, which has already been shown to influence schema structure. If the ruminative process has an influence, participants induced to do so will show a change in their schema structure.

## Example PDST data before (left) and after (right) induction for one participant



Screenshot of PDST software, programmed by R. Terrett

Using a modified version of the formula from Dozois [4], the direct distance between each word was calculated. The mean of these distances produced the Inter-Stimulus Distance (ISD).

Where  $n$  = the number of words:

$$\frac{\sum (\sqrt{a_{w1}^2 + b_{w1}^2} + \sqrt{a_{w2}^2 + b_{w2}^2}) [\dots] (\sqrt{a_{w39}^2 + b_{w39}^2} + \sqrt{a_{w40}^2 + b_{w40}^2})}{n(n-1)/2}$$

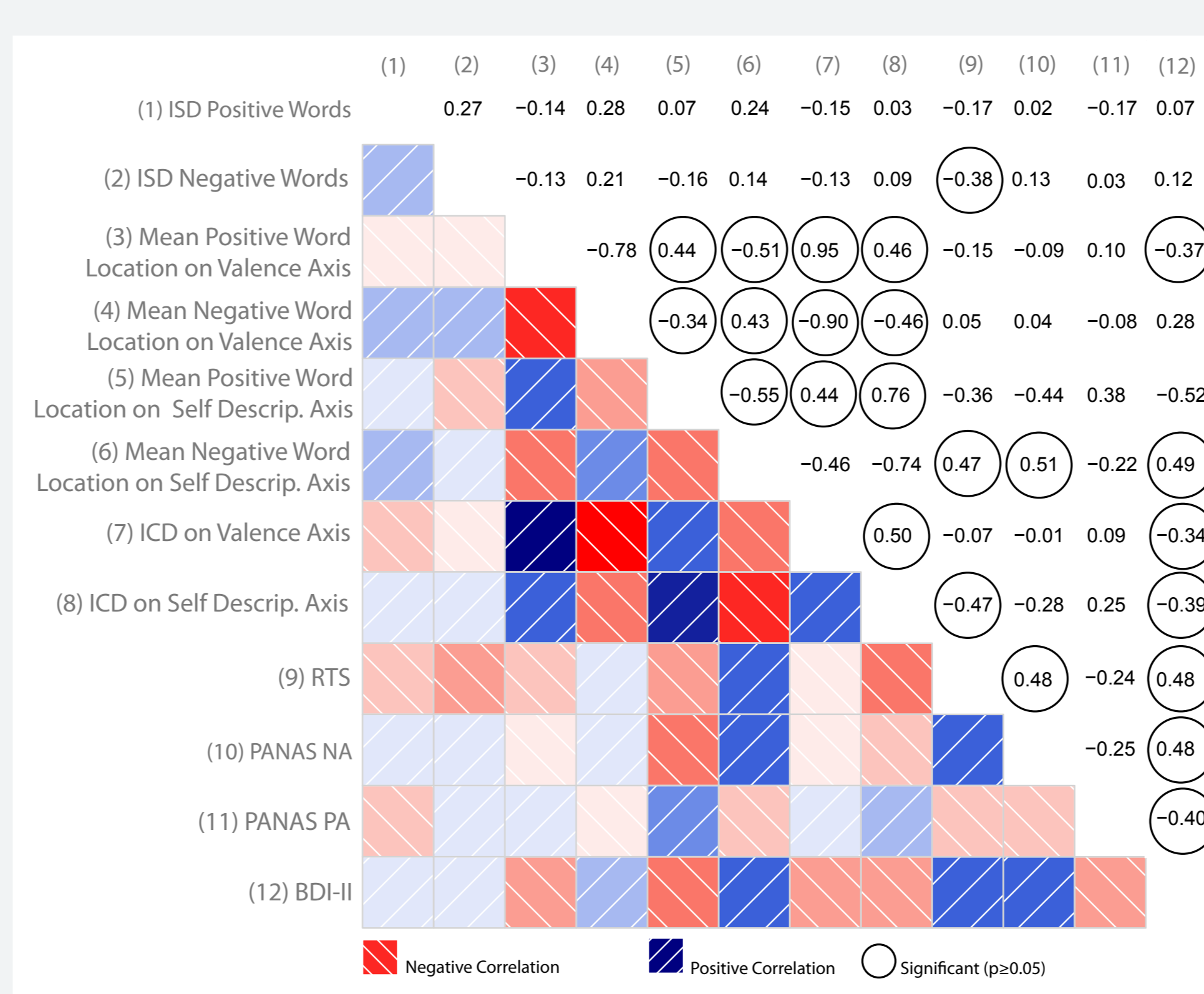
Scores were calculated for ISD of positive and negative words, the location of those clusters, and the distance between the clusters (the Inter Cluster Distance, or ICD).

## Results and Discussion

Negative affect and rumination were significantly correlated with the location of the negative cluster on the self-descriptive axis, but not the valence axis. This suggests that individuals who are high on these traits are not biased in their judgement of how negative these characteristics are, but are more likely to endorse them.

Rumination was negatively correlated to the inter cluster distance suggesting that those who ruminate show a greater distance between positive and negative clusters on self-descriptiveness. This was also found for individuals with greater depressive symptoms.

This suggests that for these individuals, the distinction between positive and negative is greater when describing the self.



Corrgram of PDST measures and baseline RTS, PANAS, and BDI-II scores

The small sample size limited the ability to test for statistical significance between the two experimental groups on ISD or ICD.

## Method

14 male and 32 female first-year students participated in this study. The mean age was 21 (range = 18 to 54). Baseline measures included: The Ruminative Thought Styles questionnaire (RTS [1]), The Positive and Negative Affect Scale (PANAS-X [2]), and The Beck Depression Inventory-II (BDI-II [3]). Schema structure was measured using the Psychological Distance Scaling Task (PDST [4]). This measure produces a two dimensional representation of a person's self schema by asking them to place descriptive adjectives along two axes: self-descriptiveness and valence.

Participants completed one PDST, one of two induction conditions, and then a second PDST. The typical neutral induction consists of 24 emotionally neutral statements presented to the participant consecutively on a computer screen. The rumination induction shows three of these statements on a repeating cycle to mimic the repetitive and recurrent nature of rumination.

## References

- Brinker, J.K., & Dozois, D.J.A. (2009). Ruminative thought style and depressed mood. *Journal of Clinical Psychology*, 65(1), 1-19.
- Watson, D., & Clark, L.A. (1994). *Manual for the Positive and Negative Affect Schedule - Expanded Form*. The University of Iowa. <http://www.psychology.uiowa.edu/faculty/clark/panas-x.pdf>
- Beck, A.T., Steer, R.A., & Brown, G.K. (1996). *Beck Depression Inventory Manual (2nd ed.)*. San Antonio, TX: Psychological Corporation.
- Dozois, D.J.A., & Dobson, K.S. (2001). Information processing and cognitive organization in unipolar depression: Specificity and comorbidity issues. *Journal of Abnormal Psychology*, 110, 236-246.