

## Are rumination and reflection types of self-focused attention?

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### Abstract:

The study of self-focused attention explores both state self-focus (objective self-awareness) and individual-differences in trait self-focus (self-consciousness). Trapnell and Campbell (1999) proposed a motivational model of individual-differences in self-focused attention, based on rumination and reflection as types of self-focus. Two studies, with Internet-based (Study 1, n = 101) and college student samples (Study 2, n = 115), assessed the construct validity of rumination and reflection. Self-focus was measured by recognition latencies for self-relevant words (Study 1) and the completion of ambiguous sentences with first-person pronouns (Study 2). Neither rumination nor reflection predicted self-focused attention in either study. Rumination and reflection seem to be types of self-relevant motivation, not types of self-focused attention.

Keywords: Rumination; Reflection; Self-awareness; Self-focus; Self-evaluation; Attention; Personality assessment; Construct validity

### Article:

#### **1. Introduction**

The study of self-focused attention has two research traditions. The first tradition, the study of *self-awareness*, explores the consequences of momentary awareness of the self (Carver, 2003; Duval & Silvia, 2001; Duval & Wicklund, 1972). This research manipulates self-focused attention with conditions that make the self salient, such as mirrors, video cameras, and reminders of novel aspects of the self. The second tradition, the study of *self-consciousness*, explores individual-differences in self-focused attention (Buss, 1980). The traditional view of self-consciousness proposes public and private dimensions, commonly measured by the self-consciousness scales (Fenigstein, Scheier, & Buss, 1975).

The character of self-awareness research has not changed much. Although objective self-awareness theory has expanded, recent research on self-awareness addresses the same concerns that motivated the original theory (see Silvia & Duval, 2001a)—the relationship between self-awareness and consistency motivation (Silvia & Duval, 2004; Wicklund & Duval, 1971), how people respond to discrepancies between self and standards (Duval & Lalwani, 1999; Ickes, Wicklund, & Ferris, 1973), and how causal attributions affect self-regulation (Duval & Wicklund, 1973; Duval & Silvia, 2002; Silvia & Duval, 2001b). Recent individual-differences research, however, has changed since the early days of public–private self-consciousness research. Public self-consciousness seems to have faded in popularity, perhaps due to critical reviews of its construct validity (Gibbons, 1990; Wicklund & Gollwitzer, 1987). Private self-consciousness remains popular, although its psychometric properties have been criticized. Many studies find that the private self-consciousness scale forms two subscales: internal-state awareness and self-reflection (e.g., Cramer, 2000; Creed & Funder, 1998; Nystedt & Ljungberg, 2002; Ruipérez & Belloch, 2003). The meaning of this finding is controversial, because the items forming the subscales and the correlations between the subscales vary (Bernstein, Teng, & Garbin, 1986; Britt, 1992; Duval & Silvia, 2001; Silvia, 1999).

In response to limitations in the public–private approach, a second generation of individual-differences research has emerged. Several new models have appeared in recent years (Grant, Franklin, & Langford, 2002; McKenzie & Hoyle, 1999; Trapnell & Campbell, 1999). Of these, Trapnell and Campbell's (1999) model of rumination and reflection has received the most attention (Carver, 2003; Joireman, Parrott, & Hammersla, 2002; Teasdale

& Green, 2004). Rumination and reflection have been shown to predict other variables, but the critical tests of construct validity—relations with measures of self-directed attention—have not yet been conducted. In this article, we review the rumination–reflection model and present two studies that directly assessed whether rumination and reflection involve self-focused attention.

## 2. Rumination and reflection

Trapnell and Campbell's (1999) rumination–reflection model was motivated by what they called “the self-absorption paradox.” Private self-consciousness correlates with many factors. Some factors seem adaptive and beneficial, such as greater articulation of the self-schema and a greater desire for self-understanding (e.g., Nasby, 1985). Other factors, however, seem maladaptive, such as psychopathology (Ingram, 1990). Several authors have viewed this mix of positive and negative relations as paradoxical (e.g., Creed & Funder, 1998). Trapnell and Campbell attributed these effects to motivational confounds in the private self-consciousness scale (Fenigstein et al., 1975). They suggested that people focus attention on the self for different reasons, and that these reasons must be separated in the assessment of dispositional self-focus.

The motivational interpretation of self-focused attention proposes two types of dispositional self-focus. One type, *rumination*, is “self-attentiveness motivated by perceived threats, losses, or injustices to the self”; the second type, *reflection*, is “self-attentiveness motivated by curiosity or epistemic interest in the self” (Trapnell & Campbell, 1999, p. 297). In this model, individual-differences in self-focused attention are represented as a conjunction of motivation and attention. Both rumination and reflection involve heightened attention to self, but they differ in the motive behind the attention. Rumination involves self-focus motivated by perceived threats; reflection involves self-focus motivated by interest in the self. Rumination and reflection are rooted in earlier research on self-reflection and internal-state awareness, the private self-consciousness subscales. That research suggested two types of self-consciousness, but it did not develop the motivational view proposed by Trapnell and Campbell.

Research thus far has shown interesting relationships between rumination, reflection, and other variables, such as Big Five factors, empathy, affect, perceptions of self-other similarity, and autobiographical memories (Joireman et al., 2002; Teasdale & Green, 2004; Trapnell & Campbell, 1999). Research to date, however, has not addressed the construct validity of rumination and reflection in regards to self-focused attention. Rumination and reflection, as types of self-focused attention, should correlate with measures of self-focus. Many traditions in personality psychology assert that self-report measures of traits must predict behavior, either because traits are real “in the skin” entities (Allport, 1961; Eysenck & Eysenck, 1985) or because traits are defined by behaviors (Fleeson, 2001). It is thus no surprise that the most thoroughly validated individual-differences have been extensively connected to behavior. Individual-differences that lack behavioral referents have questionable validity, such as self-report scales of altruism that fail to predict helping (Batson, Bolen, Cross, & Neuringer-Benefiel, 1986).

Construct validity is particularly pressing for the rumination–reflection model because it posits two components: self-focused attention and a self-relevant motive. As a result, rumination and reflection could predict other variables when one component has no effect. For example, reflection could still predict perspective-taking (Joireman et al., 2002), even if it failed to predict self-focus, if reflection's motivational component can drive the relationship. Significant correlations between the rumination–reflection scales and other variables do not indicate which component—self-focus or motivation—is responsible for the significant difference. Self-relevant motives might account for the effects; self-focus might be superfluous.

## 3. The present studies

The present studies directly tested the construct validity of rumination and reflection. If rumination and reflection are types of self-focus, then they should predict independent measures of self-focused attention. We appraised this relationship for two measures of self-focused attention. In Study 1, people completed a measure of self-focus based on visual word recognition. People who are self-focused recognize self-relevant words more quickly, relative to less self-focused people (Eichstaedt & Silvia, 2003). In Study 2, people completed a

pronoun-selection measure of self-focused attention. Self-focused people use relatively more first-person pronouns when completing ambiguous sentences (Davis & Brock, 1975; Wegner & Giuliano, 1980). People high in rumination and reflection should thus recognize self-relevant words more quickly and select more self-relevant pronouns.

The potential for true null effects is a problem for tests of construct validity. It is difficult to know whether insignificant relationships between self-focus, rumination, and reflection reflect true null effects. To triangulate on the meaning of rumination and reflection, we included criterion variables that satisfied two criteria. First, the variable must have correlated with self-focused attention in past research. If a variable correlates with self-focus but not with rumination or reflection, then the pattern of effects may imply a true null effect. Second, the variable must have correlated with rumination and reflection in Trapnell and Campbell's (1999) research. If rumination and reflection replicate past relationships but do not predict self-focus, the lack of a relationship could reflect a true null effect. Neither pattern alone conclusively shows if a null effect represents an absence of a relationship. The convergence of both patterns, however, places the null effects within a network of replications, thus enabling firmer conclusions.

Two variables fit our criteria. The first variable is self-other similarity. Self-focused people feel less similar to other people (Srull & Gaelick, 1983). Furthermore, both rumination and reflection predict self-other similarity. Trapnell and Campbell (1999, p. 296) report significant negative correlations between perceptions of self-other similarity and rumination ( $r = -.25$ ) and reflection ( $r = -.18$ ). The second variable is affect. Relations between self-focused attention and negative affect are robust (Fejfar & Hoyle, 2000; Mor & Winquist, 2002). Rumination predicts negative affect, whereas reflection does not (Trapnell & Campbell, 1999).

#### **4. Study 1**

The first study examined whether rumination and reflection predicted self-focused attention, measured by how quickly people recognized self-relevant words. The recognition of self-relevant words is a sensitive measure of both state and trait variations in self-focus (Eichstaedt & Silvia, 2003). People high in private self-consciousness recognized self-relevant words more quickly than did people low in private self-consciousness (Eichstaedt & Silvia, 2003, Study 1). Furthermore, a manipulation of self-awareness caused people in the high self-focus condition to recognize self-relevant words more quickly, relative to people in the low self-focus conditions (Eichstaedt & Silvia, 2003, Study 2). If rumination and reflection tap self-focused attention, then they should correlate negatively with word recognition latencies.

##### **4.1. Method**

###### **4.1.1. Participants and design**

A total of 101 people—68 women, 33 men—participated voluntarily over the Internet. The average age was 27.7 years ( $SD = 9.34$ ). The study was announced through links on a list of Internet studies hosted by the American Psychological Society and at a web site of the Universität der Bundeswehr, Hamburg.

###### **4.1.2. Procedure**

After reading an introduction to the study, people were randomly assigned to complete the rumination–reflection scales before or after the word recognition task. Rumination and reflection were measured with the 24-item *Rumination–Reflection Questionnaire* (RRQ; see Trapnell & Campbell, 1999, p. 293, for the items). The scale contains 12-item scales for rumination and for reflection. The perception of self-other similarity was measured with three items: “I’m similar to people in general”; “Overall, I have a lot in common with other people”; and “In general, I’m very different from other people” (reverse-scored). Participants responded using seven-point Likert scales that ranged from *strongly disagree* to *strongly agree*. Note that past research typically measured self-other similarity with single-item scales (e.g., Srull & Gaelick, 1983; Trapnell & Campbell, 1999). The self-other similarity items always appeared after both the RRQ and the word-recognition measure.

#### 4.1.3. Word recognition measure

Self-focused attention was measured with a word-recognition task. Semantic categories that are chronically or momentarily salient facilitate recognizing words related to the categories (Besner & Smith, 1992; Eichstaedt, 2002). For instance, people recognize words more quickly when the words follow semantically-related words—recognition latencies decrease as semantic overlap increases (Stolz & Neely, 1995). Momentary and chronic construct accessibility affect word recognition latencies for conventional cognitive variables (e.g., word prototypicality and familiarity; Eichstaedt, under review) and for social and personality constructs (e.g., implicit motives; Eichstaedt & Scheffer, under review). For example, people recognize self-referent trait adjectives faster than non-referent trait adjectives (Perdue & Gurtman, 1988), and happy people recognize happy words faster than sad or neutral words (Niedenthal, Halberstadt, & Setterlund, 1997).

Semantic effects on word recognition are strongest when the recognition process is hindered, such as by degrading the word (Borowsky & Besner, 1991) or by providing distractors (Eichstaedt, 2002). This impedes the word identification process and thus enables stronger top-down influences on recognition latencies (Stolz & Neely, 1995). The word recognition task was implemented within a dynamic display of distracting random letters (Eichstaedt, under review). People see a box of three rows of flickering random letters, and they expect words to appear in the middle row. Their task is to press any key when they see a word. On each trial, a self-relevant or a neutral word appears for 400 ms and is followed by random letters for 200 ms. This repeats until the participants hit a key, which prompts them to type the word they saw. The self-relevant category contained five words (*me, myself, self, face, and mine*); the neutral category contained five self-irrelevant words (*up, theory, walk, drop, and they*). The 10 words had been equated for length and frequency. After 10 practice trials with neutral words, people saw the 10 main words presented in a random order. The word recognition measure was implemented as a JAVA-applet that presented the target words and measured response latencies (Eichstaedt, 2001).

After completing the study, participants were taken to a debriefing page that explained the study in more detail. Participants received a code number that they could send to the experimenter for feedback about their word-recognition performance.

#### 4.2. Results and discussion

The word-recognition measure of self-focused attention was scored following the procedures of past research (Eichstaedt & Silvia, 2003). Only words that were recognized correctly were analyzed. Word-specific effects on latencies were controlled by  $z$ -scoring with respect to the word's mean. Individual performance level was controlled with  $z$ -scoring as well (Perdue & Gurtman, 1988). We then computed a single score for each person by subtracting the average latency for neutral words from the average latency for self-relevant words. Negative values indicate relatively quicker recognition of self-relevant words, and positive values indicate relatively quicker recognition of neutral words. The rumination and reflection scales were averaged, after reverse-scoring the appropriate items, to form rumination and reflection scores for each participant. Rumination and reflection were uncorrelated ( $r = .047, p < .64$ ), consistent with Trapnell and Campbell's (1999) findings.

Did rumination and reflection predict self-focused attention? Neither rumination ( $r = .006, p < .95$ ) nor reflection ( $r = .002, p < .99$ ) predicted word recognition latencies. Past findings, however, were replicated. Both rumination ( $r = -.18, p < .07$ ) and reflection ( $r = -.23, p < .019$ ) predicted self-other similarity. The direction and magnitude of the effects replicate Trapnell and Campbell's (1999, p. 256), findings. The word recognition measure significantly predicted self-other similarity,  $r = -.26, p < .009$ , thus replicating past research on self-focused attention and perceptions of similarity (Srull & Gaelick, 1983). By replicating an established finding, this effect indicates that the word recognition measure did not simply fail to correlate with anything due to methodological or measurement limitations.

In summary, Study 1 examined the relations between rumination, reflection, and self-focused attention, using a relatively direct measure of the activation of self-relevant information (Eichstaedt & Silvia, 2003). Neither rumination nor reflection predicted how quickly people recognized self-relevant words. But the null effects did

not reflect an overall absence of predicted, significant findings. First, the word recognition measure of self-focused attention significantly predicted perceptions of self-other similarity, replicating past research (Srull & Gaelick, 1983). Furthermore, both rumination and reflection predicted self-other similarity, thus replicating Trapnell and Campbell's (1999) findings. These replications place the null effects in context. Past findings were successfully replicated, but the new predictions central to construct validity were not supported. Although null effects are inherently ambiguous, the replications imply that the lack of relation between self-focus and the rumination and reflection scales could represent a true null relationship.

## 5. Study 2

When one study fails to provide evidence for construct validity, it is important to reassess construct validity with different procedures and measures. Study 2 extended our first study by using a different measure of self-focused attention (Wegner & Giuliano, 1980), assessing additional replications of past findings, and collecting data in a conventional laboratory context. The Internet methodology used in Study 1 enabled a diverse sample, but the issues involved in Internet sampling are complex, given the youth of Internet-based data collection (Birnbaum, 2001; Reips, 2002).

### 5.1. Method

#### 5.1.1. Participants

A total of 115 students—99 women and 16 men—enrolled in General Psychology at the University of North Carolina at Greensboro completed the study as part of a research participation option. Most students (90.4%) were in their first year of college; the average age was 18.5 years.

#### 5.1.2. Measures

*Rumination and reflection.* Rumination and reflection were measured with Trapnell and Campbell's (1999) 24-item RRQ. Perceptions of self-other similarity were measured with the same three-item scale used in Study 1. People responded to these items on seven-point Likert scales (endpoints: *strongly disagree* and *strongly agree*). *Affect.* Positive and negative affect were measured with the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). This 20-item scale yields scores for Positive Affect and Negative Affect. People indicated the extent to which they felt each emotional state "*in general*, that is, on the average," using five-point Likert scales.

*Self-focused attention.* Each person completed the "Linguistic Implications Form," a 20-item scale developed by Wegner and Giuliano (1980). Each item is an incomplete sentence that is completed with one of three pronouns. For each sentence, the choices consist of one self-relevant pronoun (*I, me, or my*) and two filler pronouns (e.g., *she, their, our*). One item, for example, reads "Someone stopped (*them, me, us*) to get directions to the stadium." The dependent measure is the percentage of self-relevant pronouns. Many manipulations of self-focused attention (mirrors, cameras, self-novelty) increase the selection of self-relevant pronouns (e.g., Salovey, 1992; Snow, Duval, & Silvia, in press). This measure has outperformed alternative measures in some studies (Silvia & Abele, 2002).

### 5.2. Results and discussion

The distribution of self-focus scores deviated from normality (Kolmogorov–Smirnov  $Z = 1.43, p < .033$ ), showing a sharp positive skew. A log-transformation was thus applied to the raw scores. Scoring of rumination and reflection was the same as in Study 1. Neither rumination ( $r = .09, p < .29$ ) nor reflection predicted scores on the pronoun-selection measure ( $r = .14, p < .13$ ). Rumination and reflection were correlated ( $r = .233, p < .012$ ), so we conducted a regression analysis to assess their independent effects on self-focus. When considered jointly, neither rumination ( $\beta = .07, p < .47$ ) nor reflection ( $\beta = .126, p < .19$ ) predicted responses to the pronoun task. However, the findings from past research were replicated. Rumination significantly predicted negative affect ( $r = .459, p < .001$ ) and self-other similarity ( $r = -.271, p < .031$ ). Reflection significantly predicted positive affect ( $r = .211, p < .024$ ) and self-other similarity ( $r = -.364, p < .001$ ). As in Study 1, the triangulation of effects did not find evidence for an attentional component. The expected relations between

rumination, reflection and self-focus did not appear. These null effects were located in a network of replicated effects, indicating that the study did not merely fail to find anything.

## 6. General discussion

The original public and private self-consciousness model represented individual-differences with an *attention* × *content* framework. People were said to vary in the intensity of self-directed attention and in the content (public or private) of that attention (Buss, 1980; Fenigstein et al., 1975). Trapnell and Campbell's (1999) motivational interpretation of private self-consciousness proposes an *attention* × *motivation* framework. Rumination and reflection involve attention—people high on each trait are high in chronic self-focus. The type of motivation differs, however, from anxiety and fear in rumination to curiosity and epistemic motives in reflection. The task for research on rumination and reflection is to validate each component of the model. Rumination and reflection must connect with attention and with motivation. Otherwise, positing an attention × motivation model would not be parsimonious—one could attribute the effects to self-focus alone or to motives alone.

Do rumination and reflection work because of self-focused attention? In the present studies, rumination and reflection did not predict self-focused attention. This null effect appeared in different types of samples (a diverse Internet sample and a conventional sample of students) and on different measures of self-focus (a latency-based measure and a pencil-and-paper measure). Although null effects are inherently ambiguous, the triangulation of effects suggests that rumination and reflection may be unrelated to self-focused attention. The present studies replicated past findings for rumination and reflection—as in past research (Trapnell & Campbell, 1999), these variables predicted affect and perceptions of self-other similarity.

What do the present findings mean for the interpretation of rumination and reflection? Trapnell and Campbell (1999) sought to represent the motivational qualities of private self-consciousness in their new scales. In trying to refine the motivational variance, their scales may have lost the attentional variance of the original private self-consciousness scale. Past research has identified different motivational bases of rumination and reflection. Rumination, rooted in neuroticism, and reflection, rooted in openness to experience, seem to have distinct motivational qualities. No research thus far, however, demonstrates attentional aspects. The accumulated literature on rumination and reflection is thus consistent with a strictly motivational interpretation instead of a motivation × attention interpretation. Rumination and reflection may be types of self-relevant motivation, but they do not seem to be types of self-focused attention.

Recent research by Teasdale and Green (2004) supports the notion that rumination and reflection more closely measure motivation than attention. In their experiment, people rated the “at-oneness” of accessible autobiographical memories. Rumination predicted a lack of at-oneness, whereas reflection did not predict at-oneness. However, rumination's relation to autobiographical memory was entirely explained by its relation to neuroticism. When rumination and neuroticism were considered jointly, only neuroticism significantly predicted at-oneness of memories. This finding indicates a strong connection between rumination and its motivational substrate of neuroticism, and it also raises concerns regarding the incremental validity of rumination.

The model of rumination and reflection is part of a broader renewal of interest in individual-differences in self-awareness. One new model distinguishes between *self-reflection* and *insight* (Grant et al., 2002). Self-reflection is “the inspection and evaluation of one's thoughts, feelings and behavior,” whereas insight is “the clarity of understanding of one's thoughts, feelings, and behavior” (Grant et al., 2002, p. 821). The self-absorption model measures inflexible, excessive attention to public and private aspects of the self (McKenzie & Hoyle, 1999). Some researchers propose facets for the original public and private self-consciousness scales (Nystedt & Ljungberg, 2002). The second generation of models would benefit from close attention to construct validity. These new models assume that the individual-differences are founded on self-focused attention. Correlating the new scales with established measures is informative, but the incisive test is whether the scales predict self-focused attention. Many ways of measuring self-focused attention have been developed, including paper-and-

pencil scales (Davis & Brock, 1975; Govern & Marsch, 2001; Sedikides, 1992; Wegner & Giuliano, 1980), response-time measures (Eichstaedt & Silvia, 2003; Geller & Shaver, 1976), and thought-listing (Greenberg & Pyszczynski, 1986). Research should take advantage of these tools.

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