

## Can positive affect induce self-focused attention?: Methodological and measurement issues

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[Silvia, P. J.](#), & Abele, A. (2002). Can positive affect induce self-focused attention? Methodological and measurement issues. *Cognition and Emotion*, *16*, 845-853.

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### **Abstract:**

Some studies find that positive affect can induce self-focused attention, but other studies find no effect. We suggest that the contrary findings result from how self-awareness was measured. One group of participants listened to happy or neutral music; another group imagined and described a happy or neutral event. Two measures of self-focus were then taken. The experiment replicated past findings: Positive affect increased self-focus on a pronoun selection task, but had no effect on a modified private self-consciousness scale. The results were slightly stronger when affect was induced using music. Implications for future research are discussed. Emotional experience has been closely tied to self-awareness since Duval and Wicklund's (1972) original statement of objective self-awareness theory. Research has explored the influence of self-focus and self-standard discrepancies on emotion (Ickes, Wicklund, & Ferris, 1973), the effects of self-awareness on emotional intensity (Scheier & Carver, 1977; Silvia, 2002, in press), self-perceptions of emotional states (Silvia & Gendolla, 2001), the role of self-focus in dysfunctional affective experiences (Wells & Matthews, 1994), and the impact of affect on self-evaluation (Berkowitz, 1987; Salovey & Rodin, 1985).

### **Article:**

One of the most intriguing extensions is the study of how affective states influence the intensity of self-focused attention (Duval & Silvia, 2001, ch. 10; Sedikides & Green, 2000). Many studies, using different manipulations and measures, find that negative affect increases self-focus (Salovey, 1992; Sedikides, 1992; Wood, Saltzberg, & Goldsamt, 1990). The evidence for positive affect, however, is considerably less clear. One set of studies found that positive affect increases self-focus relative to neutral affect (Salovey, 1992). Another set of studies, however, failed to find any relation (Sedikides, 1992). There is presently no explanation for the disparity. This has hindered the development of a general understanding of how affect might influence self-awareness.

Green and Sedikides (1999) proposed a solution based on their concept of "affect orientation". "Reflective" emotions, such as sadness and contentment, are said to increase self-focus; "social" emotions, such as thrill and anger, are said to decrease self-focus. Two experiments offered suggestive support for these predictions; the lack of neutral mood conditions made it impossible to test whether the two affect types increased and decreased self-focus relative to a baseline. Green and Sedikides speculated that past studies induced different types of happiness—Salovey's (1992) studies may have induced "reflective" happiness, whereas Sedikides's (1992) studies might have induced "social" happiness. A problem with this solution is that there is simply no way to know what affect was created. Participants were asked to "begin imagining a situation that would make you feel happy" (Salovey, 1992, p. 702). Given the task's unstructured nature, the door was open for individual differences, and there was surely a distribution of the sort of events that were imagined. We doubt enough people imagined "reflective" experiences to overcome the error variance created by those who imagined "social" and blended positive experiences.

As an alternative, we suggest that the use of different self-awareness measures is responsible for the different findings. Salovey (1992) used a pronoun selection task in which people complete a sentence by choosing one of several equally correct pronouns (Wegner & Giuliano, 1980, 1983). The first study used the pronoun measure, and the second study used a self-complexity measure that was validated with the pronoun measure. Sedikides (1992), in contrast, used a modified version of the private self-consciousness (Priv SC) scale (Fenigstein,

Scheier, & Buss, 1975). In its original form, this scale assesses dispositional levels of self-focus. The scale items were rewritten to reflect momentary self-awareness, such as “I’m right now alert to changes in my mood”.

Despite the size of the self-awareness literature, few studies have explored the relative strengths of different manipulations, or the relative sensitivity of different measures (Palfai & Salovey, 1992). Yet there are good reasons to suspect that the modified Priv SC scale is less sensitive than the pronoun selection measure. Developing a personality scale involves culling items from a large item pool. Items with low test-retest correlations are eliminated because the scale hopes to measure an enduring, trans-situational construct. Thus, the 10 items in the Priv SC scale were selected precisely because they were insensitive to situational and temporal influences. Rewording the items might mitigate this feature of the scale, but it can’t overcome it. The pronoun measure, in contrast, was designed to measure transient states of self-awareness (Wegner & Giuliano, 1980, 1983). And unlike the modified Priv SC scale, which has only been used in a handful of studies (Green & Sedikides, 1999; Sedikides, 1992), the pronoun measure is widely used and well established (e.g., Hansen, Hansen, & Crano, 1989; Silvia, 2001; Stephenson & Wicklund, 1984).

The present study sought to clarify the empirical conflict by considering measurement and methodological issues. It seems possible that the disparity found in past research reflects simple measurement differences. Research that found a relation between self-focus and positive affect used the pronoun selection task (Salovey, 1992), which we suspect to be more sensitive; research that didn’t find a relation used the modified Priv SC scale (Sedikides, 1992), which we suspect to be less sensitive. To test this, we induced either positive or neutral affect in participants and included both measures of self-focused attention. If measurement issues are responsible for the divergent findings, then we would expect to replicate both sets of studies—positive affect would increase self-focus on the pronoun task yet have no effect on the modified Priv SC scale.

We also wanted to explore how different mood inductions might impact the link between affect and self-focused attention. Most studies used introspective affect inductions, like imagining happy events happening to oneself or close others (Sedikides, 1992) or guided imagery tasks (Salovey, 1992). These tasks resemble inductions of self-focus that simply ask participants to write about themselves (e.g., Berkowitz, 1987; Silvia, 2001). In trying to arouse an emotion, the researcher might inadvertently ask for an event that is more self-relevant, or less frequent. If situations that arouse emotions are generally more important or occur less frequently than unemotional situations, then the valence manipulation is confounded. The neutral group might imagine something trivial and common (riding around on the bus), whereas the happy group might imagine something important and unusual (graduating, vacationing). This confound probably doesn’t pervade all extant studies, if it occurs at all, but it seemed worth exploring. We thus manipulated affect with two different inductions. The first induction paralleled previous research—participants were asked to imagine and describe a positive or neutral event. The second induction used positive and neutral music selections. Because listening to music is not overtly self-directed, these conditions provide another test of whether positive affect can induce self-focused attention.

Given the present experiment’s exploratory purposes, our predictions were uncertain. We expected that the effects of positive affect on self-focus would depend on the type of measure, with the pronoun task being more sensitive than the modified Priv SC scale. We further expected that the induction type would not differentially influence the affect-selffocus relationship: a previous study with more or less self-involving mood induction procedures (autobiographical recall vs. watching video excerpts) did not find differences between both induction types (Abele & Gendolla, 1999).

## METHOD

### *Participants and design*

A total of 55 female undergraduates enrolled in Introductory Psychology at the University of Kansas participated as part of a research participation option. Participants were randomly assigned to condition in a 2 (mood: positive vs. neutral)  $\times$  2 (induction type: recall vs. music)  $\times$  2 (order of self-focus measures) factorial design.

## *Procedure*

Each person participated individually. After arriving at the laboratory, the participant was led to a private room and told the study's ostensible purpose. Slightly different cover stories were used depending on the type of affect induction. In the *recall* conditions, participants learned that the study concerned how personality influences the construction and evaluation of hypothetical events. People expected to imagine and then describe in writing a hypothetical event, and then, after completing a "mid-study questionnaire" assessing aspects of personality, give their impressions of some events described by past participants. In the *music* conditions, participants learned that the study concerned personality influences on music preferences and evaluations. People expected to listen to music, complete a "mid-study questionnaire" assessing aspects of personality, and then listen to additional music selections.

*Affect inductions.* In the recall conditions, participants were asked to imagine a hypothetical event as vividly as possible. Persons in the positive affect group were asked to imagine an event that would make them feel "very happy, much more so than usual"; persons in the neutral affect group were asked to imagine an "everyday, mundane event—something totally ordinary and unexceptional". Participants were encouraged to spend several minutes visualising their event and then describe the event on a sheet of paper.

In the music conditions, participants listened to an audio recording on a set of headphones. People in the positive affect group listened to "Linus and Lucy"—better known as the theme song to the Peanuts cartoons—performed by Vince Guaraldi (1968). People in the neutral affect group listened to "Hymn", an uneventful song by Moby (1995). Both songs are instrumentals and approximately three minutes long. The experimenter left the room during the affect induction.

## *Dependent measures*

After the affect induction, the experimenter returned and gave participants a "mid-study questionnaire". All participants completed two measures of self-focused attention presented in counterbalanced order. The 20-item "Linguistic Implications Form" asks people to complete a sentence by selecting one of several correct pronouns. A greater proportion of first-person singular pronouns reflects higher self-focus (Wegner & Giuliano, 1980, 1983). The 10-item modified Priv SC scale includes the original scale items (Fenigstein et al., 1975) rewritten to reflect momentary self-focus, such as "I'm right now reflecting about myself" (Sedikides, 1992). People responded on 7-point scales. As a check of the affect manipulation, participants indicated their present mood on a 21-point bipolar scale, ranging from -10 ("very negative") to 0 ("neutral") to +10 ("very positive"). Mood was measured after the two self-focus measures to avert reactivity. All participants were interviewed, debriefed, and thanked upon completion of the questionnaire.

## RESULTS

### *Order Effects*

Initial analyses generally failed to find main effects or interactions involving the counterbalanced order of the two self-focus measures. For the modified Priv SC scale, all interactions involving order were nonsignificant, all  $F_s < 1.1$ . For the pronoun measure, all interactions involving order were nonsignificant, all  $F_s < 1$ , except for a marginal two-way interaction between mood and order,  $F(1, 47) = 2.5, p < .12$ . This reflected a slightly larger difference between the neutral and happy mood groups when the modified Priv SC scale appeared first (.204 mean difference) rather than last (.097 mean difference). Entering order as a covariate did not substantially change any of the effects reported below, so we collapsed across order in subsequent analyses.

### *Manipulation check*

A factorial analysis of variance (ANOVA) on responses to the bipolar mood scale found only a main effect of mood,  $F(1, 51) = 109, p < .001$ ; no other main effects or interactions were significant,  $F_s < 1$ . The two combined positive mood groups ( $M = 5.75$ ) reported experiencing significantly more positive affect than the two combined neutral mood groups ( $M = 1.44$ ), suggesting a successful manipulation.

### Self-focused attention measures

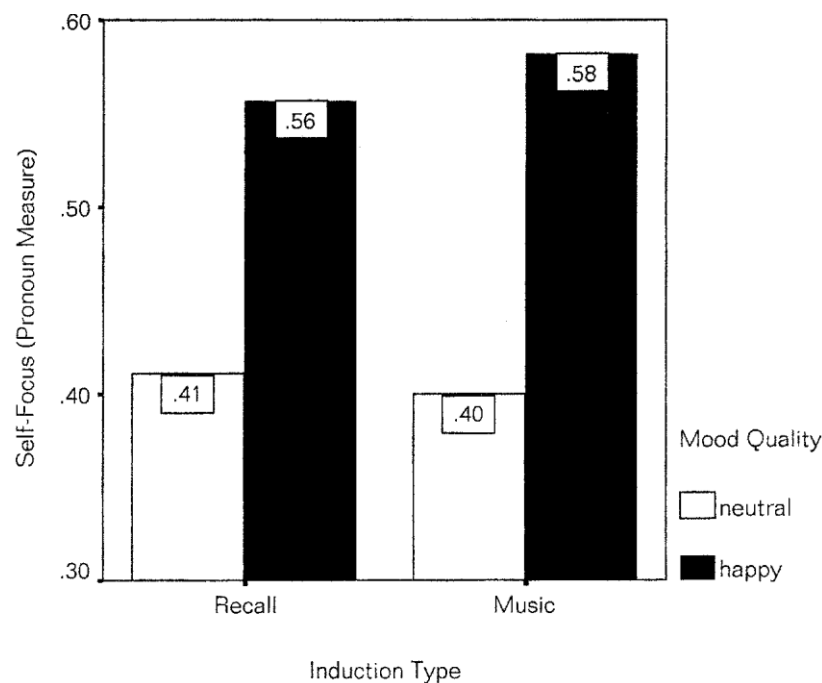
For the pronoun measure, we divided the number of first-person singular pronouns (I, me, my) by the number of items, yielding the proportion of items completed with the self-focused option. For the modified Priv SC scale, we summed and averaged the 10 items, obtaining an overall scale score. In an initial analyses, both of these scores were standardised and entered into a 2 (mood type)  $\times$  2 (induction type)  $\times$  2 (DV order)  $\times$  2 (self-focus measures) factorial ANOVA, with repeated measures on the final factor. This analysis found a significant interaction between the self-focus measures and mood type,  $F(1, 51) = 6.36, p < .015$ : The pronoun measure showed a strong effect of mood, but the modified Priv SC scale showed no effect (see follow-up analyses below). There were no other significant main effects or interactions. We then conducted separate between-subjects ANOVAs for each measure to explore this interaction further (Girden, 1992). Raw (i.e., nonstandardised) scores were used in these analyses in order to be able to present the results using meaningful units.

*Pronoun measure.* A factorial ANOVA found only a significant main effect for mood,  $F(1, 51) = 17.5, p < .001$ ; the interaction between mood and induction type was not significant,  $F < 1$ . The pattern is displayed in Figure 1. Focused contrasts revealed that positive affect significantly increased self-focused attention in the recall induction conditions,  $F(1, 51) = 6.76, p < .01$ , thus replicating past studies using this measure (Salovey, 1992). Positive affect also increased self-focus in the music induction conditions,  $F(1, 51) = 10.2, p < .01$ .

*Modified Priv SC scale.* The modified Priv SC scale showed a different pattern of effects. A factorial ANOVA found a significant main effect for the induction type,  $F(1, 51) = 4.1, p < .048$ ; the interaction between mood and induction type was not significant,  $F(1, 51) = 2.1, p < .15$ . The pattern is displayed in Figure 2. In the recall conditions, positive affect did not increase self-focus,  $F < 1$ . In the music conditions, positive affect had only a marginal effect,  $F(1, 51) = 2.34, p < .13$ . The only significant difference was between the two happy groups: people in the music condition were more self-focused,  $F(1, 51) = 6.2, p < .016$ .

### Internal analyses

To explore how the different measures reflect relations between self-focus and positive affect, we computed correlations between the two self-focus measures and the manip-



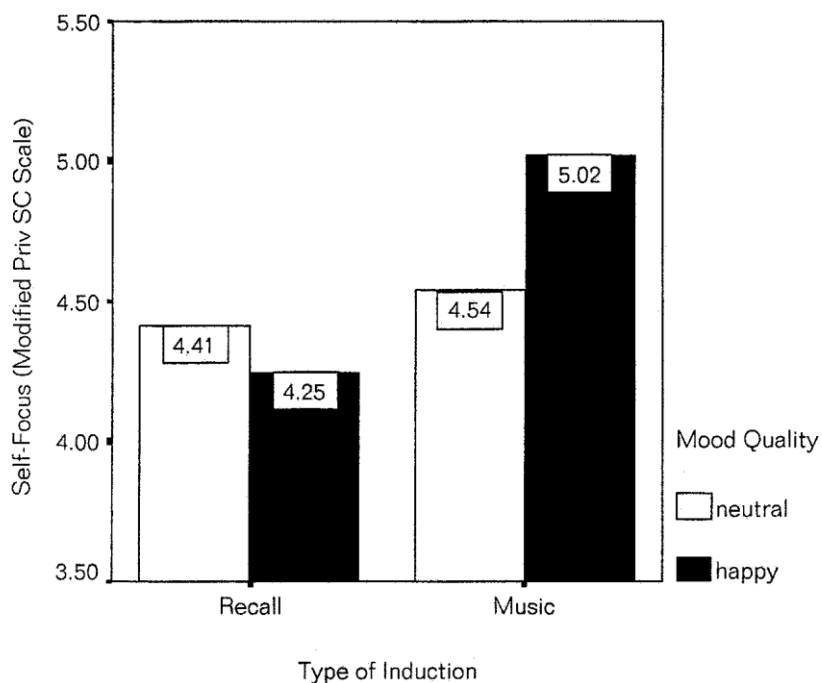
**Figure 1.** Effects of mood and induction type on a pronoun selection measure of self-focus.

ulation check of affect. The pronoun measure and the mood measure were significantly correlated,  $r = .36$ , reflecting higher self-focus as mood became more positive. The modified Priv SC scale, in contrast, didn't correlate with the mood measure,  $r = -.03$ . The measures' different correlations with mood probably don't reflect different reliabilities. The pronoun measure had a typically low alpha (.58); the modified Priv SC scale fared much better (.74). Interestingly, the two self-focus measures only correlated modestly,  $r = .20, p < .14$ .

The same pattern appeared when the correlations were examined separately for each type of induction. Within the two recall induction conditions, the pronoun measure was positively, but not significantly, related to the affect measure,  $r = .27$ ; the modified Priv SC scale was uncorrelated with mood,  $r = -.10$ . This pattern was stronger within the two music induction conditions. The pronoun measure significantly correlated with positive affect,  $r = .45$ ; the modified Priv SC scale was again unrelated,  $r = .03$ .

## DISCUSSION

Although past research has consistently found that negative affect can induce self-focus, studies on positive affect have yielded conflicting results. This has kept the area from moving beyond the documentation of effects into the development of general ideas about emotions and self-focused attention. We have suggested that the studies failing to find an effect simply used a less sensitive measure of self-focus (Sedikides, 1992). Individual



**Figure 2.** Effects of mood and induction type on a modified Priv SC scale of measure of self-focus.

differences scales are designed to measure individual differences, not situational factors. For better or worse, items that do not correlate highly over time—the very items sensitive to situational factors—are deleted during the early stages of scale construction (Wicklund, 1990). Rewording the items' stems cannot fully ameliorate this problem.

Our experiment replicated both sets of studies. Salovey's (1992) finding that positive affect increases self-focus was replicated when we analysed his measure, and Sedikides's (1992) null effect was replicated (inasmuch as one null effect can be said to replicate another) when we analysed his measure. By replicating both effects within the same design, we are confident in concluding that the disparity results from differentially sensitive measures of self-focus. Internal correlations offered additional support for this contention—only the pronoun task correlated significantly with self-reported happiness. The low correlation between the two self-focus measures further suggests that at least one of the scales is inadequate.

We extended past research by including a second manipulation of affect. It seemed reasonable to ask whether self-oriented inductions, like guided imagery or free recall, biased the dependent measure of self-focused attention. The experiment suggests that the type of induction is not critical. Effects on the pronoun measure were identical across the music and recall inductions. The modified Priv SC scale showed no effect in the recall conditions, but showed a marginal trend in the music conditions. Internal analyses further showed that the pronoun measure was more highly correlated with positive affect in the music conditions relative to the recall conditions. Overall, the recall induction seems acceptable—it showed an effect for the more sensitive measure—but the music induction yielded the effect more reliably and strongly across both self-focus measures; it is thus probably preferable for future research.

This study wasn't conducted to test theoretical aspects of affect and self-focus, but it has some implications for current theories. The primary difference between current viewpoints is whether moods have invariant, "built-in" effects on self-focus. The affect orientation view (Green & Sedikides, 1999; Sedikides & Green, 2000), for example, assumes that some affects by nature increase self-focus, whereas other affects by nature reduce self-focus. The affect-action sequences model also assumes that all emotions will induce self-focus (Salovey & Rodin, 1985). These positions differ in which affects are said to influence self-focus, but both assume that the effect is inherent in the emotion.

Another view, in contrast, assumes that affect has flexible influences on self-focus (Duval & Silvia, 2001, ch. 10). Changes in affect can make the self figural, and thus the object of attention (cf. Koffka, 1935). For example, being happy or sad can make the self figural against a ground of other people. If everyone else appears neutral, then experiencing any emotional state will induce self-focus. Likewise, emotions can make the self-figural against the ground of past experience. If the person rarely experiences an emotion in certain contexts (e.g., if most experiments tend to be boring), then the emotion's occurrence will elicit self-focus. This view, then, assumes that valence *per se* is unimportant. Indeed, neutral moods should increase self-focus if the person is surrounded by a uniform field of happy persons. Affect presumably influences self-focus because it can influence figure-ground relationships, not because it has innate links to self-focused attention.

No experiments have tested this view, but the present experiment suggests it is at least tenable. If positive affect were incapable of increasing self-focus, or if it decreased self-focus, then valence would in fact matter. Arguing that affect can have flexible effects on self-focus would then become difficult. But if both positive and negative affect can have equivalent effects, then different affects probably share underlying mediators. This study does not illuminate these mediators, but it lays the methodological foundation for future work aimed at these questions.

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