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# POSITIVE AFFECT AND OTHER-FOCUSED ATTENTION

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ABSTRACT

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Theories of positive emotion suggest that people who feel good are more likely to seek out, participate in, and succeed in social interactions. However, experimental attempts to establish the mechanisms responsible for the association between positive affect and social interaction have been less clear. The current study tested whether other-focused attention can be a mechanism to help explain the social benefits experienced by happy people. A number of measures of focus of attention were used to test whether positive affect was associated with increased other-focus. Poor convergent validity across the various measures of self- and other-focus prohibited strong interpretations regarding this hypothesis. However, happiness was associated with significantly more statements that were about friends, about family members, or social in nature. In all, better measures of other-focus are needed to adequately test whether it can account for why positive affect leads to more successful social interaction.

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Imagine a woman walking through the produce department at the local supermarket and greeting an old friend. Further suppose that the friend acts quieter than usual and perhaps a bit distracted because he just received some bad news. What characteristics of the woman or of the situation might influence whether she notices the friend's atypical behavior (and therefore makes inquiries that could lead her to discover the cause of his distress)? One factor that could influence how much attention the woman directs toward her friend is her mood. If the woman happened to be in a great mood, she might direct more attention toward her friend and be more likely to notice and react to his unusual behavior. Conversely, if the woman just finished a tiring day at the office, she might be more likely to miss the cues of her friend's distress and walk away from the interaction without realizing anything was amiss. The objective situation and the friend's behavior are the same. However, the social information that the woman perceives and the social outcomes resulting from the interaction may be different depending on her mood.

This scenario serves as just one example of how affect might influence and shape social behavior. Research examining positive mood has found that happiness influences a variety of interpersonal behaviors, thoughts, and judgments (e.g. Isen, 1987). Several theorists believe that people who feel good are more likely to seek out, participate in, and succeed in social interactions (e.g., Lyubormirsky, King, & Diener, 2005). Correlational evidence that happy people experience positive outcomes in economic, health, and satisfaction domains is often used to support this claim. However, experimental attempts to establish the mechanisms underlying the connection between positive affect and

beneficial social outcomes have proven less definitive. If happiness does increases other-focus, it might help to explain the associations between happiness and beneficial social outcomes.

*Positive Affect, Social Interest and Social Activity*

An association between positive emotions and social engagement has been found in a number of studies using a variety of research methods. For instance, personality research provides considerable evidence that positive affect is associated with the trait of extraversion (see Diener & Lucas, 1999 for a review). A meta-analysis of 47 samples provides an average correlation of .37, making the association between pleasant affect and extraversion one of the most consistent findings reported in the personality literature (Lucas & Fujita, 2000).

In addition to stable individual differences, there is strong correlational evidence that positive emotion and social engagement are related over time. Watson and Clark used daily diary methods to assess affect and various types of social activities. In a series of studies they found that that the amount of time participants spent in social activities was moderately correlated with the amount of positive affect experienced (Clark & Watson, 1988; Watson, 1988).

As well as participating in more social activity, happy people are also more socially interested. Crandall and Kytonen (1980) described the link between social interest and well-being in a review of four cross-sectional studies. Social interest (assessed by a forced choice values measure [Social Interest Scale, Crandall, 1975] and an open-ended sentence completion task) was associated with higher levels of well being for both university and older adult samples. Additional support for a relation between

positive emotion and interest in social information comes from a study in which psychiatric patients were asked to complete a measure of positive and negative affect (PANAS) and read a brief scenario describing people at a social gathering. After reading the scenario, patients were asked to indicate their interest in obtaining more information about the people described. Patients with higher positive affect scores reported more interest in obtaining information regarding the social, intellectual, and personality characteristics of the individuals described (Kuiper, McKee, Kazarian, & Olinger, 2000).

These correlational studies show an association between positive mood and social interest but can not address the direction of the effects. Unfortunately, experimental evidence on this topic has been somewhat sparse. One study using mood inductions found that participants in an elated mood show significantly more self-reported interest in social activities compared with neutral subjects (Cunningham, 1988b). Two experiments have also tested this association using behavioral measures of social interest. In the first, Isen (1970) found that participants in a positive mood were more likely to initiate conversation with a confederate and were significantly more likely to choose to work with another person rather than alone on the next study task. Cunningham (1988a) found that participants induced to feel elation showed higher levels of communication and self-disclosure with a confederate relative to participants in a depressed mood. Although no neutral mood condition was included in this design, self reported affect was correlated with total communication ($r=.35$, $p<.01$; Cunningham, 1988a). Finally, a study examining helping behavior found that participants induced to feel positive were more willing to help on a social task that required interacting with peers. In contrast, affect

was unrelated to helping on an equivalent non-social task (Cunningham, Shaffer, Barbee, Wolf, & Kelley, 1990).

Taken together, these studies provide converging evidence that happiness, social engagement, and social interest are related. However, these few studies provide the bulk of the evidence available. Additional searches of the literature for evidence replicating an increase in social interest or engagement during positive mood turned up only an unpublished manuscript showing that participants induced to feel happy disclosed more personal information and performed in a "more poised, skilled, and rewarding manner" (Forgas & Gunawardene, 2000). Even more important than the limited experimental evidence, the mechanisms by which positive affect influences social interest and engagement are not entirely clear. To help clarify *how* positive affect influences these social outcomes, it is useful to consider current theories of the function and outcomes of emotion.

### *Theories of Positive Affect and Broadening of Attention*

Theories of emotion have often relied on the idea that each specific emotion elicits a particular set of behaviors. These sets of behaviors, often called *action tendencies,* are believed to help the organism respond appropriately to the eliciting situation. For example, the specific action tendency elicited by anger is the urge to attack. According to this view, emotions are evolutionarily adaptive because they help to initiate the actions that are most likely to help the organism survive (e.g. fear initiates the urge to escape from danger). Importantly, this approach suggests that experiencing a particular emotion *narrows* the range of accessible thoughts and actions thus making a specific set of behaviors more likely (see Fredrickson, 2001).

Although specific action tendencies are helpful in explaining the function of negative emotion, theorists have struggled to find or describe what specific action tendencies are elicited by positive emotions (Fredrickson & Levenson, 1998). Fredrickson (2001) suggested that this difficulty may result from the nature of positive emotion itself. Specific positive emotions are less distinguishable from one another than are negative emotions. For example, there are numerous facial expressions (e.g. disgust, fear, anger, sadness) and physiological outcomes (e.g. arousal, lethargy) associated with discrete negative emotions. In contrast, positive emotions tend to be less discrete, each resulting in generally positive but undifferentiated presentations such as smiling (Fredrickson, 1998). Therefore, the theories developed to explain how discrete negative emotions narrow response tendencies are not sufficient to explain the functions and outcomes of more diffuse positive mood states.

Several different theories have been developed that specifically address the functions and outcomes of positive affect (e.g. Carver, 2003; Fredrickson, 1998, 2001; Isen, 1970, 1987). Although these theories differ in their focus and explanatory mechanisms, they consistently suggest that positive affect leads to more expansive and flexible patterns of thinking and behaving. This broadened thinking is incorporated into many explanations of the function and outcomes of positive emotion.

Isen and her colleagues conducted many of the pioneering empirical studies that demonstrated broadened cognition during the experience of positive affect. Those studies showed that individuals experiencing positive emotion tend to exhibit more inclusive, creative, and open-minded patterns of thinking (Clark & Isen, 1982; Isen, 1987; Moore & Isen, 1990). Isen and her colleagues argued that these changes in social

behavior are mediated by cognitive changes that result from positive mood. Neuropsychological evidence suggests that these cognitive changes result from increased brain dopamine levels experienced during positive affect (Ashby, Isen and Turken, 1999).

Building in part on Isen's work, Fredrickson developed a general theory to explain the functions and etiology of positive mood states. Her theory, the *broaden-and-build theory of positive emotion* (Fredrickson, 1998, 2001) is based on the idea that positive emotions lead to a broadened style of thinking and behaving. Fredrickson's theory expands the cognitive effects of positive emotion to describe consequences of broadened thinking for physical, intellectual, and social outcomes. In an analog to the specific action tendencies posited to narrow attention during negative emotion, Fredrickson argued that positive emotions generate more general "momentary thought-action repertoires" that encourage approach behavior and the seeking out of new experiences during positive emotions. In contrast to the narrowed behavior tendencies experienced during negative emotion, the diffuse and blended nature of positive emotions is reflected in the wide variety of behaviors that positive feelings can elicit. An important implication of the broaden-and-build theory is that the broadened thinking and experiences elicited by positive emotion eventually and cumulatively produce durable resources that engender positive future outcomes. The emotion of "joy", for instance, is posited to lead to playfulness, which over time can serve to strengthen and build relationships. Using a variety of positive mood induction techniques, Fredrickson has demonstrated the broadening effects of positive emotion on visual spatial tasks and self-report measures (Fredrickson & Branigan, 2005).

A third relevant theory regarding attention and positive emotions is Carver's (2003) model of the function of affect. Carver suggested that positive feelings serve as a signal that things are going better than necessary. In reaction to this signal, an individual feeling positive emotion is thought to decrease effort or "coast" in the current domain and to shift attention and effort to other domains. Essentially, Carver's model argues that the experience of pleasure serves as a cue that things are going well and that attention can be transferred to something else. This kind of switching of attention to different domains might lead to broadened attention by making individuals more likely to notice and pay attention to things they otherwise would have missed.

A central theme across each of these theories is that positive affect broadens attention. However, it is still unclear exactly what this broadened attention does to create positive outcomes. One possible answer is that broadened attention focuses attention on things other than the self. An important category of things outside the self is other people. Therefore, the broadening of attention resulting from positive emotion could lead to increased attention toward others. If this proves to be the case, other-focus might help to explain the beneficial social outcomes that are associated with positive affect.

### *Positive Affect, Social Memory and Perception*

The literature reviewed above suggests that positive affect leads to broadened attention. It does not address directly whether the experience of positive affect increases other-focus. Although other-focus has not previously been tested as a direct outcome of positive affect, there is some evidence in the literature showing that positive affect improves performance on tasks requiring other-focused attention. For example, Isen and

others have argued that happiness improves performance and efficiency on tasks involving social judgments and insight.

A study conducted by Isen (1970) suggests that positive affect may increase attention to and memory for others in the environment. In a paper investigating helping behavior, Isen described the "warm glow of success". She predicted that following a success experience people would behave more generously and be more attentive to the social environment compared to people who experienced failure. Participants were given success or failure feedback after taking a "test of perceptual-motor skills" and then given the opportunity to donate to charity. During the study session a confederate entered the room and performed a series of scripted actions before leaving. Afterward, participants were asked to recall everything they could about the confederate and her actions in the room. In addition, participants completed a recognition test that included a list of the confederate's scripted actions along with three false options. The success group showed significantly greater recall than the failure condition participants. In addition, on both the recall and recognition tasks, the success condition had (nonsignificantly) higher scores than the control condition (Success M=27.10, SD=7.39; Control M=22.10, SD=5.97).

In addition to these attention and memory effects, positive emotion appears to increase the accuracy with which social information is perceived and interpreted. One example of this can be found in a study examining the ability of individuals to make social judgments based on limited information. Ambady and Gray (2002) asked participants to view a series of short (15-second) silent video clips depicting opposite-sex dyads that were either a) involved in a romantic relationship, b) platonic friends, or c) strangers. Following each clip participants were asked to judge the relationship status of

each couple. Participants in the happy and neutral mood conditions were significantly more accurate in their judgments of relationship status than were sad mood participants. In addition, happy participants were significantly faster at completing the judgments than were control participants who were significantly faster than the sad mood participants. The authors suggest that interpreting nonverbal stimuli is an automatic process that is impeded by the more deliberative processing style exhibited during sadness. Although the authors were not specifically interested in the effects of positive affect, they use the same line of reasoning to suggest that increased use of heuristics and automatic processing during positive mood may result in improved performance in the automatic processes needed for this social judgment task. In fact, a planned contrast found that happy participants were significantly more efficient (defined as a composite of accuracy and latency) in making relationship judgments than were neutral or negative mood participants (Ambady & Gray, 2002). It is also possible that the improved efficiency was due to the happy participants' high level of other-focus which may have facilitated performance on a task demanding judgments of social stimuli.

Beyond making simple judgments of videotaped stimuli, everyday life requires individuals to understand and respond to the desires of other people during interactions. Carnevale and Isen (1986) examined how mood impacted participants' knowledge of their partner's preferences in a dyadic negotiation task. Participants induced to feel either neutral or positive affect were asked to reach agreement with a partner on a bargaining task. After finishing negotiation, participants were asked to guess the negotiation preferences of their partner. Positive affect was found to be significantly associated with improved insight into partner preferences (Carnevale & Isen, 1986). Unfortunately, the

data presented in the article prevent making a strong interpretation of this finding because the partner preference ratings were multiplied by a confidence rating. However, the authors' assertion that positive mood increases social insight is further bolstered by additional evidence from a different study conducted in a naturalistic setting. When asked to report on conditions in the organization in which they worked, individuals higher in positive affectivity were more accurate in their perceptions of the social network structure than people lower in positive affectivity (Casciaro, Carley & Krackhardt, 1999). This finding, along with the evidence presented that being happy improves memory and insight for social information, strengthens the prediction that positive affect should lead to increased attention directed toward others.

Evidence that happy people show improved memory and insight for social information suggests that broadening may specifically result in increased attention toward others. However, the evidence reviewed thus far has not directly addressed how attention is affected by mood. The next section highlights several lines of research examining the intersection of affect and attention.

### *Self-focus and Affect*

The idea that mood influences the amount of attention directed to internal versus external stimuli is not new. In fact, there is considerable research documenting a relation between negative affect and self-focus. Before addressing new questions regarding other-focused attention, it is useful to review the theories and evidence for the better-understood construct of self-focus.

Self-focus has been defined as attention directed inward toward one's own thoughts and feelings (Carver & Scheier, 1981). High levels of self-focus have been

associated with higher levels of depression (Pyszczynski, Holt, & Greenberg, 1987; Wood, Saltzberg, & Goldsamt, 1990), lower levels of life satisfaction (Exner, 1973), and even momentary experiences of negative affect (for a review see Mor & Winquist, 2002). The negative affect and self-focus relation appears robust across a variety of methods. Estimates of the magnitude of this effect were provided by a recent meta-analysis including both correlational (N=149, d=.51) and experimental (N=72, d=.44) data sets (Mor & Winquist, 2002).

Two primary arguments have been used to explain the association between negative emotions and self-focus: self-regulatory models and "signal" models. Self-regulatory models assume that negative mood occurs in response to a loss or a problem. This, in turn, initiates a series of regulatory processes that are thought to draw attention inward in order to deal with the cause of the problem (Pyszcynski et al., 1987; Wood et al., 1990). A related theory of depression, the self-regulatory perseveration theory describes a depressive self-focusing style. Pyszczynski et al. (1987) argue that self-focus results from the detection of a discrepancy between an individual's current state and the individual's desired standard. In order to remedy this discrepancy, a self-regulation process is activated that requires focusing on the self. Pyszcynski et al. argue that depression results from becoming caught in this self-regulatory pattern which leaves the individual stuck in a self-focused state.

A second group of models explaining the association between affect and self-focus regard mood as a signal, and suggest that attention is drawn inward in search of an explanation for that signal (Wood et al., 1990; Salovey & Rodin, 1985). These ideas are based on the assumption that distinctive or unusual events capture attention. The

experience of negative affect (a departure from baseline) therefore draws attention to the self. Unlike self-regulatory models, signal theories would therefore predict that any mood (positive or negative) would elicit self-focus.

*Self-focus and Positive Emotion*

In light of the growing evidence that self-focus increases during negative affect, several researchers began to question how positive affect impacts self-focused attention. "Signal" theories for mood effects suggest that positive affect increases self-focus because it draws attention inward in search of an explanation for emotion. Conversely, other theories argue that positive mood should decrease self-focus if it serves as an indication that the circumstances are safe or satisfying. Although the evidence regarding positive emotion and attention is somewhat sparse, a few relevant studies provide preliminary evidence.

In one study testing the signal theories, participants vividly imagined a situation that was happy, sad, or neutral (Salovey, 1992). Following this mood induction, self-focus was assessed using the Linguistic Implications Form (LIF). The LIF generates self-focus scores by measuring the number of first person singular words chosen to complete a series of English sentences. Salovey found that both positive and negative mood participants were more self-focused than controls. However, the results have since been questioned because the imagery mood induction used was more self-involving for both positive and negative conditions (Green & Sedikides, 2000).

Green and his colleagues addressed this and other methodological concerns in a study designed to specifically test how self-focus is affected by mood (Green, Sedikides, Saltzberg, Wood & Forzano, 2003). The authors used a within-subject design to test for

differences between neutral and induced positive mood conditions. Self-focus was measured by coding the content of a free-response thought sample. For 2.5 minutes participants were asked to write down everything that came to mind. The open-ended nature of thought listings addressed criticisms of past studies that demand characteristics were a concern (Sedikides, 1992; Wood et al., 1990). Each thought listed by participants was coded as either self-focused or not self-focused and a self-focus ratio was computed. Participants induced to feel positive mood showed significantly less self-focus than during neutral mood (d=.67). Although initial evidence was somewhat mixed (a few studies found no difference between neutral and positive mood conditions) the best evidence provided in the literature suggests that happy moods decrease self-focused attention (Wood et al., 1990). Unfortunately, the data presented do not specifically address whether this indicates a corresponding increase in attention directed toward others. The current research attempts to clarify this issue.

*Measurement of Self-focused Attention*

In order to test the theories describing an association between negative affect and self-focus, researchers needed to develop methods of measuring self-focused attention. A series of measures were developed based on the idea that focus of attention will be reflected in an individual's verbal productions. For example, currently-depressed college students use the word "I" more than never-depressed participants when writing an essay (Rude, Gortner, & Pennebaker, 2004).

Some of the earliest evidence regarding self-focus and language use comes from studies using the Self Focus Sentence Completion test (SFSC, Exner, 1973), a test developed to measure egocentricity. The SFSC asked participants to complete a series of

sentence stems such as "It's fun to daydream about..." and "I like...". Responses were coded as self-focused, externally focused or neutral. Self-focus scores were computed by subtracting the number of externally focused statements from the number of self-focused statements.

A few years later, Davis and Brock (1975) developed a measure that allowed self-focus to be assessed without the need to code open-ended responses. Using a cover-story that the study measured "sensitivity to foreign languages" the researchers presented participants with a series of sentences written in unfamiliar languages. Each pronoun in the foreign sentences was underlined. Participants were given a list of word choices and asked to go through the sentences and select the best word for each underlined foreign word. The word choice options were all English pronouns (I, we, me, us, my, our, he, his, him, it, she, her, they, them, and you). Self-focus was assessed by the relative frequency of first person pronouns used. This measure of self-focus has been used and adapted a number of times (e.g. Dijksterhuis & VanKnippenberg, 2000). One such variation was the Linguistic Implications Form (LIF) developed by Wegner and Guiliano (1980, 1983). In the LIF, a cover-story was presented telling the participants that prior research showed that things people say are often redundant and words in a sentence can often be guessed using the rest of the sentence. Participants were then given a series of sentences written in English, each containing one blank with several word choices to complete the sentence. For each sentence, participants were asked to select the most appropriate word. For each of the critical items one option was a first-person singular pronoun. Self-focus scores were again calculated as the number of first person singular words that participants selected.

Many researchers have used these measures to assess self-focused attention. However, the relative merits of each have not been compared, as generally only one measure is used in each particular study. It is assumed that the same underlying construct (self-focus) is being assessed because each of these measures draws on the same assumption that focus of attention is reflected in individual's word choices. The current study provides a unique comparison of the relative merits of each method by administering multiple measures to the same sample. In addition, it extends the use of this paradigm to the study of other-focused attention.

*Overview*

The current project includes three studies that examine the association between other-focused attention and positive affect. Drawing upon research regarding basic theories of positive emotion, and findings on the social outcomes associated with happiness, it was predicted that other-focused attention increases during positive affect. Building on theories that suggest that positive affect broadens attention, linguistic measures of other-focus were used to test whether this broadening of attention results in increased attention toward objects and concerns beyond the self. In particular, the studies were designed to test whether attention to people (a particularly important category of the stimuli available in the social environments in which humans live) increases with positive affect. The current project aims to test whether positive affect is associated with increased other-focus. If it does, other-focus could serve as an important explanation for why positive affect leads to beneficial social outcomes. If evidence suggests that happy people are more aware of and responsive to those around them due to increased other-

focus, it would follow that happy people should be better able to negotiate and succeed in social situations and relationships.

In order to create measures of other-focus, several methods of measuring self-focus were adapted to assess attention toward others. Study 1 tests the validity of these measures to assess other-focus. Study 2 provides a test of whether trait level positive affect is associated with higher levels of other-focus. Finally, Study 3 includes a laboratory mood induction to assess whether participants induced to feel positive affect show higher levels of other-focus than do neutral mood participants.

An additional goal was to gain a better understanding of the measurement of self-focused attention. Previous research has typically included only one measure of self-focus per study, making comparisons of efficacy and convergent validity impossible. The current studies each included several measures of self-focus in addition to the newly adapted other-focus measures. The inclusion of these scales permitted a test of whether the association between self-focus and negative affect replicated, as well as an examination of the relative merits of different scales used previously in the literature.

## Study 1- Online Manipulated Attention

Study 1 was designed to address three questions regarding measurement. First, although the different self-focus measures have been previously validated using self-focus manipulations (for review see Mor & Winquist, 2002), and are generally thought to measure the same construct, they have not previously been administered and compared in the same study. The current study compares the efficacy and convergence of existing measures. Second, Study 1 served to test whether this series of measures originally designed to assess self-focus could be adapted and used to measure other-focused

attention. The linguistic measures seemed to be ideal for this purpose but it was necessary to evaluate their efficacy in this new context. Third, Study 1 tests the validity of the newly adapted measures by inducing other-focus with an attentional focus manipulation. This provides a test of whether scores on the linguistic measures accurately reflect other-focused attention. Finally, the inclusion of a trait affect scale allowed an initial examination of the associations between affect and focus of attention.

## *Method*

### *Participants*

Participants (n = 155) were recruited from the undergraduate psychology research website at Michigan State University in exchange for partial class credit. Data from 9 participants were discarded because they logged off the experiment before completing the study measures. Five additional participants were excluded because they had previously completed a study containing similar measures. Results reported represent data from 141 participants (77 in the self-focus condition and 63 in the other-focus condition) who completed the full study measures.

### *Procedure*

All study materials were completed online and participation was anonymous. Participants were informed that the researcher was interested in intuitive language use and understanding. Instructions asked participants to complete a series of questionnaires and activities related to writing and understanding written language.

The first activity in the study materials was an induction of attentional focus. Participants were assigned to write two short essays about either self-focused or other-focused topics. The instructions in the self-focus condition indicated that participants

should, "Think about what you were like when you were in high school. Spend a minute thinking about yourself at that time. Then, write a description of yourself in high school. You can describe anything about yourself (what you were like, things you enjoyed doing, etc.)". After completing this essay, participants in the self-focus condition read additional instructions asking them to, "...think about yourself now. Think for a few moments about what you are like. Then write a short description of yourself." Participants in the *other-focus* condition completed a similar set of essays. However, participants in the other-focus condition were instructed to, "think about someone you knew when you were in high school," and write about that person. The second essay in the other-focus condition had participants think about and describe, "someone you know now". (See Appendix 1 for question wording and full instructions.)

Following this induction, participants were presented with the measures of focus of attention. First they completed the Linguistic Implications Form and the sentence completion task. Next, the self-report measures (PSC and other-focus questionnaire) and foreign language task were administered. Finally, participants completed an adjective rating affect scale. Upon completion of the study measures, participants read an educational description of the study goals and were given an opportunity to ask questions or address any concerns with the experimenter.

*Measures*

*Self-focus - Private Self-Consciousness Scale.* The private self-consciousness scale developed by Fenigstein et al. (1975) was administered in a version adapted to measure momentary self-consciousness. The scale contains ten items such as, "Right

now, I'm trying to figure myself out", and "I'm attentive to my inner feelings right now". See items 1-10 of Appendix 2 for full measure. ($\alpha$ = .70)

*Other-focus Questionnaire.* The items from the private self-consciousness scale (Fenigstein et al., 1975) were adapted to create a self-report measure of attention directed toward others. Participants completed the other-focused scale that included items such as, "I'm attentive to how other people feel", and "I'm alert to changes in other peoples' mood". In addition, two items created to directly assess other-focused attention were also included. These face valid items were, "I tend to pay attention to other people around me" and "I know more about those around me than most people". Responses to the twelve items were averaged to create a score for each participant. See items 11-25 of Appendix 2 for full measure. ($\alpha$ = .82)

*Linguistic Implications Form - Self-focus.* An adapted version of the Linguistic Implications Form (Wegner & Guiliano, 1980, 1983) served as one linguistic measure of attentional focus. Instructions informed participants that prior research had found that statements are often redundant and that words in a sentence can frequently be guessed using the rest of the sentence. A series of sentences were presented, each containing one blank space. Participants were asked to indicate which of three word choices would best complete each sentence. The current version was adapted such that each item included one option that was an externally focused pronoun or possessive adjective (e.g. she, they, his). The percentage of word choices referring to the self or others were calculated to measure attentional focus. Three types of self-focus scores were calculated and analyzed to represent the percentage of responses that were a) first person singular, b) first person plural, or c) either first person singular or plural. Because previous research has not

included or addressed the distinction between first person singular (e.g. I, me) and first person plural (e.g. we, us) no specific predictions were made regarding these categories. ($\alpha$ = .45)

*Linguistic Implications Form - Other-focus.* Using the same word choice data, other-focus scores were calculated as the percentage of externally focused words selected. See Appendix 3 for full measure. ($\alpha$ = .34)

*Foreign Language Task – Self-focus.* Following the procedures in Dijksterhuis and VanKnippenberg (2000), participants were told via computer that previous research has shown that while reading a foreign language people are sometimes able to guess the correct pronoun from languages they do not understand. They were told that although this has been observed for Romance languages the current study was investigating whether it is also true for more unfamiliar languages. Participants were then shown two passages written in unfamiliar languages with blank spaces in each sentence. Three word choices were provided for each blank and participants selected the word they believed most appropriate. Filler items included verbs or nouns, however on the eight critical items participants were asked to select from three pronouns. An example item included the options "us", "it", and "them" as choices to complete the foreign sentence. Self-focus scores were computed as the percentage of self-focused words (first person pronouns) selected to complete the foreign passage. (As there was only one first person plural pronoun option, no distinction was made between scores for different types of self-focus.) ($\alpha$ = .17)

*Foreign Language Task – Other-focus.* Other-focused responding was computed as the percentage of externally focused (e.g. "them") words chosen to complete the

critical items. A foreign language "thing" category score was also computed to represent the percentage of words selected that referred to objects or non-human targets (e.g. "it"). See Appendix 4 for full measure. ($\alpha$ = .05)

*Sentence Completion - Self-focus.* The Self Focus Sentence Completion (Exner, 1973) task was shortened and adapted to measure other-focused attention. Participants were asked to complete a list of sentence stems. The responses were then scored using the Linguistic Inquiry and Word Count software (LIWC; Pennebaker, Francis, & Booth, 2003) to assess the percentage of self-focused sentence completions. Example items include, "It's fun to daydream about: ____" and "My mother: _____". Composite scores were created for each participant by averaging the results of the linguistic analysis software for each of the fifteen sentence completion items. In order to obtain more detailed information regarding the focus of attention, separate variables were created to index the percentage of text referring to 1st person singular, 1st person plural, or a combination of the two. See Appendix 5 for full measure.

*Sentence Completion - Other-focus.* The sentence completion responses were also scored using the same software to create a rating of the percentage of externally-focused sentence completions. Separate scores were calculated for the percentage of text referring to other people (other), social content (social), and communication (comm). In addition, the software tabulated the percentage of text referencing friends (friend), family (family), or humans in general (human).

*Thought Listing – Self-focus.* The final self-focus measure asked participants to write down "anything that comes to mind" for a period of 2.5 minutes. (See Appendix 6 for full instructions.) The results of this free-response writing were analyzed for other-

focused references using linguistic analysis software (LIWC; Pennebaker et al., 2003). Similar to the sentence completion task, three self-focus variables were tabulated. Separate categories for 1st person singular, 1st person plural, and a combination of the two permitted a more nuanced analysis of self-focused attention and its associations with affect.

*Thought Listing – Other-focus.* The linguistic analysis software was also used to create scores representing the percentage of other-focused text for the free-response writing passages. As with the software analysis of the sentence completion task, scores were created to represent the percentage of writing dedicated to various other-focused categories. (The specific categories assessed were references to others, social processes, communication, references to friends, family and to humans in general.)

*Trait Affect.* The Intensity and Time Affect Survey (Diener, Smith, & Fujita, 2003) was used to measure trait affect. This measure asked participants to indicate the degree to which they *generally* feel a series of adjectives using a five-point scale. The four-item positive affect scale includes the items, "joy", "happiness", "contentment" and "pride". Negative affect was assessed by the items "sadness", "unhappiness", "depression", and "loneliness". See Appendix 7 for full measure. ($\alpha$ = .79 joy, $\alpha$ =.87 sad).

## *Results*

*Convergence of Measures - Self-focus.* Previous research has used a variety of self-report and linguistic measures to assess self-focused attention. If each of the measures of self-focus accurately capture attention directed inward to the self then there should be high correlations between the scores for each of the self-focus measures. To

interpret these intercorrelations it is helpful to consider the self-focus measures as falling into three broad categories; self-report, forced choice linguistic measures, and open-ended measures. Measures within each category share methodological characteristics and should be expected to show greater convergence than measures drawn from categories that use different methods. The Private Self Consciousness scale is the lone self-focus measure in the self-report category. The Linguistic Implications Form and foreign language translation task share similar response options and may be thought of as forced choice linguistic measures of self-focus. Finally, the sentence completion task and thought listing task are both comprised of open-ended responses that are coded for self- or other-focused content.

An examination of Table 1 indicates that the foreign language task and sentence completion task, for which participant writing is coded for self-focus, were significantly correlated ($r = .26$, $p<.01$). However, the convergence of the two forced choice linguistic measures (which also share method variance) was less strong. The linguistic implications scale and the foreign language task, showed a correlation of only $r = .16$ (ns).

Across categories, there was little evidence of convergence. The self-report measure of self-focus did not significantly correlate with any of the linguistic measures of self-focus (correlations ranged from -.06 for the foreign language task to .14 for the sentence completion task). In fact, the only significant association between categories of measures was between the Linguistic Implications Form and sentence completion task ($r = .26$, $p<.01$). Most of the other intercorrelations between self-focus measures were quite low, often approaching zero. (For the full table of intercorrelations between self-focus measures see Table 1.)

*Convergence of Measures - Other-focus.* Again, if the various measures of other-focus are valid, there should be strong associations between scores on the various scales. However, as with the self-focus measures on which they were based, the other-focus scales did not show strong convergent validity. The only exceptions were for measures assessed using similar methods. For example, other-focus scores on the forced choice linguistic procedures (Linguistic Implications Form and foreign language task) were moderately correlated ($r = .21$, $p<.01$). The open-ended measures also showed convergence, with references to friends on the sentence completion and thought-listing tasks correlated $r = .25$ ($p<.05$). The associations between other-focus scores were much lower on scales that did not share similar methods. The self-report measure of other-focus did not significantly correlate with the linguistic measures of other-focus except one subscale of the thought listing task (*r*s ranged from -.12 to .18). Overall there was little evidence of consistency in the way that participants scored on the various measures designed to assess other-focused attention. See Table 2 for full correlation matrix.

*Manipulation Check – Attentional Focus Induction.* Although convergent validity evidence was weak, it is still possible to assess whether any measures were responsive to the attentional focus manipulation. Participants were asked to write two essays describing themselves (one describing him/her in high school, and one describing him/her in the present). The purpose of this exercise was to focus attention inward and away from other people. The text of the essays was analyzed using linguistic analysis software (LIWC, Pennebaker et al., 2001). This software produces summary output detailing the percentage of text referring to self- and other-focused topics. For instance, the software analyzes a writing segment and generates percentages of text referring to 1$^{st}$ person

(singular and/or plural), 2nd person, and 3rd person pronouns. In addition, the software generates summary scores for categories such as social processes (social) and communication by analyzing an extensive dictionary of relevant words. As an example, there are 314 words that are included in the "social" category including terms such as "talk", "share", and "converse". This summary data allowed a direct comparison of the percentage of statements referring to the self and the percentage of statements referring to others.

A series of one-way ANOVAS was performed to compare the degree of self- and other-focused statements in the attentional induction essays. As predicted, participants in the other-focused condition wrote essays with significantly more statements about others (self .09%, other .83%, $F(1,139)=7.950$, $p<.01$), communication (self .09%, other 1.43%, $F(1, 139)=14.88$, $p<.01$), friends (self 1.36%, other 23.56% $F(1, 139)=248.60$, $p<.01$), and family (self .2.36%, other 3.31%, $F(1,139)=4.04$, $p<.05$).

However, a more careful examination of the attention-induction essays revealed that they may not have worked as planned. Although the manipulation was intended to focus attention inward to the self, many participants in the self-focus condition chose to write about themselves in the context of a social network and in reference to other people as well as themselves. In fact, participants in the self-focus condition wrote more statements that were classified as 1st person plural than participants in the other-focus condition (self 25.8%, other 6.8%, $F(1,139) = 215.15$, $p < .01$). This unexpected result indicates that rather than focusing attention inward, many participants in the self-focus condition described themselves as part of a larger social group. The failure of the attentional focus manipulation is further underscored by evidence that participants in the

other-focused condition wrote essays with more self-referent statements than participants in the self-focus condition (self .09%. other 1.43%, $F(1,139)=14.88$, $p<.01$).

Only one significant difference across condition was found for all of the attention measures. On the sentence completion task, participants in the self-focus condition used significantly more sentences with 1st person plural references ($F(1, 139) = 6.13$, $p < .05$). This reflects the same pattern found in the manipulation essay analyses, where participants in the self-focus condition were more likely to make references to "we", "us", and to themselves as a part of a larger social group. No significant differences were found across conditions for the other-focus measures (Other-focus questionnaire, Linguistic Implications Form, foreign language translation task, sentence completion task, and thought listing, see Table 3 for full results).[i]

*Self-focus and Negative Affect.* As reviewed earlier, an extensive body of research has been dedicated to the idea that negative affect and self-focused attention have reciprocal influences. This effect was replicated using the Private Self Consciousness (PSC) scale, a self-report measure of self-focused attention. Negative affect was significantly associated with scores on the self consciousness scale ($r = .34$, $p<.05$), an effect size that is comparable to previous findings (Mor & Winquist, 2002, Table 4). However, none of the linguistic measures of self-focus in this study were systematically associated with trait negative affect. The failure to replicate the negative affect/self-focus association using linguistic measures is of concern, as previous studies using the linguistic measures have reported reliable associations with self-focused attention.

*Self-focused Attention and Positive Affect.* As reviewed earlier, there has been debate as to whether positive emotion elicits self-focus attention, or whether negative emotion is unique in its inward focusing effects. Results from the current study provide no evidence that positive affect is associated with self-focus. Table 4 shows that the measures of self-focus showed low associations with positive affect with correlations ranging from -.13 to .10 for the various self-focus measures. Even the self-report measure of self-focus (PSC) showed no association with positive affect ($r$ = -.08, p>.05).

*Other-focus and Trait Affect.* Based on theories of positive affect and the relation between affect and attention, it was predicted that positive affect would be associated with higher levels of other-focused attention. The attention manipulation did not appear to influence participants' mood as there were no significant differences across attention condition for positive (Self-focus M = 3.42, SD = .78; Other-focus M =3.42, SD = .74) or negative (Self-focus M = 2.38, SD = .95; Other-focus M = 2.54, SD = .96) trait affect. Somewhat unexpectedly, high levels of negative affect were associated with higher scores on the Other-focus Questionnaire ($r$ =.25, p<.01). However, affect was not systematically related to any of the linguistic measures of other-focus assessed with most correlations close to zero. See Table 4 for full data.

## *Discussion*

The results of Study 1 raise a number of concerns regarding measurement of self-focus and other-focus. Intercorrelations between the various linguistic measures of self-focus were low. This lack of convergence raises the question of what exactly is being measured by each. The same measurement issues seem to plague the newly adapted

measures of linguistic other-focus, as they suffered from similarly low levels of convergent validity.

Consistent with the weak evidence for convergent validity, the attention scores were not responsive to the attention-focus manipulation. It was predicted that individuals induced to focus attention toward others would respond to the linguistic measures with a higher percentage of other-focused statements than a group induced to focus attention inward. A review of the essays suggested that writing self-focused essays failed to isolate attention toward the self. Many of the participants in the self-focus condition wrote about themselves *within a social context.* Statements such as "I had a really close group of friends..." or "I was really outgoing and got along with mostly everyone" were common. In light of these findings, this study does not provide the strong test of validity for the newly adapted measures of other-focus that was originally intended. These concerns strongly limit the conclusions that can be drawn from this study regarding the efficacy of these other-focus measures for measuring attention directed toward others.

However, even though the attention manipulation did not work, it is still possible to test the association with affect. The results regarding the association between affect and focus of attention were mixed. Scores on the self-report measure of self-focus (PSC) were correlated with negative affect, a replication of the long accepted association between self-focus and negative affect. However, none of the linguistic measures of self-focus was systematically associated with affect. Contrary to the prediction, the various measures of other-focus were also not associated with affect. It is unclear whether the failure to find differences on the linguistic measures of other-focus is a true null-result or the result of problems with measurement.

## Study 2 - Online Trait

Study 2 was designed to assess whether trait positive affect was associated with stable other-focus and did not require an attention induction. Study 2 also included a larger sample of participants so that the associations between measures of attention and affect could be examined with more reliable estimates.

### *Method*

#### *Participants*

Undergraduates from the Michigan State University psychology research pool participated in exchange for partial class credit. Analyses reported represent those participants who completed the online measures and were not familiar with the study materials from a previous study (n = 247). (Although a total of 262 logged onto the study website, data for 15 participants were excluded because participants indicated they had previously completed a related study.)

#### *Procedure*

The same materials and procedures used in Study 1 were administered online for Study 2. All procedures were the same except the initial attentional-focus induction was not included. This permitted a test of the association between general trait affect and trait focus of attention.

#### *Measures*

Participants completed the same measures of trait affect, self-focus, and other-focus used in Study 1. Self-focus was assessed using the Private Self-Consciousness Scale, the Linguistic Implications Form, the foreign language translation task and the thought listing task. Other-focus scores were also calculated for the Other-focus

Questionnaire, Linguistic Implications Form, foreign language translation task and thought listing task. See Table 5 for reliability estimates in this sample.

*Personality – Big Five factors of personality.* A twenty item measure designed to assess the Five Factor model of personality (Donnellan, Oswald, Baird, & Lucas, 2006) was also included to allow analyses controlling for relevant personality traits. See Appendix 8 for full measure.

*Results*

*Convergence of measures - Self-focus.* The various measures of self-focus again showed surprisingly little convergence. The two forced-choice linguistic measures showed the highest correlations, with a correlation of .20 between the Linguistic Implications Form and the foreign language task ($p<.05$). Despite shared method variance, the two open-ended measures of self-focus (sentence completion and thought listing) only correlated .12 (ns).

The self-report measure (PSC) was not significantly correlated with any of the linguistic measures of self-focus, with associations ranging from $r = -.06$ to $r = .10$. As in Study 1, the foreign language task and sentence completion task were significantly correlated ($r = .14$, $p<.05$) although the magnitude of the association was smaller ($r = .26$ in Study 1). Of note, the relatively high associations between the Linguistic Implications Form and sentence completion task in study 1were not replicated. Once again, the remaining associations between the various measures of self-focus were low with many approaching zero. See Table 6 for full intercorrelation data.

*Convergence of measures - Other-focus.* The intercorrelations between the measures of other-focused attention also showed relatively low levels of convergent

validity. The forced choice linguistic measures showed some convergence, with a significant correlation between other-focused word choices on the foreign language task and 3rd person word choices on the LIF ($r$ = .16, p<.05). The open-ended measures of other-focus also revealed some convergence, as the number of references to friends, family, communication, and social words in the sentence completion responses were significantly correlated to the corresponding categories for the thought listing task. (See Table 7 for complete data.) Looking at measures across different categories of measurement revealed small correlations between self-reported other-focus and the sentence completion task. Correlations ranged from .17 to .20 (p<.05). Self-reported other-focus was not associated with any of the other linguistic measures of other-focus and the remaining intercorrelations showed little evidence of convergent validity.

*Trait affect.* Participants responded to adjective ratings about how they generally feel. The mean for positive affect was 3.58 (SD = .63). The mean for the negative affect scale was 2.21 (SD = .76). Table 9 displays the associations between affect and focus of attention. Replicating previous reports and the results of Study 1, higher levels of private self-consciousness were associated with greater negative affect (r = .23, p < .01). However, there was no evidence of a relation between positive affect and scores on the Private Self-Consciousness scale (r = -.03, p = .64). The newly constructed other-focus questionnaire, which included the face-valid items assessing other focus, did not show any significant associations with affect. The correlation between positive affect and other-focus was in the predicted direction, but it did not reach significance (r = .11, ns). Negative affect showed almost zero association with the other-focus questionnaire (r = .04, ns).

Turning to the linguistic measures of other-focus, there were some mixed results regarding associations with affect. The forced choice linguistic measures (Linguistic Implications Form and foreign language task) showed no associations between affect and other-focus. Neither negative nor positive affect was significantly associated with other-focused responses on these measures. For the open-ended other-focus measures (thought listing and sentence completion tasks) participant responses were analyzed using the LIWC software and a composite score was computed for each individual on several categories relating to self- and other-focus. There were no systematic associations found between the content of sentence completions and negative affect. Scores of trait positive affect were correlated with the percentage of statements considered social ($r = .14$, $p < .05$), regarding friends ($r = .14$, $p < .05$), and regarding family ($r = .13$, $p < .05$). On the thought listing task, none of the attentional focus subscales were associated with positive affect. The percentage of statements regarding communication (e.g. talk, share, converse) was significantly associated with negative affect ($r = .13$, $p < .05$), although the dependability of this finding is questionable in light of the large number of small and almost-zero correlations between affect and various linguistic markers of other-focus.

*Personality.* Before interpreting the small but significant associations between affect and focus of attention, it seemed prudent to consider whether these results were due to other fundamental individual differences rather than the attention differences under examination. In particular, it seemed important to account for the fact that individuals high in the trait of extraversion are likely to report high levels of positive affect (Lucas & Fujita, 2000) and might also be likely to include high levels of social content in their open-ended responses, regardless of mood. Therefore, the analyses for

Study 2 were repeated while partialling individuals' level of extraversion. These partial correlations show the same pattern of associations previously reported, but the magnitude is smaller. See Table 9 for full data. For example, in the sentence completion task the association between positive affect and statements of a social nature drops from r = .14 to r = .10 when extraversion is included as a control variable. After accounting for extraversion scores, no associations between affect and sentence-completion content remained significant in this sample.[ii]

*Discussion*

Study 2 employed a larger sample and provided additional evidence of low convergent validity across measures of self-focus and other-focus. Despite these concerns, the sample once again replicated the significant association between self-reported self-focus and negative affect. In contrast, the linguistic measures of self-focus showed no associations with either positive or negative affect. Linguistic measures of other-focus also showed little association with affect. The only exceptions appeared in small correlations between positive affect and a few subscales of other-focus for the sentence completion and thought listing tasks. Controlling for extraversion further reduced the magnitude of these associations.

## Study 3 - Laboratory Manipulated Affect

The results of Studies 1 and 2 do not provide support for the convergent validity of the newly adapted measures of other-focus. Despite these concerns, a return to the literature suggests that many of the studies of self-focus on which this work is based have successfully used mood inductions to evaluate effects on focus of attention. Before discarding the adapted measures of other-focus, Study 3 administered the linguistic

measures in a laboratory context to examine the effects of *state* affect on other-focused attention. In order to assess the impact of temporary positive moods on other-focused attention, Study 3 used experimental mood inductions before assessing focus of attention. Participants induced to feel either positive or neutral affect completed the same measures of self-focus and other-focus used in Studies 1 and 2. This experiment allowed a direct test of the causal effect of positive affect on other-focus.

## *Method*

### *Participants*

Participants were undergraduates at Michigan State University that took part in the study in exchange for partial class credit through the Psychology department subject pool. 106 participants signed up for and attended experimental sessions. However, upon questioning, 21 participants acknowledged that they had previously completed a study with similar measures. Data from these participants were discarded. The results reported reflect data from 85 individuals. The final sample included 42 participants in the positive mood condition and 43 neutral mood participants.

### *Procedure*

Participants arrived at the laboratory and gave informed consent. Next, they were directed to individual computers on which all the study materials were presented. Mood condition was randomly assigned using a random number generator. The computer administered all study materials including the mood manipulation videos, instructions, and the study measures.

Positive and neutral mood were elicited using previously tested movie selections that have been found to induce positive affect or neutral mood. Participants in the

positive mood condition viewed a clip from Bill Cosby's stand-up comedy act. Participants in the neutral control condition watched a stock report clip of the same length.[iii] At the completion of the experiment, participants were provided with an education sheet explaining the research goals and thanked for their participation.

*Measures*

*Focus of Attention.* Participants completed the same measures of self-focus and other-focus used in Studies 1 and 2. Self-focus was assessed using the Private Self-Consciousness Scale, Linguistic Implications Form, the foreign language translation task, sentence completion, and the thought listing task. Other-focus scores were again calculated for each of these measures. Reliability estimates for this sample are provided in Table 5.

*State Affect.* State affect was measured after completion of the other study measures. Participants rated the degree to which they felt a series of affective adjectives *right now.* Positive affect adjectives included "happy" and "pleasant" ($\alpha$ = .74). Negative affect adjectives included "sad" and "unpleasant" ($\alpha$ =.76). (See Appendix 9 for full measure.)

*Results*

*Convergence of Measures – Self-focus.* The various measures of self-focus showed intercorrelations similar to those found in Studies 1 and 2. Once again, self-reports of self-focus were uncorrelated with the linguistic measures of self-focus and the linguistic measures showed little convergence. (See Table 10 for full correlation matrix.)

*Convergence of Measures – Other-focus.* Again, there was little evidence of convergent validity for other-focus. Intercorrelations between measures were small and

similar to those in Studies 1 and 2. (See Table 11 for full correlation matrix split by mood condition.)

*Manipulation Check – Mood Induction.* Participants completed the affect scale only after completing all of the experimental measures. This delay in administering the state affect scale was chosen to reduce the chances that the induced positive mood would dissipate prior to completing the critical study measures, and to avoid any potential demand characteristics. This delay, however, also meant that the affect scale could not serve as a direct manipulation check as it is possible that real differences in mood across the experimental groups during the study period would not be captured by an affect measure at the conclusion of the experiment. There were no differences in positive mood reported by participants on the state affect scale based on mood induction condition $F(1, 83) = .05$, ns. The mean for the positive mood condition was 3.04 (SD = .74) whereas the neutral mood condition had an average positive affect score of 3.07 (SD = .72). Likewise, there were no significant differences in negative mood reported by condition $F(1, 83) = .62$, ns. The mean for negative mood was 1.81 (SD = .77) for the positive mood condition and 1.93 (SD = .64) for the neutral mood condition.

*Self-focus and Affect.* The only measure of self-focus that was different across mood conditions was the self-report measure of private self consciousness. Participants in the neutral affect group showed higher levels of self consciousness than participants induced to feel positive mood $F(1,83) = 4.05$, $p < .05$; $d = .43$ (Positive mood M=3.17, SD=.63, Neutral mood M=3.43, SD=.56). It is interesting to note this effect seems to be driven by a decrease in reported self-focus for participants in a positive mood, a result

often hinted at in the literature examining negative affect but seldom tested with a neutral mood condition.

*Other-focused Attention and Affect.* Neither self-reports, nor linguistic measures of other-focus showed differences across mood conditions. A series of ANOVAs comparing scores on the Linguistic Implication Form, foreign language task, sentence completion task, thought listing, and other-focus questionnaire indicated no significant differences between groups. In addition, correlations between reported state affect and scores on the other-focus measures were low and nonsignificant.

## General Discussion

Theories of positive emotion suggest that being happy is associated with a variety of cognitive broadening effects. Correlational evidence supports the assertion that being happy is associated with increased interest and engagement in social activities. However, the processes underlying the association between broadening and beneficial outcomes are not yet understood. In fact, there is surprisingly little experimental evidence regarding the social effects of positive emotion. The current series of studies attempted to test one potential mechanism by which happiness might lead to beneficial social outcomes. Based on research examining self-focus, it was predicted that increased other-focus would be evident and measurable in the linguistic productions of happy individuals.

To address these questions, it was first necessary to investigate the validity of existing measures of self-focus and to adapt these measures as indicators of other-focus. Previous research examining self-focus has seldom examined the efficacy or convergence of the various measures. Each participant in the current set of studies completed one self-report and four linguistic measures of self-focus. Although commonly conceptualized as

measuring a single underlying construct, there was surprisingly little overlap across scores on the various measures of self-focus. In fact, even when using the combined sample of 388 participants, only a few of the correlations between measures of self-focus reached statistical levels of significance. Even the strongest associations tended to be small, ranging around $r = .10$. In fact, none were larger than the .19 correlation between the Foreign Language Translation and Linguistic Implications Form, two measures likely to share a great deal of method variance.

In light of such low intercorrelations, it is necessary to reconsider what each measure is actually tapping into, and which measure (if any) is a valid indicator of self-focus. Although the answers to these questions are not immediately clear, they have serious implications for both the current hypotheses and for previous research utilizing these measures of self-focus. If the various measures of self-focus are not actually assessing the same construct but all come to similar conclusions regarding self-focus and negative affect perhaps some third variable is responsible for the previous findings.

The low convergent validity across measures limited the conclusions that could be drawn regarding the current hypotheses. However, it was still possible to examine the association between affect and attention. Studies 1 and 2 replicated the relation between negative affect and self-reported self-focus. However, this association was consistent only for the self-report (PSC) measure of self-focus. None of the linguistic measures of self-focus showed meaningful associations with negative affect. This seems surprising because of the large body of research demonstrating this effect as robust. The 149 correlational studies included in a meta-analysis led to an estimate of $d = .51$. The most common self-report measure of self-focus used in these studies were the measures used in

the current project (the self consciousness scale of which the PSC is a part, and sentence completion tasks). It is possible that the adaptations to the linguistic measures designed to assess other-focus could be responsible for these findings that diverge from the previous body of research.

Despite the limitations posed by poor convergent validity, the large samples of participants completing multiple measures of attentional focus provided additional evidence regarding the processes by which emotion and self-focus are related. As reviewed, there is a discrepancy between the predictions proposed by signal theories and self-regulatory explanations for the association between affect and attention. Signal theories suggest that any emotion, positive or negative, should draw attention inward in search of the cause of the feeling. Self-regulatory theories predict that only negative affect should increase self-focus as attention is drawn inward by affect indicating a problem. Across three studies, negative emotion, but not positive emotion elicited self-focus assessed by self-report. This supports Green and colleagues (2003) argument for emotion regulation theories as an explanation for the affect and attention relation.

The goals of the current studies were to build on the theories and procedures developed to study self-focus in order to investigate other-focused attention. Perhaps not surprisingly, the newly created other-focus scales based on the existing self-focus measures showed low convergent validity. The associations between self-reported other-focus and the four linguistic measures of other-focus were small and inconsistent. Despite the low levels of convergent validity, there were some small indications that positive emotion is associated with increased social language usage. For example, several of the sentence completion subscales revealed increased social language for

participants with higher positive affect. However, the overall pattern of results is not sufficient to make strong claims of support for increased other-focus during positive affect.

There are two potentially compelling explanations for the unclear results for other-focus. First, it is possible that there are no meaningful individual differences in other-focused attention. Second, the failure to find clear patterns for other-focus may be the result of problems with instrumentation and measurement. Either of these two explanations have implications for theories that suggest positive emotion should increase other-focus.

First, it would be difficult to argue that other-focus is associated with positive emotion if there were no meaningful individual differences in other-focused attention. There is clear evidence of meaningful individual differences in positive emotion. Therefore, if other-focus and positive affect are related then a person with high trait positive affect should show correspondingly high levels of trait other-focus. Similarly, individuals low in trait positive affect should show lower mean levels of other-focused attention. Because levels of trait positive affect vary across people, evidence that other-focus does not vary is incompatible with the idea that the two constructs are systematically related.

At first glance, the idea that there are no meaningful individual differences in other-focus might also seem to conflict with the established effects for a seemingly similar construct, self-focus. However upon further consideration, it is possible that other-focus is a more complicated and less comparable phenomenon than originally considered. Defining self-focused attention is fairly straightforward. Popular

conceptualizations describe self-focus as limited to attention directed inward. In contrast, a precise definition for other-focused attention is much more difficult to construct. The amorphous nature of other-focused attention becomes most clear when an attempt is made to identify the boundary conditions for the construct. Is other-focus limited strictly to other *people* in the environment, or would attention toward other situational characteristics also be considered other-focus? Theories of positive emotion emphasize general broadening of cognition and do not offer much guidance as to whether attention toward other people represents a unique phenomenon or simply a category of targets for the more general mechanism. Future examinations of this topic will require more careful considerations of this distinction in order to clarify the processes involved. It will be particularly important to explain why social outcomes are related to positive affect in such a robust way.

A second possible explanation for the current findings is that differences in other-focused attention exist but can not be reliably assessed using the adapted measures of linguistic attention. The lack of convergence across self-report and linguistic measures of self-focus underscores the need to think more carefully about what exactly these scales are assessing. If the current measures are not appropriately measuring other-focused attention then no firm conclusions can be drawn regarding the current hypothesis.

In fact, similar to the results for self-focus, there was little evidence that the newly adapted measures of other-focus measure a single underlying construct. The linguistic measures of other-focus (Linguistic Implications Form, foreign language task, sentence completion task, and thought listing) all suffered from low reliability. This no doubt accounts for some of the lack of convergence shown for scores on these different

measures of other-focus. Although there was some convergence between the sentence completion and thought-listing tasks, even that overlap was small considering the similarity of the methods. Correlations between the scores for less similar methods of assessing other-focus (e.g. LIF and thought-listing) were extremely small and provided no support for convergent validity.

Theories that suggest that positive emotion broadens attention and cognition are not threatened by the instrumentation explanations for the current results. If problems with instrumentation and measurement are responsible for the lack of associations between affect and attention, theories suggesting positive affect increases interest and engagement in social activity remain untested. In this case, the hypotheses regarding positive emotions' influence on social outcomes are neither confirmed nor negated by the current evidence.

Before drawing any final conclusions regarding the current evidence, it is worth considering whether any unique characteristics of the current studies might be responsible for the lack of correspondence across measures of self-focus. Studies 1 and 2 were conducted online and materials for Study 3 were completed on a computer, in contrast to the paper and pencil administrations used in previous assessments of self-focus. Although there is no obvious reason to suspect this change would influence linguistic markers of self-focus, it is possible that computer administration could have introduced additional error variance that would attenuate the associations of interest. Another change from previous methodology was the inclusion of multiple measures of self-focus within one study session. This design was important as it permitted a comparison of the efficacy of various linguistic measures. However, it is possible that

the inclusion of similar measures could have led participants to respond differently due to fatigue or frustration with completing many similar items. Finally, it is possible that the adaptations made to the original self-focus measures in order to assess other-focus influenced the way in which participants responded across the different measures of self-focus.

## Summary

These results, as with all null results, are somewhat difficult to interpret. The clearest implication of the current evidence is that strong measures must be developed and evaluated before hypothesis testing can begin. Although self-focus research has gained support using linguistic measures of attention, it is now clear that there are major inconsistencies in how different researchers and methods measure the construct. Future research attempting to address these theoretical questions will first have to identify valid and reliable methods of assessing the constructs of interest. In fact, the difficulty of measuring these processes may be reflected in the sparse experimental evidence available regarding these questions. The correlational evidence for an association between social activity and positive emotion is strong, but there is very little published experimental evidence on the subject.

Until better methods of assessing other-focus can be developed, it may be more fruitful to focus on more direct effects of positive affect on behavior and/or outcomes. By gaining a better understanding of the nature of social benefits (e.g. health, occupational gains, etc.) related to positive emotion, more precise predictions regarding the process by which it occurs may be generated. If this is the case, questions regarding

the potential mediator of other-focused attention may best be delayed until improved methods or more precise predictions are possible.

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[i] The failure of the attention manipulation meant that there were no meaningful differences between conditions. Therefore for clarity, Tables 2-4 present data for all participants collapsed across condition. An examination of the same results split by condition revealed the same patterns of association and resulted in the same conclusions.

[ii] Studies 1 and 2 utilized similar methods and many of the same measures. This provided an opportunity to examine the associations of interest with a larger sample ($n = 388$) by combining the results from both online studies (Study 1 and Study 2, see Table 5 for reliability estimates of this sample.). In general the findings of this combined sample were similar to those of Study 2. However, in a few instances the increased sample size led correlations of similar magnitude to reach accepted levels of significance. For instance, positive affect remained significantly associated with increased sentence completions of a social nature ($r = .11$, $p < .05$) or about family ($r = .17$, $p < .01$) even when controlling for extraversion. See Table 9 for a complete comparison of the associations between affect and the attention measures, both before and after controlling for extraversion.

[iii] Upon completion of the video segment, the computer prompted participants to confirm that the video played successfully before continuing to the next activity. At the end of each session the experimenter asked participants if they had any questions or any problems with the study materials. A few participants alerted experimenters that the video was "jumpy" when it played. Unfortunately, a larger number (34 in positive condition, 27 in neutral condition) clicked "no" when asked if the video played correctly. It is unclear what impact this may have had on the mood effects of the video, and because so few participants indicated a problem in the debriefing with experimenters it is also unclear what the participants were referring to when they clicked "no" on this question but did not indicate a problem to the experimenter.

Table 1

Intercorrelations Between Measures of Self-focus (Study 1)

| | LIF | | | PSC | FLANG | Thought | | | SC | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1st s | 1st pl | s & pl | | | I | We | Self | I | We |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| **1.** LIF 1st singular | | | | | | | | | | |
| **2.** LIF 1st plural | -.65 | | | | | | | | | |
| **3.** LIF 1st s & pl | .52** | .31** | | | | | | | | |
| **4.** PSC | .02 | .06 | .10 | | | | | | | |
| **5.** FLANG | -.02 | .16 | .15 | -.06 | | | | | | |
| **6.** Thought - I | -.01 | .06 | .06 | -.03 | .10 | | | | | |
| **7.** Thought - we | -.01 | -.06 | -.09 | -.05 | -.09 | -.22** | | | | |
| **8.** Thought - self | -.01 | .04 | .03 | -.04 | .07 | .92 | .16* | | | |
| **9.** SC - I | .11 | .07 | .21* | .12 | .25** | .13 | -.09 | .10 | | |
| **10.** SC - we | -.09 | .12 | .02 | .13 | .07 | .06 | .13 | .11 | -.13 | |
| **11.** SC - self | .10 | .09 | .22* | .14 | .26** | .14 | -.07 | .11 | .99 | .00 |

* p<.05 ** p<.01

*Note:*

| | |
|---|---|
| *LIF* | *Linguistic Implications Form* |
| *PSC* | *Private Self Consciousness (self-reported self-focus)* |
| *FLANG* | *Foreign Language Translation Task* |
| *Thought* | *Thought Listing Open-ended Response* |
| *SC* | *Sentence Completion Task* |

Table 2

Intercorrelations Between Measures of Other-focus (Study 1)

| | **LIF** | **OthF** | **FLANG** | | **Thought** | | | | | | **SC** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3rd | | other | thing | other | social | comm | friends | family | human | other | social | comm | friends | family |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| **1.** LIF 3rd person | | | | | | | | | | | | | | | |
| **2.** Other focus | -.11 | | | | | | | | | | | | | | |
| **3.** FLANG - other | .21** | .01 | | | | | | | | | | | | | |
| **4.** FLANG - thing | -.13 | .07 | -.36** | | | | | | | | | | | | |
| **5.** Thought - other | -.07 | -.09 | -.16 | .12 | | | | | | | | | | | |
| **6.** Thought - social | -.08 | -.03 | -.08 | .17* | .73** | | | | | | | | | | |
| **7.** Thought - comm | -.21 | .02 | -.04 | .18* | .15 | .54** | | | | | | | | | |
| **8.** Thought - friend | -.11 | -.09 | -.04 | .01 | .23** | .45** | .13 | | | | | | | | |
| **9.** Thought - family | .10 | -.09 | .12 | -.03 | .12 | .30** | -.05 | .05 | | | | | | | |
| **10.** Thought - human | -.05 | .18* | .01 | -.03 | .10 | .19* | -.08 | -.08 | -.06 | | | | | | |
| **11.** SC - other | .16 | .05 | .03 | .10 | .02 | -.05 | .03 | -.05 | -.11 | -.06 | | | | | |
| **12.** SC - social | -.03 | .10 | -.09 | .07 | -.05 | -.11 | -.15 | .05 | -.08 | -.03 | .21** | | | | |
| **13.** SC - com | .01 | .11 | -.05 | .10 | -.04 | -.17* | -.08 | -.14 | -.15 | -.10 | .16 | .42** | | | |
| **14.** SC – friend | -.04 | -.03 | -.15 | .05 | -.03 | .08 | .00 | .25** | -.05 | -.06 | .60** | .40** | .14 | | |
| **15.** SC - family | -.01 | .12 | .02 | .01 | .00 | .02 | .01 | .03 | .22** | -.01 | .01 | .38** | .06 | -.05 | |
| **16.** SC - human | -.16 | .07 | -.04 | -.03 | -.08 | -.17* | -.10 | -.09 | -.13 | .06 | -.00 | .59** | .09 | -.00 | .06 |

* p<.05 ** p<.01

*Note:*

| | | | |
|---|---|---|---|
| *LIF* | *Linguistic Implications Form* | *Thought* | *Thought Listing Open-ended Response* |
| *OthF* | *Other-focus Questionnaire(self-reported other-focus)* | *SC* | *Sentence Completion Task* |
| *FLANG* | *Foreign Language Translation Task* | | |

Table 3

Analysis of Variance for Attention Manipulation (Study 1)

| Source | | Self M | Self SD | Self M | Other SD | F |
|---|---|---|---|---|---|---|
| Self-focus | | | | | | |
| Private Self-Consciousness (PSC) | | 3.37 | .59 | 3.30 | .55 | .45 |
| | 1st sing. | .42 | .12 | .44 | .17 | .59 |
| Linguistic Implications Form | 1st pl. | .33 | .12 | .32 | .13 | .16 |
| (LIF) | 1st s. or pl. | .74 | .13 | .75 | .11 | .26 |
| | 1st sing. | .25 | .15 | .24 | .15 | .17 |
| Foreign Language Task | 1st pl. | .08 | .08 | .09 | .10 | .29 |
| (FLANG) | 1st s. or pl. | .40 | .20 | .41 | .22 | .15 |
| | 1st sing. | 7.03 | 2.61 | 7.85 | 3.34 | 2.39 |
| Sentence Completion Task | 1st pl. | .14 | .40 | .15 | .42 | .01 |
| (SC) | 1st s. or pl. | 7.18 | 2.66 | 8.00 | 3.55 | 2.47 |
| | 1st sing. | 10.63 | 3.54 | 10.63 | 3.54 | .14 |
| Thought listing | 1st pl. | .87 | 1.75 | .87 | 1.75 | 6.13* |
| (Thought) | 1st s. or pl. | 11.50 | 3.54 | 11.50 | 3.54 | .33 |
| Other-focus | | | | | | |
| Other-focus questionnaire | | 3.47 | .62 | 3.44 | .57 | .03 |
| Linguistic Implications Form | Other | .26 | .12 | .25 | .11 | .26 |
| Foreign Language Task | Other | .31 | .19 | .31 | .16 | .00 |
| | Thing | .32 | .18 | .32 | .19 | .00 |
| | Other | .43 | .63 | .48 | .79 | .21 |
| | Social | 5.30 | 3.52 | 5.40 | 3.70 | .03 |
| Sentence Completion Task | Comm. | .55 | .90 | .62 | .94 | .23 |
| | Friends | .89 | 1.16 | .72 | 1.09 | .82 |
| | Family | .81 | 1.55 | .60 | 1.04 | .87 |
| | Humans | 1.55 | 2.07 | 1.96 | 2.09 | 1.39 |
| | Other | 1.68 | 2.61 | 2.16 | 3.24 | .95 |
| | Social | 6.40 | 5.44 | 5.93 | 4.50 | .30 |
| Thought listing | Comm. | 1.04 | 1.60 | .92 | 1.42 | .24 |
| | Friends | .83 | 1.36 | .77 | 1.16 | .07 |
| | Family | .75 | 1.50 | .63 | 1.78 | .27 |
| | Humans | .49 | .70 | .42 | .78 | .37 |

*df 1,139, p<.05*

Table 4

Associations Between Affect and Focus of Attention (Study 1)

| | | Joy | Sad |
|---|---|---|---|
| Self-Focus | | | |
| | 1st sing | .05 | -.02 |
| LIF | 1st pl | -.10 | .05 |
| | 1st s & pl | -.05 | .04 |
| PSC | | -.08 | .34** |
| FLANG | 1st s & pl | -.05 | -.00 |
| | I | .02 | -.07 |
| Thought listing task | We | .10 | .05 |
| | Self | .06 | -.05 |
| | I | .02 | .01 |
| Sentence Completion Task | We | -.13 | .12 |
| | Self | .00 | .03 |
| Other-Focus | | | |
| LIF | 3rd | .05 | -.04 |
| Other-focus questionnaire | other | .03 | .25** |
| FLANG | other | .08 | -.03 |
| | thing | -.03 | .03 |
| | Other | -.03 | .12 |
| | Social | -.03 | .05 |
| Thought Listing Task | Comm | -.08 | -.12 |
| | Friends | .02 | .02 |
| | Family | .07 | .03 |
| | Humans | -.15 | .12 |
| | Other | -.01 | -.12 |
| | Social | .12 | .05 |
| Sentence Completion Task | Comm | .05 | .03 |
| | Friends | .08 | .02 |
| | Family | .22** | -.08 |
| | Humans | .09 | .03 |

* $p < .05$ ** $p < .01$

*Note:*

| | |
|---|---|
| *LIF* | *Linguistic Implications Form* |
| *PSC* | *Private Self Consciousness (self-reported self-focus)* |
| *FLANG* | *Foreign Language Translation Task* |
| *Thought* | *Thought Listing Open-ended Response* |

Table 5

Reliability of Scales (Studies 2, 1&2 combined, and 3)

| Scale | Coefficient Alpha | | |
|---|---|---|---|
| | Study 2 | Studies 1 & 2 combined | Study 3 |
| Private Self Consciousness | .65 | .67 | .79 |
| Other-Focus Questionnaire | .81 | .82 | .80 |
| FLANG - Self | .17 | .17 | .03 |
| FLANG - Other | .13 | .10 | .10 |
| LIF – Self | .52 | .50 | .54 |
| LIF - Other | .51 | .46 | .50 |
| SC - I | .36 | .36 | .23 |
| SC - We | | -.10 | |
| SC - Self | .34 | .34 | .24 |
| SC - Other | .31 | .26 | |
| SC - Social | .42 | .39 | .07 |
| SC - Comm | .75 | .67 | .16 |
| SC - Friends | .17 | .08 | .00 |
| SC - Family | .23 | .34 | .19 |
| SC - Humans | .07 | .05 | .16 |
| Extraversion | .73 | .73 | .80 |
| Agreeableness | .72 | .74 | .65 |
| Conscientiousness | .72 | .71 | .80 |
| Neuroticism | .53 | .61 | .71 |
| Intellect/Imagination | .47 | .54 | .55 |
| Trait Positive Affect | .74 | .36 | |
| Trait Negative Affect | .83 | .85 | |

*Note:*

| | |
|---|---|
| *FLANG* | *Foreign Language Translation Task* |
| *LIF* | *Linguistic Implications Form* |
| *Thought* | *Thought Listing Open-ended Response* |
| *SC* | *Sentence Completion Task* |

Table 6

Intercorrelations Between Measures of Self-focus (Study 2)

| | LIF | | | PSC | FLANG | Thought | | | SC | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1st s | 1st pl | s & pl | | | I | We | Self | I | We |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| **1.** LIF 1st singular | | | | | | | | | | |
| **2.** LIF 1st plural | -.56 | | | | | | | | | |
| **3.** LIF 1st s & pl | .58** | .35** | | | | | | | | |
| **4.** PSC | .03 | -.05 | -.01 | | | | | | | |
| **5.** FLANG | .15* | .03 | .20** | -.06 | | | | | | |
| **6.** Thought - I | .04 | -.05 | -.00 | .09 | -.02 | | | | | |
| **7.** Thought - we | -.05 | .04 | -.01 | .02 | .04 | -.29** | | | | |
| **8.** Thought - self | .03 | -.04 | -.01 | .10 | -.01 | .95 | .02 | | | |
| **9.** SC - I | -.05 | -.05 | -.01 | .05 | .13* | .11 | .04 | .12 | | |
| **10.** SC - we | -.01 | .10 | -.03 | -.01 | .06 | -.13 | .07 | -.11 | .17** | |
| **11.** SC - self | -.07 | -.04 | -.11 | -.05 | .14* | .09 | .05 | .11 | .99** | -.04 |

* p<.05 ** p<.01

*Note:*

| | |
|---|---|
| *LIF* | *Linguistic Implications Form* |
| *PSC* | *Private Self Consciousness (self-reported self-focus)* |
| *FLANG* | *Foreign Language Translation Task* |
| *Thought* | *Thought Listing Open-ended Response* |
| *SC* | *Sentence Completion Task* |

Table 7

Intercorrelations Between Measures of Other-focus (Study 2)

| | LIF | OthF | FLANG | | Thought | | | | | | SC | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3rd | | other | thing | other | social | comm | friends | family | human | other | social | comm | friends | family |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** |
| **1.** LIF 3rd person | | | | | | | | | | | | | | | |
| **2.** Other focus | -.11 | | | | | | | | | | | | | | |
| **3.** FLANG - other | .16* | .05 | | | | | | | | | | | | | |
| **4.** FLANG - thing | .06 | -.04 | -.41** | | | | | | | | | | | | |
| **5.** Thought - other | .06 | .07 | -.01 | -.02 | | | | | | | | | | | |
| **6.** Thought - social | .00 | .01 | -.01 | .02 | .63** | | | | | | | | | | |
| **7.** Thought - comm | -.10 | -.01 | .01 | .01 | .04 | .40** | | | | | | | | | |
| **8.** Thought - friend | .06 | .07 | -.05 | -.04 | .25** | .34 | -.03 | | | | | | | | |
| **9.** Thought - family | -.07 | .01 | -.05 | .03 | .18** | .31** | -.06 | .07 | | | | | | | |
| **10.** Thought - human | .03 | .03 | .05 | .04 | .11 | .41** | -.03 | -.03 | -.04 | | | | | | |
| **11.** SC - other | .02 | -.04 | .08 | -.02 | .06 | .12 | -.01 | -.08 | .06 | .00 | | | | | |
| **12.** SC - social | -.06 | .20** | .03 | .03 | .11 | .25** | .29** | .12 | .12 | -.04 | .39** | | | | |
| **13.** SC - comm | .01 | .03 | .09 | -.08 | -.03 | .24** | .65** | .01 | -.04 | .02 | .03 | .42** | | | |
| **14.** SC – friend | .05 | .12 | .07 | .01 | .20** | .15* | -.06 | .20** | .08 | -.05 | -.03 | .38** | -.04 | | |
| **15.** SC - family | .05 | .18** | -.05 | -.01 | .09 | .14 | -.07 | .15* | .36** | -.01 | .09 | .39** | -.03 | .23** | |
| **16.** SC - human | -.16* | .17** | -.09 | -.09 | .03 | -.04 | .02 | .02 | -.02 | -.05 | .08 | .62** | -.03 | .11 | .07 |

* p<.05 ** p<.01

*Note:*

| | | | |
|---|---|---|---|
| *LIF* | *Linguistic Implications Form* | *Thought* | *Thought Listing Open-ended Response* |
| *OthF* | *Other-focus Questionnaire(self-reported other-focus)* | *SC* | *Sentence Completion Task* |
| *FLANG* | *Foreign Language Translation Task* | | |

Table 8

Associations Between Affect and Focus of Attention (Study 2 and 1&2 combined)

| | | Study 2 | | Studies 1 & 2 combined | |
|---|---|---|---|---|---|
| | | Joy | Sad | Joy | Sad |
| Self-Focus | | | | | |
| | 1st sing | .01 | .03 | .02 | .01 |
| LIF | 1st pl | .11 | -.06 | .02 | -.01 |
| | 1st s & pl | -.11 | -.02 | .05 | .00 |
| PSC | | -.03 | .23** | -.06 | .28** |
| FLANG | 1st s & pl | .05 | -.02 | .01 | -.01 |
| | I | -.08 | -.06 | -.05 | -.06 |
| Thought | We | .09 | -.04 | .10 | -.00 |
| | Self | -.05 | -.07 | -.01 | -.06 |
| | I | .06 | .03 | .04 | .03 |
| Sentence Completion | We | -.02 | .04 | -.06 | .07 |
| | Self | .06 | .03 | .03 | .04 |
| Other-Focus | | | | | |
| LIF | 3rd | -.11 | .02 | -.05 | -.00 |
| Other-focus questionnaire | other | .13** | .05 | .09 | .13** |
| FLANG | other | -.03 | .02 | .02 | -.00 |
| | thing | -.02 | .01 | -.02 | .01 |
| | Other | .05 | .03 | .00 | .08 |
| | Social | .03 | .08 | -.00 | .01 |
| Thought | Comm | -.03 | .13* | -.05 | .04 |
| | Friends | .10 | -.06 | .05 | -.01 |
| | Family | .03 | -.08 | .05 | -.03 |
| | Humans | -.07 | .11 | -.08 | .10 |
| | Other | .00 | .09 | .01 | .01 |
| | Social | .14* | .03 | .13** | .03 |
| Sentence Completion | Comm | .02 | .09 | .03 | .06 |
| | Friends | .15* | -.10 | -.12* | -.05 |
| | Family | .13* | -.06 | .17** | -.07 |
| | Humans | .02 | .01 | .05 | .02 |

* $p < .05$ ** $p < .01$

*Note:*

| | |
|---|---|
| *LIF* | *Linguistic Implications Form* |
| *PSC* | *Private Self Consciousness (self-reported self-focus)* |
| *FLANG* | *Foreign Language Translation Task* |
| *Thought* | *Thought Listing Open-ended Response* |
| *SC* | *Sentence Completion Task* |

Table 9

Associations Between Affect and Focus of Attention Controlling for Extraversion (Studies 1 & 2 Combined)

| | | Original Correlation | | Correlation partialing E | |
|---|---|---|---|---|---|
| | | Joy | Sad | Joy | Sad |
| Self-Focus | | | | | |
| | 1st sing | .02 | .01 | .01 | .02 |
| LIF | 1st pl | .02 | -.01 | .04 | -.02 |
| | 1st s & pl | .05 | .00 | .05 | .00 |
| PSC | | -.06 | .28** | -.05 | .29** |
| FLANG | 1st s & pl | .01 | -.01 | -.01 | -.01 |
| | I | -.05 | -.06 | -.02 | -.08 |
| Thought | We | .10 | -.00 | .09 | -.03 |
| | Self | -.01 | -.06 | .02 | -.09 |
| | I | .04 | .03 | .04 | .03 |
| Sentence Completion | We | -.06 | .07 | -.06 | .05 |
| | Self | .03 | .04 | .03 | .03 |
| Other-Focus | | | | | |
| LIF | 3rd | -.05 | -.00 | -.05 | -.00 |
| Other-focus questionnaire | other | .09 | .13** | .04 | .18** |
| FLANG | other | .02 | -.00 | .04 | -.02 |
| | thing | -.02 | .01 | -.01 | .02 |
| Thought | Other | .00 | .08 | -.04 | .11* |
| | Social | -.00 | .01 | -.06 | .09 |
| | Comm | -.05 | .04 | -.10* | .07 |
| | Friends | .05 | -.01 | .02 | -.02 |
| | Family | .05 | -.03 | .07 | -.05 |
| | Humans | -.08 | .10 | -.11* | .12* |
| Sentence Completion | Other | .01 | .01 | .01 | .01 |
| | Social | .13** | .03 | .11* | .04 |
| | Comm | .03 | .06 | .03 | .07 |
| | Friends | -.12* | -.05 | .08 | -.05 |
| | Family | .17** | -.07 | .17** | -.07 |
| | Humans | .05 | .02 | .05 | .02 |

* $p < .05$ ** $p < .01$

*Note:*

| | |
|---|---|
| *LIF* | *Linguistic Implications Form* |
| *PSC* | *Private Self Consciousness (self-reported self-focus)* |
| *FLANG* | *Foreign Language Translation Task* |
| *Thought* | *Thought Listing Open-ended Response* |
| *SC* | *Sentence Completion Task* |

Table 10

Intercorrelations Between Measures of Self-focus (Study 3)

| | LIF | | | PSC | FLANG | Thought | | | SC | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1st s | 1st pl | s & pl | | | I | We | Self | I | We | Self |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** |
| **1.** LIF 1st singular | | -.63** | -.67** | .02 | .19 | -.01 | -.11 | -.06 | -.30 | -.18 | -.32* |
| **2.** LIF 1st plural | -.52** | | -.12 | -.04 | -.09 | .01 | .20 | .10 | .11 | .09 | .12 |
| **3.** LIF 1st s & pl | -.63** | -.35* | | .01 | -.16 | .00 | -.05 | -.02 | .28 | .15 | .30 |
| **4.** PSC | .22 | .09 | -.32* | | -.15 | .22 | .07 | .26 | -.06 | -.05 | -.06 |
| **5.** FLANG | .22 | -.24 | -.02 | .07 | | .15 | -.10 | .12 | .11 | -.04 | .11 |
| **6.** Thought - I | .20 | -.19 | -.05 | -.14 | .45** | | -.26 | .92** | .20 | -.25 | .18 |
| **7.** Thought - we | .09 | .22 | -.30 | .11 | .05 | -.19 | | .15 | .00 | -.09 | -.01 |
| **8.** Thought – self | .23 | -.13 | -.13 | -.11 | .48** | .95** | .10 | | .21 | -.29 | .18 |
| **9.** SC - I | .16 | .14 | -.30* | .08 | .03 | .12 | .14 | .17 | | -.04 | .95** |
| **10.** SC - we | .16 | -.21 | .01 | .05 | -.03 | -.09 | -.09 | -.12 | -.03 | | .08 |
| **11.** SC - self | .17 | .13 | -.30* | .08 | .02 | .12 | .14 | .16 | .99** | .01 | |

* p<.05 ** p<.01

*Note:*
*Results for the positive mood condition are displayed above the diagonal, neutral condition results are below the diagonal*

| | | | |
|---|---|---|---|
| *LIF* | *Linguistic Implications Form* | *Thought* | *Thought Listing Open-ended Response* |
| *PSC* | *Private Self Consciousness (self-reported self-focus)* | *SC* | *Sentence Completion Task* |
| *FLANG* | *Foreign Language Translation Task* | | |

Table 11

Intercorrelations Between Measures of Other-focus (Study 3)

| | LIF | OthF | FLANG | | Thought | | | | | | | | SC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3rd | | other | thing | other | social | comm | friends | family | human | other | social | comm | friends | family | human |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** |
| **1.** LIF 3rd person | | .11 | -.10 | .22 | -.09 | -.07 | .02 | .04 | .28 | -.06 | .23 | -.02 | -.07 | -.02 | .07 | -.10 |
| **2.** Other focus | -.10 | | .17 | -.07 | .04 | .05 | .09 | .09 | .11 | .09 | .15 | -.07 | .15 | -.13 | -.11 | -.14 |
| **3.** FLANG - other | .04 | .14 | | -.57** | -.09 | -.04 | .05 | -.11 | -.05 | .00 | .05 | -.06 | .14 | .14 | -.08 | -.15 |
| **4.** FLANG - thing | -.02 | .07 | -.61** | | -.09 | -.04 | -.11 | .00 | .06 | .13 | .19 | .13 | -.09 | -.09 | -.08 | -.00 |
| **5.** Thought - other | -.15 | .05 | -.02 | -.06 | | .63** | .26 | .17 | .23 | .11 | .03 | .23 | .31* | -.20 | .09 | .22 |
| **6.** Thought - social | -.25 | .09 | -.12 | .14 | .79** | | .71** | .65** | .25 | .19 | .10 | .33* | .30 | .08 | .34* | .03 |
| **7.** Thought - comm | -.04 | .20 | .01 | -.22 | -.06 | .09 | | .38* | .15 | .07 | .02 | .10 | .30 | .07 | .03 | -.06 |
| **8.** Thought - friend | -.10 | -.16 | .07 | .07 | .16 | .33* | .01 | | .08 | -.07 | .21 | .23 | .00 | .27 | .32* | -.13 |
| **9.** Thought - family | -.10 | -.15 | .16 | -.23 | .42** | .40** | .01 | .04 | | -.01 | .08 | .04 | .24 | -.19 | .19 | -.14 |
| **10.** Thought - human | .01 | .07 | -.28 | .25 | .06 | .30 | -.15 | -.10 | -.17 | | .27 | .06 | -.01 | -.09 | .17 | -.09 |
| **11.** SC - other | .06 | -.07 | .20 | -.09 | .22 | .13 | -.14 | -.14 | .47** | -.19 | | .49** | .21 | -.02 | .33* | -.14 |
| **12.** SC - social | .06 | .11 | .10 | -.07 | .24 | .12 | -.05 | -.04 | .28 | -.12 | .23 | | .45** | .29 | .48** | .46** |
| **13.** SC - comm | .13 | -.11 | -.10 | -.07 | -.15 | -.22 | -.14 | -.14 | -.09 | .01 | -.12 | .38* | | -.04 | .09 | -.02 |
| **14.** SC – friend | -.12 | -.13 | .09 | -.21 | .06 | .06 | .03 | .23 | .16 | -.08 | -.21 | .17 | -.04 | | .26 | -.19 |
| **15.** SC - family | .03 | .30 | .08 | .02 | .23 | .18 | .03 | .31* | .21 | -.18 | -.04 | .37* | -.01 | .21 | | -.23 |
| **16.** SC - human | -.02 | .22 | .03 | .09 | .15 | .12 | .09 | -.14 | -.03 | .20 | -.11 | .58** | -.10 | -.16 | -.06 | |

* p<.05 ** p<.01

*Note: Results for the positive mood condition are displayed above the diagonal, neutral condition results are below the diagonal*

*LIF* *Linguistic Implications Form*
*OthF* *Other-focus Questionnaire(self-reported other-focus)*
*FLANG* *Foreign Language Translation Task*
*Thought* *Thought Listing Open-ended Response*
*SC* *Sentence Completion Task*

**Appendix 1 – Attentional focus induction**

**Participant Instructions:**

In the spaces provided please write descriptions of the following topics. Really think about and try to get a sense of the person/thing/time that you are describing. There are no right or wrong answers. Just try to think about the subject and then write a description that you believe fits.

Other-focus condition

1.) Think about someone you knew when you were in high school. Spend a minute thinking about this person at that time. Then, write a description of this person. You can describe anything about this person (what s/he was like, what s/he enjoyed doing, etc.).
2.) Next, think of someone you know now. It can be anyone (a friend, a coworker, a family member, etc.) Think for a few moments about this individual. Then write a short description of the person.

Control condition (self)

1.) Think about what you were like when you were in high school. Spend a minute thinking about yourself at that time. Then, write a description of yourself in high school. You can describe anything about yourself (what you were like, things you enjoyed doing, etc.)
2.) Next, think about yourself now. Think for a few moments about what you are like. Then write a short description of yourself.

**Appendix 2 – Private Self Consciousness and Other-focus Questionnaire (adapted/expanded from Fenigstein et al., 1975)**

**Participant Instructions:**
Please use the scale below to indicate how you feel right now.

|----------|----------|----------|----------|
1 2 3 4 5
Extremely Uncharacteristic Extremely Characteristic

State version of Private Self-Consciousness Scale (Fenigstein et al., 1975)

1.) Right now, I'm trying to figure myself out.
2.) Right now, I'm not very aware of myself.
3.) Right now, I am reflecting about myself.
4.) I'm often the subject of my own fantasies.
5.) Right now, I am scrutinizing myself.
6.) I'm attentive to my inner feelings right now.
7.) Right now, I'm examining my motives.
8.) Right now, I have the feeling that I'm off somewhere watching myself.
9.) Right now, I'm alert to changes in my mood.
10.) Right now, I'm aware of the way my mind works as I work through a problem.

Adapted version to measure Other-focus

11.) I like trying to figure other people out.
12.) I'm not very aware of other people.
13.) I reflect about other people a lot.
14.) Other people are often the subject of my thoughts.
15.) I don't like to scrutinize other people.
16.) I'm attentive to how other people feel.
17.) I'm like examining other peoples' motives.
18.) I sometimes have the feeling that I'm off somewhere watching other people.
19.) I'm alert to changes in other peoples' mood.
20.) I'm aware of the way other peoples' minds work when they think through a problem.
21.) I tend to pay attention to other people around me.
22.) I know more about those around me than most people.

**Appendix 3 – Adapted Linguistic Implications Form**

This measure of other-focus is adapted from Wegner and Guiliano's (1983) measure of self-focused attention. Scores will be calculated by summing the number of other-focused pronouns selected such that higher scores mean more other-focus. (Word choices that will count as other-focused are underlined.)

**Instructions:**
It has often been found that what people say contains a certain amount of redundancy. For example, you might hear only a part of a conversation going on across the room at a party, but still be able to fill in the blanks because much of the information in the conversation is repetitious. To research this phenomenon, we are collecting some judgments of standard passages--brief phrases, sentences, and the like--to find out how redundant they are. This exercise is concerned with the use of pronouns.

Your task is to look at each of the following passages and try to fill in the blank in each one. In each blank there are several possible pronouns that may make sense in the sentence. Please circle the word that makes the most sense to you. Fill in every blank. Even if you have to guess on some or many of the passages, go ahead and make your best guess for each one. Please try to fill in the most likely word (by circling that word in each sentence.)

1. All of (*our, my, their*) answers matched the ones in the back of the book.
2. At first it didn't seem to make any difference, but by later that night the noise from the party was entirely too loud to allow (*her, me, us*) to sleep.
3 . The salesman tried to persuade (*me, him, us*) to buy a set of encyclopedias.
4. The noise got to (*us, them, me*) before long.
5. (*Our, His, My*) idea of fun is sitting at home and listening to music.
6. The sun went in just when (*we, she, I*) decided to go outside.
7. Please don't do this to (*her, us, me*); it is just not fair.
8. It was (*his, our, my*) understanding that the deadline for the paper had been delayed one week.
9. Except for (*me, us, her*), everyone failed the test.
10. As a result of (*our, my, his*) suggestions, a minor revision in the policy has occurred.
11. (*He, We, I*) spent so much time on the initial planning that it seemed impossible to finish before the deadline.
12. It rained so hard that all of (*our, my, his*) clothes got soaked.
13. For the past two or three months, (*I, we, they*) have had reports of squabbling and dissatisfaction among the workers in the office.
14. According to (*our, my, her*) notes, only five of the original seven laws are still in existence.
15. Someone stopped (*them, me, us*) to get directions to the stadium.
16. (*We, He, I*) waited by the phone for the doctor to return the call.
17. The cashier charged (*her, us, me*) too little for the groceries.
18. The mosquitoes didn't even bother (*him, us, me*).
19. Dinner was waiting on the table when (*he, I, we*) came back from the store.
20. It isn't easy to get lost in this town, but somehow (*I, we, they*) managed it.

**Appendix 4 – Foreign Language Translation Measure (based on paradigm by Davis & Brock, 1978; Dijksterhuis & VanKnippenberg, 2000)**

**Instructions:**

Previous research has found that intuition helps people to determine what word belongs in a passage, even when they are not familiar with the language being used. Previous research has been conducted with Romance language but we now want to find out if this skill extends to additional non-Western languages.

A list of options will appear for each blank space in the passage. Please select the word that you think is most appropriate to complete the sentence. If you are not sure about which word is best, make your best guess. We will ask you to report your confidence in these answers after you complete the entire passage. (** indicates critical item)

'Oku 'uhinga 'a e lea Ha'a ki he _(1)_ fototehina 'o ha Hou'eiki pe Nopele 'o kau ai mo e Hou'eiki ko ia, pea 'oku ai honau 'Ulumotu'a/Taki 'a ia ko e angamaheni ko e lahi taha _(2)_ kinautolu, pea 'oku ai mo e Kâinga 'o e Ha'a taki taha 'a ia ko e _(3)_ mo e kau matapule pea mo honau ngaahi fototehina. 'Oku ai 'a e kau matâpule/Kâinga 'o e Ha'a mo e _(4)_ kotoa pê. _(5)_ pehê ko e lea Ha'a ne fa'angâue'aki pê ki he Hou'eiki Tangata pea mo e lau fatongia hangê ko e Ha'a Tufunga, ka 'oku ki'i tu'u fihi 'eni he _(6)_ a e Ha'a ia ne tupu mai mei he Hou'eiki Fafine, hangê ko e Ha'a Falefisi ko e tupu mai mei he Tu'i Tonga Fefine ko Sinaitakala I ne ta'ane mo e 'eiki _(7)_ mei Fisi ko Tapu'osi, _(8)_ ko e Ha'a 'Uluakimata ne fa'a pehê ko e Ha'a ia 'o e kau Tamahâ mo e Tamatauhala 'a ia ne nau mei fefine _(9)_ pea pehê he lau 'e _(10)_ ko e hako 'o 'Uluakimata.

Word choices:

1) Run, swim, be
2) Table, apple, towel
3) It, they, ours**
4) If, and, grow
5) I, someone, something**
6) Door, rock, glass
7) She, me, it**
8) Something, nothing, anything
9) Us, it, them**
10) Tall, grab, flat

Mika Komppula on väitöksessään tutkinut uusien aerosolihiukkasten muodostumista _(11)_ niiden kasvua sellaiseen kokoon, _(12)_ ne voivat toimia pilvipisaroiden tiivistymisytiminä. Väitös paljastaa ensimmäistä _(13)_ kokeellisesti sen, että ilmakehässä muodostuneet pienhiukkaset vaikuttavat selkeästi pilvipisaroiden syntymiseen. Tutkittaessa _(14)_ ilmassa Lapissa hiukkasten aktivoitumista pilvipisaroiksi havaittiin pienimpienkin hiukkasten vaikutukset pilven muodostukseen merkittäviksi. Pilvipisaroiden lukumäärän havaittiin _(15)_ olevan verrannollinen hiukkasten määrään, eli _(16)_ enemmän hiukkasia, sitä enemmän on myös pilvipisaroita. Mikäli pisaroiden muodostumiseen on käytettävissä sama määrä vesihöyryä, hiukkasten ja _(17)_ kautta pisaramäärän lisäys pienentää pisaroiden keskimääräistä kokoa. Tämä _(18)_ voi vaikuttaa vähentävästi sademääriin ja lisätä pilvisyyttä, mikä edelleen vähentää maan pinnalle pääsevän auringon _(19)_ määrää. Maailmanlaajuisesti nämä tulokset tarkoittavat sitä, että pienhiukkasten tuotto vaikuttaa merkittävästi _(20)_ pilvipisaroihin ja siten maapallon lämpötilaan.

11) Mountain, think, be
12) Hers, my, lots**
13) If, is, will be
14) Have, can, are
15) She, it, I**
16) Glad, round, well
17) Plenty, scarce, searching
18) Mine, object, theirs**
19) When, talk, fight
20) Anything, myself, himself**

**Appendix 5 - Sentence Completion Stems from Self Focus Sentence Completion (Exner, 1973)**

This measure is adapted from Exner, 1973 and will be coded according to the revised coding scheme described in Crandall & Kytonen, 1980. Responses referring to other people are scored as other-focused (O), responses referring to the self are scored as Self-focus (S), and responses not meeting either criteria are scored as neutral (N). Analyses will evaluate both specifically other-focused (O) responses as well as a composite of externally focused responses (O and N) to evaluate non-self-focused attention.

**Instructions:**
Next we would like you to write some sentences of your own. For each of the sentence stems below, please make up an ending to the sentence. You can write about anything you wish, but try to use complete sentences in your response.

1) I think:
2) It's fun to daydream about:
3) My father:
4) If only I could:
5) It's hardest for me:
6) I wish:
7) As a child I:
8) Others:
9) Friends:
10) I would like most to be photographed:
11) My mother:
12) I wonder:
13) I always wanted:
14) Someday I:
15) I like:

## Appendix 6 – Instructions for Thought Listing Task

The final other-focus measure will ask participants to write down "anything that comes to mind" for a period of 2.5 minutes. The results of this free-response writing will be analyzed for other-focused references and a ratio of other-focused thoughts relative to total thoughts will be computed (Green et al., 2003; Wood et al., 1990).

**Instructions:**
In this final writing task you will be given space to write for 2 ½ minutes. The computer will notify you when time is up so please continue writing until that occurs. There are no right or wrong answers, we would just like you to write anything that comes to mind.

In the space below, please write about anything that comes to mind. The computer will inform you when you should move to the next activity.

**Appendix 7 – Intensity and Time Affect Survey - ITAS (Diener, Smith & Fujita)**

Next, we want to know how the participant feels **in general**, that is on average. To what extent does the participant experience each of the following emotions **in general**?

1 = Very slightly or not at all
2 = A little
3 = Moderately
4 = Quite a bit
5 = Extremely

1. Affection
2. Joy
3. Fear
4. Anger
5. Shame
6. Sadness
7. Love
8. Happiness
9. Worry
10. Irritation
11. Guilt
12. Loneliness
13. Caring
14. Contentment
15. Anxiety
16. Disgust
17. Regret
18. Unhappiness
19. Fondness
20. Pride
21. Nervous
22. Rage
23. Embarrassment
44. Depression

**Appendix 8 – Personality (Donnellan, Oswald, Baird & Lucas, 2006)**

**Participant Instructions:**

Below there are phrases describing people's behavior. Please use the rating scale below to describe how accurately each statement describes *you*. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully, and then select appropriate number on the scale.

SCALE:
1 – Very Inaccurate
2 – Moderately Inaccurate
3 – Neither Inaccurate nor Accurate
4 – Moderately Accurate
5 – Very Accurate

1.) Am the life of the party.
2.) Sympathize with others' feelings.
3.) Get chores done right away.
4.) Have frequent mood swings.
5.) Have a vivid imagination.
6.) Don't talk a lot. **R**
7.) Am not interested in other people's problems. **R**
8.) Often forget to put things back in their proper place. **R**
9.) Am relaxed most of the time. **R**
10.) Am not interested in abstract ideas. **R**
11.) Talk to a lot of different people at parties.
12.) Feel others' emotions.
13.) Like order.
14.) Get upset easily.
15.) Have difficulty understanding abstract ideas. **R**
16.) Keep in the background. **R**
17.) Am not really interested in others. **R**
18.) Make a mess of things. **R**
19.) Seldom feel blue. **R**
20.) Do not have a good imagination. **R**

**Appendix 9 – State affect**

Next, we have some questions about how you feel right now. Please use the scale below to indicate how you feel **right now.**

1 = I **do not feel it**
2 = I feel it **very slightly**
3 = I feel it **moderately**
4 = I feel it **strongly**
5 = I feel it **very strongly**

1. Pleasant
2. Unpleasant
3. Awake
4. Calm
5. Sad
6. Excited
7. Irritated
8. Alert
9. Happy
10. Energetic
11. Bored