

The Grass is Always Greener in Someone Else's Profile Picture: The Role of SEM in Initiating  
Benign and Malicious Envy on Facebook Users

by

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## **ABSTRACT**

The social networking site Facebook is a popular domain where people can share pictures, status updates, and communicate with one another over the internet. While there are benefits to the ability to connect electronically with friends who are geographically distant, recent research illustrates a potentially damaging effect on well-being. In particular, envy plays a mediating role in the relationship between Facebook use and more negative affect and increased depressive symptoms. Although envy can produce positive emotions, as well as motivation to improve oneself, past research primarily identifies only deleterious effects of envy. Through the theoretical framework of the self-evaluation maintenance model, evidence for the phenomena of benign and malicious envy was explored to provide a more complete look at the impact of envy on Facebook.

*Keywords:* social networking, social media, Facebook, self-evaluation maintenance model, SEM, benign envy, malicious envy, Facebook depression, Facebook envy

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## CHAPTER 1

### INTRODUCTION

Since the creation of Facebook in 2004, user numbers have grown to millions across hundreds of countries, with more than 400 studies examining this phenomenon (Wilson et al., 2012). Many studies have recently been published that explore the negative impact of Facebook use on users' depression (Banjanin, Banjanin, Dimitrijevic, & Pantic, 2014; Jelenchick, Eickhoff, & Moreno, 2013; Labrague, 2014; Simoncic et al., 2014) with mixed results. On the surface, increased Facebook use is not in and of itself related to the increase of depressive symptoms in users (Banjanin et al., 2014; Jelenchick et al., 2013; Simoncic et al., 2014). However, studies that have included the role of social comparison in the relationship between Facebook and depression have found significant results (Chou & Edge, 2012; Haferkamp & Kramer, 2011; Krasnova, Wenninger, Widjaja, & Buxman, 2013, Krasnova et al., 2015; Tandoc, Ferrucci, & Duffy, 2014). These studies have found that the relationship between Facebook use and depressive symptoms in users is mediated by envy. In each of these studies, envy was operationalized as an upward comparison; an experience in which users compared themselves to another Facebook user whom they felt was better than themselves. This type of comparison can lead to the experience of either malicious or benign envy (van de Ven, Zeelenberg, & Pieters, 2009). Malicious envy is a desire to have what another person has, such as a material possession or an accomplishment. This experience motivates individuals to hurt the status of another who is perceived to be superior to oneself. While malicious envy seeks to pull another down, benign envy motivates people to improve themselves, particularly to be equal to another that is viewed as better than oneself (Lange & Crusius, 2015).

The present study was guided by the Self-Evaluation Maintenance Theory (SEM; Tesser, 1988), a theory that emerged from Festinger's (1954) Social Comparison Theory. This theory maintains that three factors impact the way in which a person evaluates him or herself after witnessing another's performance or engagement on a task. The three factors relevant to one's self-evaluation are the closeness of that other person to oneself, the performance of the other person, and the self-relevance of the task the other person has performed. It should be noted that not all domains require a "performance;" for example, the domain of family may be important to a person, but there is no performance aspect to this domain. Rather, the act of having a family, or feeling close to family, may be considered the "performance." Through decades of studies (see Cialdini et al., 1976; Cialdini & Richardson, 1980; Crawford, 2007; Hannawa & Spitzberg, 2009; Kamide & Daibo, 2009; Morf & Rhodewalt, 1993; Nicholls & Stukas, 2011; O'Mahen, Beach, & Tesser, 2000; Tesser & Campbell, 1982; Tesser & Collins, 1988; Zuckerman & Jost, 2001), SEM has shown that the interplay of these factors can lead to either a reflection process, which is mirrored by benign envy, or a comparison process, which is akin to malicious envy. When another person is close to oneself, and that person performs well on a task that is self-relevant or important to oneself, comparison and malicious envy are likely to occur. When a distant other performs well on a task that is self-relevant to oneself, reflection and benign envy are likely to take place. Similarly, when someone who is close to oneself performs well on a task that one does not find important or relevant to oneself, benign envy can happen (Tesser, 1988; Tesser & Collins, 1988).

To date, only one study has examined the experience of malicious and benign envy in the context of Facebook through the lens of SEM theory. This study found closer relationships between the participant and the writer of a Facebook post predict happiness, and posts about a

domain low in self-relevance predict benign envy in an experimental setting (Lin & Utz, 2015). The present research addressed the limitations presented by exploring self-relevant domains in a genuine way, rather than a pre-determined experimental scenario by allowing participants to choose for themselves what domains are self-relevant. This was accomplished by allowing participants to identify life-goals that are relevant and important to them, and those that are unimportant to them. My manipulation examined the experience of reading posts that are related to life-goals high or low in self-relevance to the participants. This study also addressed the need for a scale that measures benign and malicious envy across various domains through the creation of the Benign Episodic Envy Scale (BEES). The present research is rooted in theories of social comparison and the ways in which individuals use social comparison as way to evaluate themselves.

## **Literature Review**

### **Festinger's Social Comparison Theory**

The first theory to explore social comparisons, Social Comparison Theory (SCT; Festinger, 1954) explains the impact that social groups and other individuals have on an individual. SCT holds that people are innately driven to evaluate their opinions and abilities objectively. However, if no objective measure is available, people will evaluate themselves against others to gain perspective on whether or not their opinions are correct, and if their perception of their own abilities is accurate. Often done in the context of social groups, specifically with similar people, this information is used to change oneself or make decisions about one's options (Schwartz et al., 2002). When there is a discrepancy between the opinion or evaluation of the individual and the social group or person of comparison, the individual will



take steps in order to decrease the discrepancy (Festinger, 1954; Thorton & Arrowood, 1966; Wood, 1989).

***Social comparisons as a means of self-evaluation and self-enhancement.*** Individuals compare themselves against similar others and those who share qualities, interests, characteristics (Thorton & Arrowood, 1966; Wood, 1989). One purpose of this comparison is to evaluate one's abilities and opinions against a person who may be seen as average. This comparison may also be for purposes of improving one's self; those who are comparing themselves in order to understand areas of growth may engage in upward social comparison, while those aiming to feel better about their own position in relation to others who are worse off may engage in a downward social comparison.

Upward social comparisons allow an individual to compare himself to another person who is excelling in a certain domain that the individual also hopes to excel in. This comparison then serves as motivation for improvement. Downward social comparisons address the goal of improving how one feels about himself by comparing himself to another person who is in a worse situation, thus increasing the individual's self-evaluation (Suls, Martin, & Wheeler, 2002). Directionality of comparisons, upward or downward, plays a key role in evaluating oneself against another. Social Comparison Theory maintains that there is a tendency to engage in upward comparisons when evaluating one's abilities; that is to say, people are more likely to compare themselves to others who they think are better or superior. Upward comparisons can have both positive and negative impacts (Collins, 1996). In SCT, upward comparisons play the role of motivating a person to improve himself, or may make him feel better about himself for being part of a social group made up of others that are better than average (Collins, 1996).

However, it is most often the case that upward comparisons lower self-regard by forcing an individual to see that he is in a lower position than another (Tesser, Millar, & Moore, 1988).

Downward comparisons, or the evaluation of oneself against someone who is worse off, is associated with increased self-regard and subjective well-being (Wills, 1981). This direction of comparison highlights the ways in which a person is superior or better off than another, which creates a more positive view of the self (Gibbons, 1986; Wills, 1981). Individuals feeling threatened are more likely to engage in this type of comparison as a means of coping with difficult or trying situations (Suls et al., 2002). Examples of how downward comparison improves self-regard can be seen in the context of volunteering. Downward social comparison can motivate an individual to help others that are less fortunate, which may in turn increase life-satisfaction (Huang, 2016). Downward social comparison can also take place at a group level, with groups of individuals comparing themselves to another group that is perceived to be inferior in order to feel a superior differentiation between groups (Zagefka & Brown, 2006).

### **Moderators of social comparisons.**

***Mood and self-esteem.*** Both upward and downward social comparisons have the potential to produce positive and negative affect (Buunk et al., 1990). Upward comparisons may lead to envy and frustration, leaving an individual wanting what another person has (Salovey & Rodin, 1984; Martin, 1986). It may also inspire a person to obtain what another has, particularly if the goal of improvement is tangible and realistic (Buunk et al., 1990). Similarly, downward comparison may incite feelings of superiority over another (Gibbons & Gerrard, 1991), or produce feelings of worry of the potential for one's own decline (Brickman & Bulman, 1977). The impact of upward and downward social comparisons can be moderated: the mood of the

individual at the time of the social comparison, his self-esteem, and recent setbacks (Aspinwall & Taylor, 1993). People in self-reported negative moods experienced an improvement in mood after engaging in a downward social comparison only if they had low self-esteem (Aspinwall & Taylor, 1993). Those with high self-esteem are minimally impacted by downward social comparisons, but experience an improvement in mood while engaged in an upward social comparison (Gibbons & Gerrard, 1989). Those who experienced a negative event within two weeks of engaging in an upward social comparison are more likely to feel frustration as opposed to increases in positive mood.

*Severity of situation and coping success.* Believing another's predicament is more severe in a downward comparison can improve one's ability to cope with her own situation (Taylor, Wood, & Lichtman, 1983). This is seen particularly in the medical community with breast and other cancer patients, and those with spinal cord injury (Batenberg & Das, 2015; Buunk, Zurriaga, & Gonzalez, 2006; Wood, Taylor, & Lichtman, 1985). Seeing others in the survivor's community with medical conditions that are more severe has been shown to increase subjective well-being in the form of feeling better about one's own health. Upward comparisons may also facilitate coping by seeing another individual who is successfully coping with difficulty, may facilitate coping (Carmona, Buunk, Peiro, Rodriguez, & Braco, 2010; Thoits, 1986).

### **Social Comparison and Well-Being**

It has been argued that the more often a person compares himself against others, the more disparaging comparisons he will find, and the more sensitive he will become to future discrepancies between himself and others. This may lead to increased and continuous feelings of vulnerability and inferiority (Lyubomirsky, 2008). People who are less focused on others tend to

be happier than those who focus on comparing themselves to others (Lyubomirsky, 2001). When happy people do make comparisons, they use an internal standard to evaluate themselves and care very little about the successes or failures of others (Lyubomirsky, 2008).

In addition to impacting happiness, social comparisons have been shown to have impacts on well-being. Downward social comparisons tend to make people feel better about themselves (Cheng, Fung, & Chan, 2009; van Deurzen, van Ingen, & van Oorschot, 2015). When another person's situation seems worse off than one's own, and that other person is perceived to have low control over his or her own situation, a downward comparison can promote one's subjective well-being (Stewart, Chipperfield, Ruthig, & Heckhausen, 2013). Among a population highly at risk for depression, the elderly, downward social comparisons to peers can counteract or even eliminate the negative effects of risk factors of depression (Cheng et al., 2009). Upward social comparisons, in contrast, tend to make people feel worse. In a population of people with spinal cord injuries, comparing oneself to others who are better off was related to higher levels of depression (Buunk et al., 2006). This effect was also seen among cancer patients utilizing an online support group. Those users who engaged in upward comparisons showed higher levels of depression, more health related concerns, and lower emotional well-being and subjective quality of life (Batenburg & Das, 2015). Even upward comparisons to one's own past can create distress (Sheeran, Abrams, & Orbell, 1995).

Social comparison not only affects people's emotional states but can also influence how people subsequently behave. People engage in social comparison not only with friends and known others, but with television characters as well. It was found that the more people engaged in social comparison with characters on a television program, the more emotional they became. Downward social comparisons were highly positively correlated with negative affect, with envy

being significantly correlated with the desire for invasive plastic surgery in participants in order to improve appearance (Nabi & Keblusek, 2014).

In addition to these behavioral and affective outcomes of making social comparisons, personality factors and affect also influence self-comparisons. Sadness has been shown to be a factor in increased affective vulnerability when engaging in social comparison, where sad individuals are more aware of the performances of others (Giordano, Wood, & Michela, 2000; Lyubomirsky & Ross, 1997), and those with low self-esteem are likely to engage in more frequent comparisons with others than those with average and high self-esteem (Gibbons & Buunk, 1999). Additionally, it has been shown that frequent instances of social comparison may be detrimental (White, Langer, Yariv, & Welch IV, 2006). Recurrent comparisons were shown to positively correlate with envy, guilt, defensiveness, and regret. Furthermore, frequent comparisons did not predict positive emotions and factors including self-esteem, happiness, and self-value (White et al., 2006).

### **Social Comparison on Facebook**

With the advent of social networking sites, the opportunity to engage in social comparison has grown immensely. People are no longer just encountering similar others in social engagements or at work, but each time they log onto a social media account they are bombarded with the updates of several, sometimes hundreds, of similar others with whom they can base self-comparisons. Singular incidents of upward and downward social comparisons have significant impacts on people, though the impact of repeated social comparisons is a burgeoning area for research.

Social comparison on Facebook affects people's subsequent affect as well as self-appraisals. One study explored these potential effects of social comparison through Facebook by

having young women look at fake Facebook profiles (Haferkamp & Kramer, 2011). The researchers took images of women from a website in which users rate the attractiveness of pictures of women. Female participants viewed either attractive or unattractive profile pictures. Participants completed measures of emotional state and satisfaction with their own bodies. The participants who viewed the attractive pictures reported more negative feelings and were also more likely to have a negative self-image, indicating that for women, harshly comparing one's image to that of an attractive woman may lead to feeling worse about oneself (Haferkamp & Kramer, 2011).

Social comparisons on Facebook also affect people's recalled experiences. People are more likely to remember something positive if being exposed to something positive, and more likely to remember something negative if exposed to negative stimuli, a phenomenon known as the availability heuristic (Chou & Edge, 2012). It follows that Facebook users who view positive images and updates recall these positive images easily when comparing themselves to their friends. In fact, users that report spending higher amounts of time on Facebook, more years active on the social networking site, and having higher numbers of Facebook friends in their network that they did not personally know correlated with a greater likelihood believing that other people had a better life and were happier than themselves (Chou & Edge, 2012).

Social comparison on Facebook can also affect people's global evaluations of their own life satisfaction. Frison and Eggermont (2016) examined the reciprocal relationship between negative social comparison on Facebook and the life satisfaction of adolescent participants. Guided by Festinger's (1954) Social Comparison Theory, the authors noted that when there is no objective foundation for one to compare one's abilities and opinions against, one will seek a group of similar others to serve as a basis for comparison. Facebook arguably offers users a

greater exposure to the thoughts, activities, and lives of peers similar to themselves, providing a great opportunity for self-comparison to occur. Negative comparison on Facebook at the initial wave of the study negatively predicted participants' life satisfaction at the second wave, and reciprocally, lower life satisfaction at the beginning of the study negatively predicted users' negative comparisons on Facebook at time two (Frison & Eggermont, 2016).

There are people who are more likely to engage in social comparison than others. That is, personality factors partially drive social comparisons made on social media. Those individuals more prone to social comparison outside of social media are also more likely to compare themselves to others on Facebook (Lee, 2014). Feelings of self-certainty also predict the likelihood of social comparison frequency, in that people who feel less certain about themselves are more likely to engage in social comparison (Lee, 2014). This relationship holds true on Facebook, with a positive correlation between social comparison frequency on Facebook and frequency of negative feelings. This also implies that individuals with low self-esteem may engage more frequently or that they are engaging in upward social comparison which could diminish their self-esteem. In addition, people's expectation to others' responses to their posts was positively correlated to their social comparison frequency. This suggests that students, specifically with low self-esteem, high self-uncertainty, and high self-consciousness, are more likely to socially compare and feel negatively about people responding to their postings (Lee, 2014). This frequent social comparison online has implications for people's affect and well-being.

## Negative Impact of Facebook Use

*Facebook use and well-being.* Beyond the generally negative effects social comparisons yield when people use social media such as Facebook, a growing literature suggests that social media use more globally also leads to negative outcomes. The term “Facebook Depression” became a popular internet meme starting around 2013, along with the phrase “Fear of Missing Out” (FOMO) (“Knowyourmeme.com,” n.d.). These phrases capture the experience of feeling sad after using social networking sites. Researchers took note, and a field of research was born in order to study the empirical validity of this phenomenon.

One of the first studies of its kind, Kross et al. (2013) examined the effects of Facebook use on emotional and cognitive well-being (operationalized here as satisfaction with life), and loneliness. First, participants answered questionnaires to assess their satisfaction with life, levels of depression, and self-esteem. The researchers sent five text messages to participants each day for 14 days with a link to an online survey, asking participants to describe their emotions at the moment and communication with others throughout the day (Kross et al, 2013). After two weeks, participants completed another set of questionnaires which assessed satisfaction with life and loneliness. The researchers found a negative correlation between Facebook use frequency and state emotions. Notably, negative emotions did not predict increased Facebook use, indicating that Facebook precipitated negative emotions. Loneliness did predict Facebook use; the lonelier participants felt, the more likely they were to increase their use of Facebook. When loneliness was controlled for, Facebook use continued to predict declines in emotional and cognitive well-being, ruling out the possibility that loneliness was the actual driving force behind feeling bad. Furthermore, controlling for a measure of baseline life satisfaction at the start of the study, the researchers saw a significant inverse relationship between Facebook use and



satisfaction with life. Contrarily, direct social contact always related to participants exhibiting higher levels of life satisfaction (Kross et al, 2013).

Heavy Facebook users tend to have lower self-esteem and lower levels of life-satisfaction than those who are moderate Facebook users (Blachnio, Przepiorka, & Pantic, 2016). One possible explanation is that viewing others' posts is a cue for comparison, and so those who use Facebook more often are exposed to more opportunities for social comparisons (Jang, Park, & Song, 2016). Studies have found a positive correlation between time spent on Facebook and depressive symptoms (Labrague, 2014; Locatelli, Kluwe, & Bryant, 2012; Pantic et al., 2012; Steers, Wickham, & Acitelli, 2014; Wright et al., 2013). This relationship is particularly evident when users feel that they do not get the social support they desire from using Facebook (Chop, 2015; Wright et al., 2013). Other studies support that passively browsing the site and viewing others' pictures and updates is positively correlated with depressive symptoms and negative affect (Tandoc, Ferrucci, & Duffy, 2015; Sagioglou & Greitemeyer, 2014). However, even more active use of Facebook (e.g., creating posts) has been linked to increased depressive symptoms. In one study, the frequency of both negative and positive status updates was strongly positively correlated with the tendency to ruminate and decreases in subjective well-being (Locatelli, Kluwe, & Bryant, 2012). It could be that the act of seeing oneself in a negative light when compared to another is what places individuals at a higher risk for rumination, and as a result, depression (Feinstein et al., 2013).

Blease (2015) discusses the evolutionary psychology perspective of "Facebook Depression." This perspective contends that individuals are more likely to experience depressive symptoms while using Facebook if they have a large number of online friends, are confronted by the success of these many others, and if they spend a sizeable amount of time reading updates on

these successes. One such “success” that users are frequently confronted with may be physical attractiveness of others. In one study examining the differences between depressed and non-depressed individuals, participants rated the happiness of the person in the mock profile compared to themselves while looking at mock Facebook profiles of physically attractive and unattractive users (Appel, Crusius, & Gerlach, 2015). Participants also rated their own feelings of envy experienced when viewing the profiles, depressive symptoms, and self-esteem. Both depressed and non-depressed participants rated the attractive users as happier than themselves, though depressed participants gave higher ratings than their non-depressed counterparts. Depressed participants also rated the unattractive users to be happier than themselves, while their non-depressed peers rated themselves to be happier than the unattractive users. Depressed participants were also more envious than the control group after viewing attractive profiles, with a positive relationship between depressive symptoms and envy, particularly when engaging in upward social comparison (Appel et al., 2015). Envy plays a clear role in the correlation between Facebook use and depression (Appel et al., 2015; Labrague, 2014; Locatelli et al., 2012; Pantic et al., 2012; Steers et al., 2014; Wright et al., 2013; Tandoc et al., 2015).

Krasnova et al. (2013) investigated what emotions participants experience after using Facebook, what they believe may cause frustration after using Facebook, and what experiences trigger envy in users both on and offline. Their study highlights a commonly held belief that users who feel frustrated after using the social networking site (SNS) do so because they are feeling jealous of others. When asked about their last “envy experience,” the highest number of incidents occurred on Facebook, with more than half of those experiences related to being jealous of another’s travel or leisure activities (Krasnova et al., 2013).

Both upwards and downwards social comparisons can create envy if people are on

Facebook; there are ample opportunities to view the posts of people both better off and worse off than oneself. In fact, there is substantial evidence that supports the relationships between envy and Facebook use (Appel et al., 2015; Locatelli et al., 2012; Steers et al., 2014; Tandoc et al., 2015). Users have identified downward comparisons as motivating and inspiring while upward comparisons as being harmful and leading to depressive feelings when using Facebook (Nesi & Prinstein, 2015; Tran, Uebelacker, Wenzel, Collins, & Broughton, 2015).

In one study, measures of the amount of time spent on Facebook that day, upwards, non-directional, and downwards social comparisons made to others while on Facebook, and depressive symptoms illustrated a significant positive correlation between use of Facebook and depressive symptoms that was mediated by all three types of social comparisons for both men and women (Steers et al., 2014). Most importantly, increased time spent on Facebook correlated with fewer downward comparisons and increased non-directional and upward comparison, meaning there are more instances of feeling worse than those one is comparing oneself to, and fewer instances of feeling better than the object of comparison.

Perhaps equally telling is the impact of stopping daily use of Facebook. Self-reported measures of life satisfaction increased after one week of abstaining from logging into the social networking site. These findings were seen most significantly for frequent users, participants who identified feeling moderate to high levels of envy when using Facebook, and those who use Facebook by passively reading posts rather than posting or commenting on others' posts (Tromholt, 2016).

***Facebook, envy, and depression; a mediated relationship.*** Given that the nature of Facebook's interface is for users to see pictures and status updates from their friends, Facebook's relationship to depression may ultimately be attributed to the social comparison and envy

inducing environment of social media (Appel, 2015; Tandoc et al., 2015). In fact, when the act of looking at others' posts does not produce envy, Facebook use was found to decrease depressive symptoms, indicating that Facebook use is most deleterious to well-being when it produces feelings of envy (Tandoc et al., 2015).

Another study found a fully mediated relationship between passive browsing, envy, and life satisfaction such that increased intensity of passive following predicted increased feelings of envy, and feelings of envy predicted lower life satisfaction (Krasnova et al., 2013). This passive use of Facebook has also been shown to decrease emotional well-being over time through increasing envy (Verduyn et al., 2015). Envy experiences on Facebook can be made through upward social comparisons (Park & Baek, 2018). Higher levels of envy correlated with lower self-esteem, and increased feelings of inferiority (Appel et al., 2015). One study found that the link between time spent on Facebook and depressive symptoms was fully and solely mediated by social comparisons; despite the propensity for upward social comparisons to be associated with negative emotions, both upward and downward social comparisons as well as non-directional comparisons mediated this relationship (Park & Baek, 2018; Steers et al., 2014). The rationale provided by these studies is that people experience depressive symptoms after spending time on Facebook because they are comparing themselves to others, and these comparisons make them feel badly about themselves.

Other studies maintain that this relationship may only exist in the context of other traits. For example, two studies show that only individuals high in neuroticism are more prone to feel depressed after comparing themselves to others on Facebook (Chow & Wan, 2017; Wallace, James, Warkentin, 2017). Others suggest that self-esteem plays a protective role in guarding against negative affect or depression after social comparisons on Facebook (Jang, Park, & Song,

2016). The present study will extend the literature by exploring the potential impact of trait and state benign and malicious envy in the context of Facebook social comparisons.

### **Is Comparison Always Bad?**

Despite these documented negative effects, there might still be hope for positive effects from social media. While Lyubormirsky (2008) states that people “Can’t be happy and envious at the same time,” (p. 116), two theories maintain that comparisons are not always negative, and that the envy that arises from these comparisons can be quite beneficial. The self-evaluation maintenance model (Tesser, 1988) explains the ways in which individuals can take part in the success of others after a downward social comparison, while van de Ven, Zeelenberg, and Pieters (2009) illustrate the positive impact envy can have on self- motivation.

***The self-evaluation maintenance model.*** With roots in Festinger’s (1954) Social Comparison Theory, the self-evaluation maintenance model (SEM) explains the emotional and behavioral reactions most commonly experienced when individuals compare themselves to the performances of close others (Tesser & Collins, 1988). There are three factors that impact whether one will evaluate oneself in a more positive way compared to another, or a more negative way (Tesser & Collins, 1988); closeness of the other, relevance or importance of the task, and performance on the task.

***What is self-evaluation?*** Self-evaluation involves seeking and processing information about others and then using this information to derive an assessment of oneself (Dauenbeimer, Stablberg, Spreemann, & Sedikides, 2002; Tesser & Campbell, 1982). It is a process by which a person develops, maintains, and changes his self-concept based on social comparisons (Luhtanen & Crocker, 1992; Tesser & Campbell, 1982). Depending on an individual’s motivation for social comparison, a person may seek out accurate information about himself or

information about himself that is biased toward being favorable to his self-image (Sedikides, 1993). When a person is questioning his own abilities, he will likely seek out objective information that will provide an accurate portrayal of how he stacks up against similar others. When a person is motivated to maintain a positive self-view and guard against information that may be detrimental to this view, he is more likely to be selective about what information he gathers; only self-relevant information that will maintain this view will be considered (Sedikides, 1993). Self-evaluation is also a function of fluctuating circumstances (Tesser & Campbell, 1982). There may be times a person has a higher self-evaluation because he is excelling in a domain that his peers are failing in. Similarly, self-evaluation may decrease when an individual's social group, for example his ethnicity, is widely discriminated against due to historical events.

***Comparison.*** Comparison, the negative self-evaluation mechanism, most likely occurs when relevance of a task is high to an individual, and another person performs the task better than the individual (Tesser, 1988; Tesser & Collins, 1988). The resulting comparison will lead to a diminished self-evaluation and the individual will experience negative emotions, particularly if the other person is close to that individual. For example, if Susan is trying to lose weight, and this is an important undertaking for herself, and her friend Beth is also trying to lose weight and is more successful at this task than Susan, Susan is more likely to lower her own self-evaluation. There are ways in which an individual can prevent lowering one's own self-evaluation in this situation; one can diminish the significance of the other's performance, one could distance oneself from the other person, one could work harder to improve one's own performance, or one could attempt to sabotage the other person.

***Reflection and BIRGing.*** When relevance of the task is low to the individual, a comparison to another can increase self-evaluation. For example, if Susan is not trying to lose

weight and her close friend Beth is, Susan's self-evaluation is not threatened. Susan can revel in her friend's success and is likely to experience positive emotions such as pride for Beth. This situation is referred to as a reflection (Cialdini et al., 1976; Cialdini & Richardson 1980; Tesser, 1988).

In general, people like to surround themselves with successful others (Cialdini et al., 1976). Affiliating oneself with a successful person, or another person's accomplishment can improve one's self-evaluation (Cialdini et al., 1976). Being associated with success allows a person to "bask in the reflected glory," essentially feeling good about himself because he is in some way joined to achievement. This is separate from reflection in that a person does not even need to personally know the object of reflection; identifying oneself as being from the same home state as a successful actor is an example of BIRGing (Bernache-Assollant, Lacassagne, & Braddock, 2007). Reflection and BIRGing allow people to feel better about themselves even when they were not personally involved in a positive event.

### ***The three moderators of self-evaluation.***

*Performance.* The term performance can be used loosely; it can refer how a person actually performs on a task such as a test, or it could be a status level that has been obtained, such as a promotion. It may be the achievement of a goal (Tesser, 1988). When performance of another person is high, an individual can improve their self-evaluation through the process of reflection. Self-evaluation can also be threatened through comparison if another person outperforms oneself (Tesser, 1988; Tesser & Campbell, 1982).

*Relevance.* Positive performance of a close other can result in either comparison or reflection. The process experienced is determined by how relevant the performance dimension is to the individual. That is to say, if a person witnesses the achievement of a close other,

comparison will be felt if that achievement is important to the individual. Reflection will be experienced if that achievement is not important to the individual. Tesser and Collins (1988) examined the relationship and performance interaction. Participants reported feeling more jealousy and envy when outperformed by another person in a high relevance domain than compared to a low relevance domain. Additionally, the positive feeling of pride was experienced more when the other person was close and outperformed them only in a low relevance domain (Tesser & Collins, 1988).

One study manipulated participants into believing that their partner in study was similar to them or dissimilar (Pleban & Tesser, 1981). Participants were given two different “task domains” and asked how important each domain was to them. They then performed two tasks and were told that they had been outperformed by their partner on one of the tasks. After finding out they had been outdone, participants re-rated how important both task dimensions were. The task that they were outperformed on was re-ranked lower in importance than initially rated only for the similar condition. As the performance of a close or similar other increases, the reported self-relevance of that domain decreases (Pleban & Tesser, 1981).

*Closeness.* This refers to the emotional bond between two people as well as feelings of kinship, similarity, and association. The parameter of closeness plays a key role in the experience of comparison and reflection. If an individual sees the performance of a distant other, she is unlikely to experience reflection or comparison; the feeling of being close to someone who is successful is necessary to bask in the reflective glory of her achievements (Pilkington & Tesser, 1989). People do not bask in the mediocre performance of another regardless of being close, and people do not bask in the reflective glory of someone they are not close to (Tesser & Campbell, 1982). Similarly, seeing the success of a distant other is not likely to threaten one’s own



confidence, as we are not impacted greatly by the performance of people we are not close with. In the aforementioned study (Pleban & Tesser, 1981), the participants were put into a room with the other person performed better than they did on the task. Participants increased physical distance from this other when they were outperformed on a relevant task, though closeness was increased when they were outperformed on a low relevant task (sitting closer to this person). In a separate study, participants were randomly assigned a close condition and distant condition (participants were able to either bring a friend to the study or assigned to work with a stranger). The participants worked on a task and were then told they were either outperformed by their partner or that they performed better than their partner. Measures of relevance showed that the task performed was rated as more important to the self when the participant outperformed another regardless of closeness, though when a close other outperformed them, the dimension was rated as less self-relevant (Tesser & Paulhus, 1983).

In order to avoid a decrease in self-evaluation, people want to prevent similar others from outperforming them on tasks. This can be accomplished by either diminishing the importance of the task or distancing the closeness between the self and the other. Additionally, people may act to affect the performance of a close other by aiding them (in a non-self-relevant domain in order to feel reflection) or hindering their performance (in order to avoid feeling comparison) (Tesser & Campbell, 1982). Using this guiding principle, researchers attempted to predict how people would view the performance of a close other versus a stranger on a task that is self-relevant (Tesser & Campbell, 1982). In line with SEM, participants were more positive about the performance of their friend on an irrelevant task, and more negative about the performance of a stranger on the self-relevant task.

Another study engaged a sample of male friends; half were assigned the high relevance condition and the other half in the low relevance condition. Participants were then put in a position to help or hinder the performance of their friends. When relevance of the task was unimportant to the individual, he was more likely to help his friend's performance. When relevance on the task was self-relevant, participants did not help their friends perform, and in fact, participants were more likely to help a stranger perform well in that task. The reason for helping the stranger improve performance lies in the SEM theory that self-evaluation is not threatened by the improved performance of a stranger on a high important task, but it is threatened when the improved performance is that of a close friend (Tesser & Smith, 1980).

SEM has effectively explained how individuals high in narcissism maintain their self-evaluation in the face of being outperformed through putting down their competition and distancing themselves (Morf & Rhodewalt, 1993; Nicholls & Stukas, 2011), how non-clinical populations adjust their self-evaluation in the face of being outperformed in both self-relevant and non-self-relevant tasks (Crawford, 2007), problem solving skills in romantic relationships when one partner outperforms the other in self-relevant and non-self-relevant tasks, (O'Mahen et al., 2000), and why individuals feel more threatened by the success of friends than strangers (Zuckerman & Jost, 2001). It has been used to explain parents' efforts in protecting themselves and their children from negative social comparison, "basking in reflective glory," and their comparisons of their child to other children (Hannawa & Spitzberg, 2009). However, applications of this theory have not yet been widely applied to the use of social networking, though SEM can neatly be applied to the social network experience.

***SEM and the current study.*** Returning to the initial scenario of two friends, Susan and Beth, both of whom are trying to lose weight. The SEM model holds that the process of

comparing oneself to another will only occur when one is confronted with the performance of another. Therefore Susan is only confronted by Beth's weight loss when she sees her, which may be once a week or even less. Now, let us imagine that Susan and Beth are friends on a social networking site which allows users to share pictures as often as they would like. Imagining that Beth shares at least one picture a day, if that picture highlights her weight loss, Susan will now be confronted daily, and will therefore have more opportunities to engage in SEM comparison.

It is possible too, that Susan may have other friends who engage in tasks of high self-relevance to Susan. In addition to losing weight, Susan is also a college student who studies very hard and highly values academics. If Susan has any friends on her social networking site who are also academics, any posts they make regarding this topic may be additional threats to Susan; a friend who is pursuing a higher degree, or a post about earning the highest grade on a recent exam may be threats to Susan's own evaluation of herself as a student. As research has shown that SEM in comparisons, as opposed to the process of reflection, is correlated with negative affect (Tesser & Collins, 1988), it is plausible that more frequent exposure to the performances of close others on relevant tasks may increase the negative affect of users.

### **Benign and Malicious Envy**

While SEM acknowledges instances in which envy may arise, van de Ven, Zeelenberg, and Pieters (2009) describe the existence of two specific types of envy that lead to different behavioral motivations. Malicious envy is a deleterious experience also characterized by frustration, motivates individuals to not to better themselves, but to hinder or put down the object of envy. Examples of this "leveling down" include gossip, attempt to hurt the other person, or wish that the other person fail in the future (van de Ven et al., 2009). Benign envy is the experience of admiring another person, even though one desire's what that other person has

accomplished and may feel inferior or frustrated. Benign envy motivates “leveling up,” or improving oneself in order to be closer to the object of envy.

Pietraszkiewicz and Chambliss (2015) describe the phenomenon of specific experiences of envy: *schadenfreude* and *freudenfreude*. *Schadenfreude* is the experiencing of taking joy in another’s sorrows, akin to the experience of malicious envy and *freudenfreude* is the experience of taking joy in another’s success, akin to benign envy (van de Ven, Zeelenberg, & Pieters, 2009). One hundred and twenty five Polish undergraduates completed the Beck Depression - II Inventory (Beck, Steer, & Brown, 1996) along with a measure of *freudenfreude* and *schadenfreude*, gauging their emotional responses to the success and failure of oneself along with another, and another’s success and failure independent of oneself. Those participants reporting higher levels of depression also reported higher levels of *schadenfreude*, the negative experience of envy. Moreover, higher levels of depressive symptoms were negatively correlated with *freudenfreude*, the positive experience of envy (Pietraszkiewicz & Chambliss, 2015).

How one appraises a situation will impact whether one will feel benign envy, malicious envy, or the related emotions of admiration and resentment (van de Ven, Zeelenberg, & Pieters, 2012). Admiration is a response to being outperformed by another who does not evoke envy, but rather pleasant emotions (van de Ven, et al., 2009). Resentment is the experience of perceiving a situation as being unfair due to deliberate action by the other person (van de Ven et al., 2012). In a study examining this phenomenon, 136 participants were randomly assigned to remember and write about an experience they had with either benign envy, malicious envy, admiration, or resentment. Participants then answered a series of questions about their appraisal of the experience, and whether they believed that a particular appraisal lead to the participants’ emotional reactions. When the situation was appraised to be unmerited, malicious envy was the

result. When the object of envy was believed to be deserving of success, benign envy was felt. For admiration and resentment to be experienced, the circumstances of the other person's success had to be deemed to not reflect poorly on the participant (van de Ven et al., 2012). It is important to note that only benign envy, and not admiration or malicious envy, motivate individuals to improve their own performance (van de Ven, Zeelenberg, & Pieters, 2011a).

Benign envy also motivates people to improve their status. In one study, people experiencing benign envy toward those with a premium product were willing to pay a high price to obtain that same product (van de Ven, Zeelenberg, & Pieters, 2011b). Interestingly, if participants were lead to believe that the subject of comparison did not deserve their advanced position, in this case having a premium smart phone, then malicious envy and not benign envy was experienced. Those experiencing malicious envy were willing to pay a high price for a premium smart phone, but not the same model as the subject of comparison; malicious envy motivated individuals to improve their status through outperforming the subject of comparison in an alternate domain (van de Ven et al., 2011b).

## CHAPTER 2

### PRESENT RESEARCH

The negative impact of Facebook on feelings of depression, social comparison, and envy has been well documented (for example, see Banjanin, Banjanin, Dimitrijevic, & Pantic, 2014; Jelenchick, Eickhoff, & Moreno, 2013; Labrague, 2014; Simoncic et al., 2014); however, studies examining envy and Facebook have focused mostly on the impact of malicious envy (Chou & Edge, 2012; Haferkamp & Kramer, 2011; Krasnova, Wenninger, Widjaja, & Buxman, 2013, Krasnova et al., 2015; Tandoc, Ferrucci, & Duffy, 2014). Very few studies explore the positive outcomes of envy resulting from social comparisons on Facebook. Guided by SEM, this dissertation explored the potential benefits of social comparisons on Facebook over the course of two studies.

Given that only validated measures of state (transient) malicious envy exist, a preliminary study served to validate a new state measure of benign envy. The present study focused on further exploring the relationship between the use of Facebook and well-being through the potential mediating effects of envy. This area is prime for exploring, as very few studies exist that parse out what factors are contributing to the anecdotal experience of sadness and envy after use and the documented decrease in life satisfaction, and few explore the positive impacts of social comparisons on Facebook. My research applied the SEM theory to use of social networking sites to explore feelings of envy, both benign and malicious, that arise when browsing friends' sites. Below I illustrate and enumerate my hypotheses and briefly justify their development.

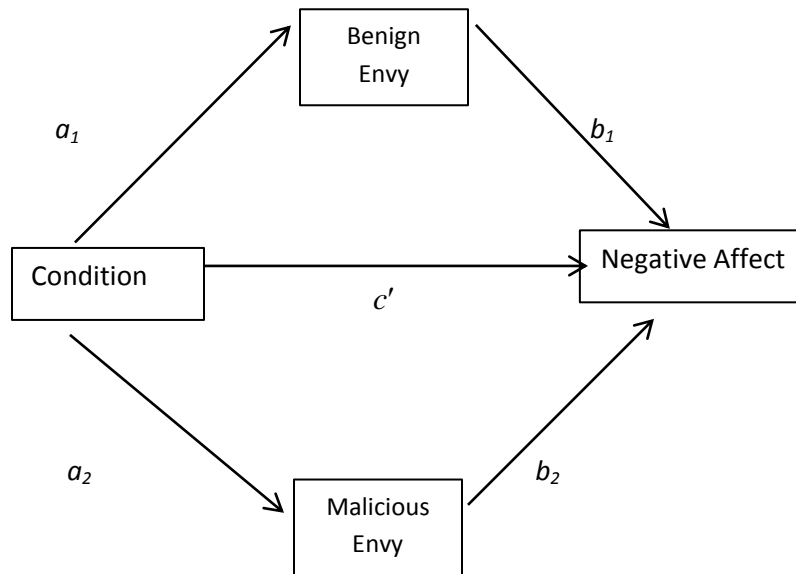


Figure 1. Relevance and Envy Multiple Mediation Model with Negative Affect as

Outcome

Hypothesis 1: *Viewing Facebook posts with greater self-relevance will result in increased reports of negative affect from pre- to post tests, decreased reports positive affect from pre- to post tests, and lower state self-esteem from pre- to post tests* (c Path in above model).

Viewing a close friend excelling or engaging in an activity that is relevant to the self can lead to social comparisons (Pilkington & Tesser, 1989; Pleban & Tesser, 1981; Tesser & Campbell, 1982; Tesser & Paulhus, 1983). Social comparisons produce both negative and positive affect (Buunk et al., 1990; Gibbons & Gerrard, 1991; Martin, 1986; Nesi & Prinst, 2015) and have a negative effect on well-being (Blanchino et al., 2016; Frison & Eggermont, 2016; Kross et al., 2013). However, the negative impact can be buffered by self-esteem (Aspinwall & Taylor, 1993; Lee, 2014; Gibbons & Buunk, 1999). Downward social comparisons can improve mood (Aspinwall & Taylor, 1993).

Hypothesis 2: *Reported scores for benign episodic envy should increase from pre- to post tests for irrelevant goals. Reported scores for malicious episodic envy should increase from pre- to post tests for relevant goals* ( $a_1$  path,  $a_2$  path). Witnessing a friend engage in an activity that is not self-relevant is unlikely to produce feelings of malicious envy and may produce positive feelings, whereas witnessing a friend engage in a self-relevant activity may induce malicious envy (Lange & Crusius, 2015; Lin & Utz, 2015; Tesser, Pilkington, & McIntosh, 1989; Pleban & Tesser, 1981; Tesser & Campbell, 1982; Tesser & Paulhus, 1983; van de Ven et al., 2009; van de Ven et al., 2012).

Hypothesis 3. *As benign episodic envy increases, state self-esteem should increase from pre- to post tests. As malicious episodic envy increases, state self-esteem should decrease from pre- to post tests* ( $b_1$  path,  $b_2$  path). This will be examined by separating the effects of benign envy and malicious envy. Benign envy allows individuals to feel good about themselves through the achievements and celebrations of close others (Cialdini et al., 1976). Malicious envy produces feelings of low self-worth through seeing others succeed beyond one's own abilities (Lange & Crusius, 2015; van de Ven et al., 2009).

Hypotheses 4a and 4b. *As benign episodic envy increases, positive affect should increase. As malicious episodic envy increases, positive affect should decrease. As benign episodic envy increases, negative affect should decrease. As malicious episodic envy increases, negative affect should increase.* ( $b_1$  path,  $b_2$  path; see Hypothesis 3 for justification).

Hypothesis 5: *The relationship between goal relevance and changes in negative affect, positive affect, and state self-esteem will be mediated by envy.* This will be examined by separating the effects of benign envy and malicious envy. There is a positive relationship between depression and envy when making social comparisons on Facebook (Appel et al., 2015;



Steers et al., 2014; Tandoc et al., 2015). When the posts viewed do not elicit envy, the relationship between Facebook use and decreased well-being no longer exists (Krasnova et al., 2013; Verduyn et al., 2015).

## **Method**

### **Participants**

We recruited 675 participants from a community sample derived from Amazon's Mechanical Turk (mTurk) website. Mechanical Turk (mTurk) is a crowd-sourcing website used by businesses, scholars, and researchers to recruit participants for studies and other tasks and is gaining a reputation as an ethical, reputable, and reliable way to recruit participants for psychological research (Buhrmester, Kwang, & Gosling, 2011). In order for a participant's data to be used in the study, a minimum of one complete measure had to be answered. Fifty participants were excluded from the final study due to not completing the minimum required number of measures for this survey. Participants were 63.2% female and 36.8% male, the majority of participants have obtained a Bachelor's degree (36.2%), 22.9% having some college credit with no degree, 13.8% having Master's degrees, 11.5% with associates degrees, 8% high school diplomas or the equivalent, 4.5% having trade/technical/vocational training, 2.4% holding doctoral degrees, and .7% having some high school education without a diploma. The ethnic distribution of participants was primarily Caucasian (78.9%), with a small percentage identifying as Black/African American (7.3%), Asian (5.8%), Hispanic/Latino (3.4%), Biracial or Multiracial (2.1%) and other ethnicities not captured above (2.6%). The mean age of participants was 37.48 years old ( $SD = 12.15$ ), with participants ranging in age from 18 to 79 years. Participants were paid \$1.00 for completing this study.

## **Procedure**

Participants logged into their Amazon mTurk accounts and followed a link to the present study. Participants completed a consent form, followed by the Benign and Malicious Envy Scale (BeMas; Lange & Crusius, 2015), the Episodic Envy Scale (EES; Cohen-Charash, 2009), Benign Episodic Envy Scale, The Big Five Inventory (BFI; John, Kentle, & Donahue, 1991), the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988), and the State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991). Participants then identified three goals in their lives that they are working toward accomplishing, and three goals in their lives that are not important at this time. Participants were then randomly assigned to either the important condition or unimportant condition; those in the important condition were instructed to log onto their Facebook Newsfeed and identify a friend's update that related to one of the goals they listed as being important. Those in the unimportant condition identified a friend's goal that is not important to themselves. Participants in both conditions identified how important this goal was to themselves on a scale of 1 (extremely unimportant) to 5 (extremely important). Participants described the post, answered how many "Likes" and comments the post had, when the post was made, whether or not they "liked" or commented, and assessed how close they believed their friend was to accomplishing this goal in relation to how close they were to accomplishing the goal. Participants rated how close they felt to their friend using the Inclusion of the Other in the Self Scale (IOS; Aron, Aron, & Smollan, 1992). Participants then wrote a short response focused on what they thought about their friend, their feelings toward this friend, and why they think the person created the post. Participants completed post-measures of the Episodic Envy Scale (Cohen-Charash, 2009) and Benign Episodic Envy Scale, PANAS (Watson et al., 1988), State

Self-Esteem Scale (Heatherton & Polivy, 1991), and demographics (see Appendices A – Q). Compensation was provided through mTurk upon successful completion of survey.

## Measures

***Dispositional Benign and Malicious Envy.*** The Benign and Malicious Envy Scale (Lange & Crusius, 2015) is a ten-item measure of trait benign and trait malicious envy (see Appendix B). Participants reported how much they agree that an item represents themselves based on a Likert scale of 1 (strongly disagree) to 6 (strongly agree). There are five items that measure benign envy, such as: “When I envy others, I focus on how I can become equally successful in the future,” “If I notice that another person is better than me, I try to improve myself.” Malicious envy items include, “Seeing other people’s achievements makes me resent them,” and “I feel ill will toward people I envy.” Descriptive analyses provided that the scale operated as intended for both benign envy ( $M = 3.72$ ,  $SD = 1.22$ ,  $N = 625$ ,  $\alpha = .91$ ) and malicious envy ( $M = 2.21$ ,  $SD = 1.11$ ,  $N = 625$ ,  $\alpha = .92$ ). Historically, this scale has strong internal consistency for both benign and malicious envy subscales (alphas = .84, .90 respectively).

***Episodic Envy.*** The Episodic Envy Scale (Cohen-Charash, 2009) measures in the moment experiences of malicious envy (see Appendix C). Keeping in mind another individual whom the reader consistently compares himself to, participants rate the extent to which each of the items describes his emotions in the moment. Items are rated on a 9-point scale from 1 (not characteristic at all) to 9 (extremely characteristic). This scale consists of two factors, feeling and comparison. Feeling items include “some hatred, rancor, gall,” and comparison items include “[this person] has things going better for him/her than I do.” Past research shows both subscales having high internal consistency ( $\alpha$ s = .89, .83 respectively). The pre-manipulation descriptives

( $M = 5.78$ ,  $SD = 2.14$ ,  $N = 624$ ,  $\alpha = .93$ ) were similar to post-manipulation descriptives ( $M = 6.06$ ,  $SD = 2.40$ ,  $N = 540$ ,  $\alpha = .94$ ).

***Benign Episodic Envy.*** The Benign Episodic Envy Scale is a nine item scale developed for this study, modeled after the Episodic Envy Scale (Cohen-Charash, 2009). It measures state benign envy, asking participants how true each prompt is regarding how they feel toward another person a scale of 1 (not characteristic at all) to 9 (extremely characteristic) (see Appendix D). For example, “I feel admiration toward this person,” “This person makes me want to improve my own position,” and “I feel empowered by this person.” This scale was validated in a brief study and showed strong internal consistency ( $\alpha = .86$ ; see validation study below). The pre-manipulation descriptives ( $M = 4.22$ ,  $SD = 1.91$ ,  $N = 624$ ,  $\alpha = .91$ ) did not differ significantly to post-manipulation descriptives ( $M = 4.12$ ,  $SD = 2.09$ ,  $N = 540$ ,  $\alpha = .92$ ).

***Big Five Personality Traits.*** The Big Five Inventory (John et al., 1991) is an inventory that measures the personality traits openness, conscientiousness, extraversion, agreeableness, and neuroticism (see Appendix E). Participants are given a list of 44 characteristics and report how strongly they agree that the items are reflective of who they are as a person from 1 (strongly disagree) to 5 (strongly agree). Items include “I see myself as someone who....is talkative...is emotionally stable, not easily upset...can be tense...is full of energy.” This measure was included to explore any possible correlations between personality traits, dispositional envy, and state envy. Descriptive statistics were gathered for each subscale: extraversion ( $M = 2.99$ ,  $SD = .90$ ,  $N = 614$ ,  $\alpha = .87$ ), agreeableness ( $M = 3.82$ ,  $SD = .69$ ,  $N = 614$ ,  $\alpha = .87$ ), conscientiousness ( $M = 3.38$ ,  $SD = .76$ ,  $N = 614$ ,  $\alpha = .88$ ), neuroticism ( $M = 2.76$ ,  $SD = .97$ ,  $N = 614$ ,  $\alpha = .90$ ), and openness ( $M = 3.59$ ,  $SD = .70$ ,  $N = 614$ ,  $\alpha = .84$ ).

**Affect.** The Positive and Negative Affect Scale (Watson et al., 1988) measures emotional affect (see Appendix F). The PANAS consists of ten positive affect words (i.e. enthusiastic, proud, excited) and ten negative affect words (i.e. distressed, guilty, scared). Participants rate the extent to which they experience these emotions on a scale of 1 (very slightly or not at all) to 5 (extremely). This scale allows researchers to assess emotions on a moment by moment, daily, weekly, yearly, or general basis. Past research shows internal consistency for the individual subscales range from .86 to .90 for positive affect and from .84 to .87 for negative affect. Descriptives for pre-manipulation data for positive affect ( $M = 3.07$ ,  $SD = .93$ ,  $N = 609$ ,  $\alpha = .92$ ) did not differ from post-manipulation data ( $M = 2.98$ ,  $SD = .99$ ,  $N = 539$ ,  $\alpha = .93$ ). However, pre-manipulation descriptives for negative affect ( $M = 1.52$ ,  $SD = .72$ ,  $N = 609$ ,  $\alpha = .93$ ) were lower than post-manipulation ( $M = 4.60$ ,  $SD = 1.49$ ,  $N = 539$ ,  $\alpha = .93$ ).

**State Self-Esteem.** The State Self-Esteem Scale is a 20-item scale which measures momentary self-esteem (Heatherton & Polivy, 1991) and has strong internal consistency ( $\alpha = .92$ ). Each item is measured on a 5-point Likert scale which asks participants how they are feeling at the moment from 1 (not at all) to 5 (extremely) (see Appendix G). The SSES contains three primary factors: performance, social, and appearance. Performance item examples include “I feel confident about my abilities,” and “I feel frustrated or rattled about my performance,” which is reverse scored. Social self-esteem questions cover topics regarding how others perceive oneself, for example, “I am worried about where I am regarded as a success or failure,” and “I am dissatisfied with my weight,” with both items being reverse scored. Finally, appearance items include, “I feel satisfied with the way my body looks right now,” and “I feel that others respect and admire me.” Descriptive statistics for this scale pre-manipulation ( $M = 3.58$ ,  $SD = .77$ ,  $N = 607$ ,  $\alpha = .83$ ) did not differ post-manipulation ( $M = 3.62$ ,  $SD = .81$ ,  $N = 537$ ,  $\alpha = .81$ ).

***Inclusion of Other in the Self Scale.*** The Inclusion of Other in the Self Scale (IOS; Aron, Aron, & Smollan, 1992) is a single item picture of closeness between oneself and another person (see Appendix K). The scale depicts seven dyads of circles that are overlapping in various degrees, with more overlap indicating increased closeness felt to another person with 1 indicating complete separation, and 7 indicating the closest a person can imagine feeling toward another. Descriptive statistics for this measure were obtained ( $M = 3.01$ ,  $SD = 1.66$ ,  $N = 550$ ).

## CHAPTER 3

### RESULTS

Results are presented in four sections. The first section presents group equivalency among conditions. The second section presents basic correlations. Third, tests of hypotheses are illustrated, and finally additional analyses are shown. Note that outcome variables used in this study are difference scores calculated by subtracting the pre-score from the post-score.

#### **Evaluations of Condition Group Equivalency**

In this section I will present demographic information separated by condition, as well as analyses to determine if demographic factors correlated significantly with any outcome variables. Demographic factors explored were gender, age, and ethnicity. Equivalency for distribution of gender, age, and ethnicity was established for each condition. This ensured successful randomization of participants to conditions, this provides evidence that equivalency is not as significant of a confounding concern.

**Gender.** This sample was composed primarily of women. The unimportant condition consisted of 271 (50.6%) participants, 101 (37.2%) men and 170 (62.7%) women. The important condition had 265 (49.4%) participants, 96 (36.2%) men and 169 (63.8%) women. A total of 197 (36.8%) men and 339 (63.2%) women participated in the study. Men and women were equally split among conditions,  $\chi^2 (N = 536) = .06, p = .80$ . This is important to note as I explored differences between group conditions and want to ensure that differences found between or within groups can be attributed to the study's condition and not gender. Analyses showed that gender did not correlate significantly with any outcome variable (see Table 1).

Table 1

*Gender and Outcome Variable Correlations*

<u>Outcome Variable</u>	<u>Gender</u>	<u>Age</u>
Malicious Envy	.02	.04
Benign Envy	.06	-.04
Positive Affect	-.03	-.04
Negative Affect	.02	.06
State Self-Esteem	.04	-.00

Note: \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

**Age.** There is a group difference for the age of participants. The mean age of participants in the unimportant condition was 36.45 ( $N = 271$ ,  $SD = 11.85$ ), and the mean age in the important condition was 38.53 ( $N = 266$ ,  $SD = 12.38$ ). I conducted a t-test to see if this age difference was statistically meaningful. Statistics show that the important condition was correlated with a higher age ( $r = .09$ ,  $p = .05$ ). However, the difference between participants ages 36 and 39 is unlikely to be meaningfully different, and the correlation between condition and age may be attributable to the large sample size. The difference between the mean ages of each condition were not largely different. Age did not significantly correlate with any outcome variables (see Table 1).

**Ethnicities.** Distribution of ethnicities were roughly equal throughout conditions. The unimportant condition contained 217 (80.4%) Caucasian, 20 (.07%) Black/African American, 16 (.06%) Asian, 3 (.01%) Biracial/Multiracial, 8 (.03%) Hispanic/Latino, and 6 (.02%) who



identified as “Other.” The important condition contained 206 (77.4%) Caucasian, 19 (.07%) Black/African American, 15 (.06%) Asian, 8 (.04%) Biracial/Multiracial, 10 (.04%) Hispanic/Latino, and 8 (.03%) “Other.” Given the small  $N$  in all categories other than “White,” I was not able to do any meaningful group comparisons without collapsing across ethnic groups.

### **Basic Correlations**

Table 2 shows the correlations between the study conditions (important versus unimportant), participant trait measures, and pre- and post-measures. As anticipated, no trait or pre-measures correlated with treatment condition, illustrating a successful random assignment. Unexpectedly, increased state benign envy post measures correlated significantly to decreased positive affect  $r(535) = -.18, p < .01$ , increased negative affect  $r(535) = .26, p < .01$ , and decreased state self-esteem  $r(533) = -.19, p < .01$ . Additionally, increased state malicious envy correlated with decreased negative affect  $r(535) = -.23, p < .01$ , and increased state self-esteem  $r(533) = .27, p < .01$ .

Table 2  
Inter-correlations Among Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Condition																		
2. Trait Benign Envy	-.04																	
3. Trait Malicious Envy	-.01	.20**																
4. Pre-State Benign Envy	-.04	-.02	.31**															
5. Pre-State Malicious Envy	.02	-.12**	-.21**	-.40**														
6.Pre- Positive Affect	-.03	.17**	-.15**	-.16**	.12**													
7. Pre-Negative Affect	-.03	.10*	.54**	.24**	-.18**	-.05												
8. Pre-State Self-Esteem	.04	-.07	-.51**	-.22**	.23**	.38**	-.51**											
9. Post-State Benign Envy	-.04	-.06	.31**	.60**	-.28**	-.17**	.22**	-.19**										
10. Post-State Malicious Envy	.04	-.11**	-.27**	-.30**	.61**	.02	-.21**	.25**	-.36**									
11. Post Positive Affect	.00	-.13**	-.16**	-.14**	.08	.89**	-.02	.35**	-.18**	.02								
12. Post Negative Affect	-.02	.08	.56**	.27**	-.16**	-.09*	.89**	-.53**	.26**	-.23**	.17							
13. Post State Self Esteem	.02	-.06	-.52**	-.18**	.23**	.35**	-.50**	.93**	-.19**	.27**	.38**	-.53**						
14. Difference Benign Envy	.01	.08	.03	-.37**	.12**	-.02	-.01	-.00	.52**	-.09*	-.06	.02	-.03					
15. Difference Malicious Envy	.03	.02	-.11*	.08	-.35**	.07	-.05	.07	-.13**	.53**	-.06	-.10*	.08	-.24**				
16. Difference Positive Affect	.09*	-.03	-.04	.03	-.02	-.12*	.07	.04	-.05	.00	.35**	.06	.09*	-.08	.02			
17. Difference Negative Affect	.04	-.07	-.03	.04	.06	-.08	-.29**	.02	.06	-.03	-.10*	.21**	-.04	.06	-.10*	-.02		
18. Difference State Self Esteem	-.04	.08	-.08	.04	.09*	.06	.00	-.04	-.04	.10*	.13**	-.08	.32**	-.08	.02	.16**	-.17**	

Note: \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

## Tests of Hypotheses

Hypothesis one addresses the total effect,  $c$ . Hypothesis 2 addresses  $a_1$  and  $a_2$  (both unstandardized regression coefficients) only. Hypotheses 3 and 4 address  $b_1$  and  $b_2$  only. Both  $b_1$  and  $b_2$  are partial unstandardized regression coefficients. That is for  $b_1$ , the effects of  $X$  and  $M_2$  are partialled out, and, for  $b_2$ , the effects of  $X$  and  $M_1$  are partialled out. Hypothesis 5 addresses  $a_1 b_1$  and  $a_2 b_2$  indirect effects. These are partialled mediation effects; removing the effect of each mediator from the other, as the last regression equation implies. In addition to the indirect effects addressed in hypothesis 5, the total indirect effect ( $a_1 b_1 + a_2 b_2$ ) and the difference between those partial indirect effects ( $a_1 b_1 - a_2 b_2$ ) were evaluated.

To test the hypotheses that benign and malicious envies mediate the relationship between viewing Facebook posts and outcome measures, Hayes' (2012) Model 4 process model was conducted three times. Condition (important or unimportant) was the predictor in all three models. In the first model, negative affect was the outcome variable, in the second model it was positive affect, and in the third model the outcome variable was state self-esteem. Models were run with benign and malicious envies as parallel mediators. A bootstrap estimation approach with 1000 samples was implemented in order to test the indirect effect of condition on outcome measures. I tested hypotheses in a single mediator model as well as a multiple mediator model. Result patterns remained consistent in both models. In preference for a more comprehensive model, mediators were kept together as shown. Figures 2-4 and Tables 3-8 summarize findings of mediational analyses.

Hypothesis 1: *Viewing Facebook posts with greater self-relevance will result in increased reports of negative affect from pre- to post tests, decreased reports positive affect from pre- to post tests, and lower state self-esteem from pre- to post tests. ( $c'$  Path in Figures 2-4). I*

first examined the predictive relationship between condition and changes in negative affect. The direct effect indicated that condition was not a significant predictor of negative affect  $c' = .016$ ,  $SE = .015$ ,  $p = .284$ , 95% *Bootstrap CI* [ -.0054, .0026]. I then examined the predictive relationship between condition and changes in positive affect, which was significant  $c' = .039$ ,  $SE = .0196$ ,  $p = .046$ , 95% *Bootstrap CI* [ -.0051, .0036]. The predictive relationship between condition and state self-esteem was not significant  $c' = -.0107$ ,  $SE = .0124$ ,  $p = .3886$ , 95% *Bootstrap CI* [ -.0032, .0026].

Hypothesis 2: *Reported scores for benign episodic envy should increase from pre- to post tests for irrelevant goals. Reported scores for malicious episodic envy should increase from pre- to post tests for relevant goals* ( $a_1$  path,  $a_2$  path in Figures 2-4). As seen in Figures 2-4 and Tables 3-8, no  $a_1$  and  $a_2$  paths for benign and malicious envy were statistically significant for any of the three outcome measures.

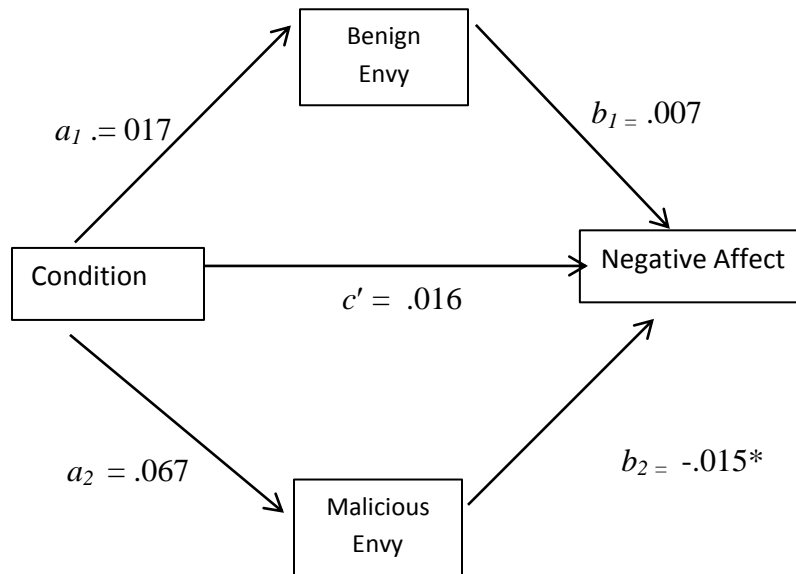
Hypothesis 3: *As benign episodic envy increases, state self-esteem should increase from pre- to post tests. As malicious episodic envy increases, state self-esteem should decrease from pre- to post tests* ( $b_1$  path,  $b_2$  path in Figure 4). Results of a parallel mediation model indicated that as benign envy increased, state self-esteem decreased, which is counter to the stated hypothesis  $b = -.013$ ,  $SE = .007$ ,  $p = .069$ , 95% *Bootstrap CI* [ -.0002, .0012]. State self-esteem was not significantly affected by malicious envy  $b = -.0005$ ,  $SE = .0063$ ,  $p = .9415$ , 95% *Bootstrap CI* [ -.0000, .0007] (see Tables 7 and 8). Total effects were not statistically significant, and indirect effects for benign and malicious envies were statistically insignificant as well (see Table 8).

Hypothesis 4a: *As benign episodic envy increases, positive affect should increase. As malicious episodic envy increases, positive affect should decrease* ( $b_1$  path,  $b_2$  path in Figure 3).

Results of a parallel mediation model indicated that as benign envy increased, positive affect decreased  $b = -.0204$ ,  $SE = .0113$ ,  $p = .0707$ , 95% *Bootstrap CI* [  $-.0003$ ,  $.0018$ ]. Positive affect was not significantly affected by malicious envy  $b = -.0008$ ,  $SE = .01$ ,  $p = .934$ , 95% *Bootstrap CI* [  $-.0001$ ,  $.0012$ ] (see Tables 5 and 6). Total effects were not statistically significant, and indirect effects for benign and malicious envies were statistically insignificant as well (see Table 6).

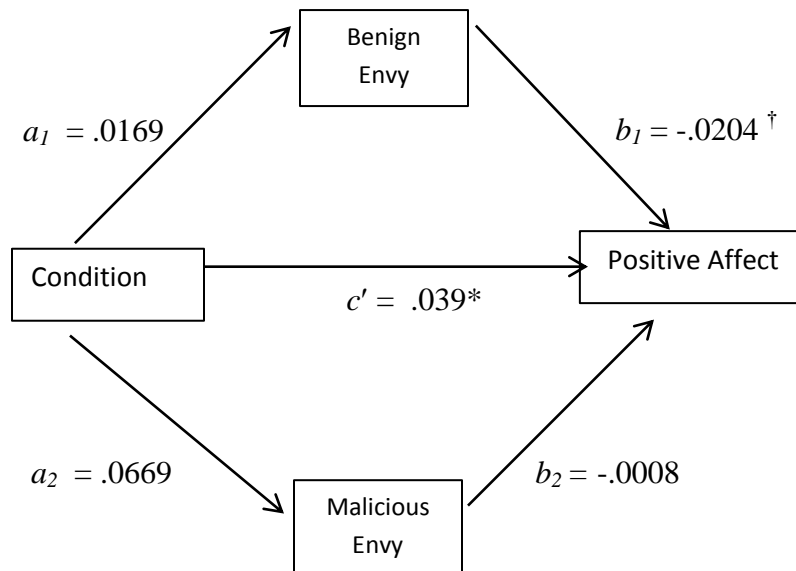
Hypothesis 4b. *As benign episodic envy increases, negative affect should decrease. As malicious episodic envy increases, negative affect should increase* ( $b_1$  path,  $b_2$  path; Figure 2). Results indicated that negative affect was not affected by benign envy  $b = .007$ ,  $SE = .009$ ,  $p = .445$ , 95% *Bootstrap CI* [  $.0001$ ,  $.0008$ ]. However, contrary to what was hypothesized, as malicious envy increased, negative affect decreased  $b = -.015$ ,  $SE = .008$ ,  $p = .046$ , 95% *Bootstrap CI* [  $-.001$ ,  $.0017$ ] (see Tables 3 and 4). Total effects were not statistically significant, and indirect effects for benign and malicious envies were statistically insignificant as well (see Table 4).

Hypothesis 5: *The relationship between goal relevance and changes in negative affect, positive affect, and state self-esteem will be mediated by envy.* In order for mediation to take place, mediators must have a relationship with both the predictor (condition) and outcomes (negative and positive affect, state self-esteem). As reported above, benign and malicious envy did not have a relationship with condition, and therefore the conditions for mediation were not satisfied.



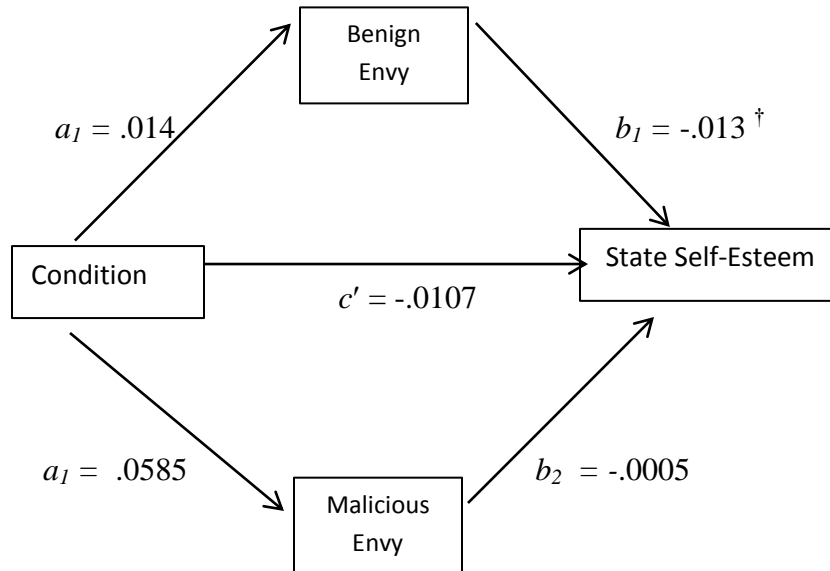
Note; \* =  $p < .05$

Figure 2. Parallel Multiple Mediation Analyses with Negative Affect as Outcome



Note; \* =  $p < .05$ , † =  $p = .07$

Figure 3. Parallel Multiple Mediation Analyses with Positive Affect as Outcome



Note; \*  $p < .05$  †  $p = .07$

*Figure 4.* Parallel Multiple Mediation Analyses with State Self-Esteem as Outcome

Table 3

*Regression Coefficients, Standard Errors, and Model Summary Information for Parallel Multiple Mediation with Negative Affect as Outcome*

Antecedent	Consequent								
	<u><math>M_1</math> (Benign Envy)</u>			<u><math>M_2</math> (Malicious Envy)</u>			<u><math>Y</math> (Negative Affect)</u>		
	Coeff.	SE	$p$	Coeff.	SE	$p$	Coeff.	SE	$p$
X (Cond.)	$a_1$ .017	.077	.827	$a_2$ .067	.088	.443	$c'$ .016	.015	.284
M1 (Benign)	-	-	-	-	-	-	$b_1$ .007	.009	.455
M2 (Malicious)	-	-	-	-	-	-	$b_2$ -.015	.008	.046
Constant	$i_{M1}$ -.110	.077	.156	$i_{M2}$ .311	.088	<.0001	$i_Y$ -.034	.015	.028
	$R^2 = .0001$			$R^2 = .001$			$R^2 = .012$		
	$F(1, 537) = .048, p = .827$			$F(1, 537) = .59, p = .443$			$F(3, 535) = 2.206, p = .087$		



Table 4

*Summary of Indirect Effects for Parallel Multiple Mediation with Negative Affect as Outcome*

---

		95% Bootstrap Confidence Interval		
	<u>Effect</u>	<u>SE</u>	<u>LL</u>	<u>UL</u>
Total	-.0009	.0019	-.0054	.0026
Benign Envy (BE)	.0001	.0008	-.0016	.002
Malicious Envy (ME)	-.001	.0017	-.005	.0019
ME – BE	-.0011	.0018	-.0052	.0021

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Note: Total Effects =  $a_1b_1 + a_2b_2$ , Benign Envy =  $a_1b_1$ , Malicious Envy =  $a_2b_2$ , ME – BE =  $a_2b_2 - a_1b_1$

Table 5

*Regression Coefficients, Standard Errors, and Model Summary Information for Parallel Multiple Mediation with Positive Affect as Outcome*

Antecedent	Consequent											
	<u><math>M_1</math> (Benign Envy)</u>				<u><math>M_2</math> (Malicious Envy)</u>				<u><math>Y</math> (Positive Affect)</u>			
	Coeff.	$SE$	$p$		Coeff.	$SE$	$p$		Coeff.	$SE$	$p$	
X (Cond.)	$a_1$	.0169	.077	.827	$a_2$	.0669	.087	.443	$c'$	.039	.0196	.0464
M1 (Benign)	-	-	-		-	-	-		$b_1$	-.0204	.0113	.0707
M2 (Malicious)	-	-	-		-	-	-		$b_2$	-.0008	.01	.934
Constant	$i_{M1}$	-.1101	.077	.156	$i_{M2}$	.311	.087	.0004	$i_Y$	-.0849	.0199	.000
	$R^2 = .0001$				$R^2 = .0011$				$R^2 = .0135$			
	$F(1, 537) = .0479, p = .8269$				$F(1, 537) = .59, p = .4427$				$F(3, 535) = 2.4403, p = .0635$			

Table 6

*Summary of Indirect Effects for Parallel Multiple Mediation with Positive Affect as Outcome*

	<u>Effect</u>	<u>SE</u>	95% Bootstrap Confidence Interval	
			<u>LL</u>	<u>UL</u>
Total	-.0004	.0021	-.0051	.0036
Benign Envy (BE)	-.0003	.0018	-.0044	.0035
Malicious Envy (ME)	-.0001	.0012	-.003	.0019
ME – BE	-.0003	.0018	-.0044	.0035

Note: Total Effects =  $a_1b_1 + a_2b_2$ , Benign Envy =  $a_1b_1$ , Malicious Envy =  $a_2b_2$ , ME – BE =  $a_2b_2 - a_1b_1$

Table 7

*Regression Coefficients, Standard Errors, and Model Summary Information for Parallel Multiple Mediation with State Self-Esteem as Outcome*

Antecedent	Consequent								
	<u><math>M_1</math> (Benign Envy)</u>			<u><math>M_2</math> (Malicious Envy)</u>			<u><math>Y</math> (State Self-Esteem)</u>		
	Coeff.	SE	$p$	Coeff.	SE	$p$	Coeff.	SE	$p$
X (Cond.)	$a_1$ .014	.0777	.857	$a_2$ .0585	.087	.5025	$c'$ -.0107	.0124	.3886
M1 (Benign)	-	-	-	-	-	-	$b_1$ -.013	.007	.069
M2 (Malicious)	-	-	-	-	-	-	$b_2$ .0005	.0063	.9415
Constant	$i_{M1}$ -.113	.0777	.146	$i_{M2}$ .303	.087	.0006	$i_Y$ .0475	.0126	.0002
	$R^2 = .0001$			$R^2 = .0008$			$Adj. R^2 = .008$		
	$F(1, 535) = .0325, p = .857$			$F(1, 535) = .4503, p = .5025$			$F(3, 533) = 1.4546, p = .226$		

Table 8

*Summary of Indirect Effects for Parallel Multiple Mediation with State Self-Esteem as Outcome*

	<u>Effect</u>	<u>SE</u>	95% Bootstrap Confidence Interval	
			<u>LL</u>	<u>UL</u>
Total	-.0002	.0014	-.0032	.0026
Benign Envy (BE)	-.0002	.0012	-.0027	.0023
Malicious Envy (ME)	.0000	.0007	-.0027	.0016
ME – BE	.0002	.0014	-.0029	.003

Note: Total Effects =  $a_1b_1 + a_2b_2$ , Benign Envy =  $a_1b_1$ , Malicious Envy =  $a_2b_2$ , ME – BE =  $a_2b_2 - a_1b_1$

## Additional Analyses

**Gender.** I conducted a 2 (between: condition 1 vs condition 2) x 2 (between: condition 1 vs condition 2) x 2 (within: condition 1 vs condition 2) mixed designs factorial ANOVA to test whether or not gender interacted with the effect of condition on pre and post benign envy (see Table 10). Benign envy did not differ based on condition,  $F(1, 532) = 2.67, p = .10, \text{Partial } \eta^2 = .01$ . Benign envy did differ based on gender  $F(1, 532) = 21.59, p = .00, \text{Partial } \eta^2 = .04$ . Men ( $M = 4.64, SD = 1.99$ ) reported more benign envy than women ( $M = 3.90, SD = 1.97$ , see Table 9). The interaction between gender and condition was significant  $F(1, 532) = 5.29, p = .02, \text{Partial } \eta^2 = .01$ . Men in the unimportant condition reported higher levels of benign envy ( $M = 4.94, SD = 2.00$ ) than men in the important condition ( $M = 4.32, SD = 1.94$ ) and women across conditions ( $M = 3.90, SD = 1.97$ , see Table 9).

Table 9

*Pre- and Post-State Benign Envy by Condition and Gender*


---

Condition	Gender	Mean	Standard Deviation	N
Pre-Benign Envy Unimportant	Male	5.12	1.90	101
Pre-Benign Envy Unimportant	Female	3.85	1.93	170
Pre-Benign Envy Important	Male	4.40	1.86	96
Pre-Benign Envy Important	Female	3.98	1.80	169
Post-Benign Envy Unimportant	Male	4.76	2.11	---
Post-Benign Envy Unimportant	Female	3.84	1.97	---
Post-Benign Envy Important	Male	4.24	2.02	---
Post-Benign Envy Important	Female	3.92	2.16	---

---

Table 10

*Gender by Condition by Time Analysis of Variance (ANOVA) for Benign Envy*

	Mean Square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Condition	16.50	2.67	.10	.01
Gender	133.44	21.59**	.00	.04
Time of Testing	5.54	3.45 <sup>†</sup>	.06	.01
Condition x Gender	32.71	5.29*	.02	.01
Condition x Time	.36	.23	.64	.00
Gender x Time	3.1	1.93	.17	.00
Condition x Gender x Time	1.04	.65	.42	.00

Note: <sup>†</sup>  $p < .07$ , \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

I conducted a 2 (between: condition 1 vs condition 2) x 2 (between: condition 1 vs condition 2) x 2 (within: condition 1 vs condition 2) mixed designs factorial ANOVA to test whether or not gender interacted with the effect of condition on pre and post malicious envy (see Table 12). Malicious envy did not differ based on condition  $F(1, 532) = .34, p = .56, \text{Partial } \eta^2 = .00$ . Malicious envy did not significantly differ based on gender  $F(1, 532) = 3.26, p = .07, \text{Partial } \eta^2 = .01$ , but a trend emerged. Women ( $M = 6.03, SD = 2.23$ ) reported more malicious envy than men ( $M = 5.70, SD = 2.31$ , see Table 11). The interaction between gender and condition was not significant  $F(1, 532) = .04, p = .85, \text{Partial } \eta^2 = .00$ .



Table 11

*Pre- and Post-State Malicious Envy by Condition and Gender*


---

Condition	Gender	Mean	Standard Deviation	N
Pre-Malicious Envy Unimportant	Male	5.50	2.21	101
Pre- Malicious Envy Unimportant	Female	5.84	2.18	170
Pre- Malicious Envy Important	Male	5.62	2.19	96
Pre- Malicious Envy Important	Female	5.86	2.11	169
Post- Malicious Envy Unimportant	Male	5.75	2.49	---
Post- Malicious Envy Unimportant	Female	6.14	2.51	---
Post- Malicious Envy Important	Male	5.91	2.38	---
Post- Malicious Envy Important	Female	6.27	2.22	---

---

Table 12

*Gender by Condition by Time Analysis of Variance (ANOVA) for Malicious Envy*

	Mean Square	<i>F</i>	<i>p</i>	Partial $\eta^2$
Condition	2.91	.34	.56	.00
Gender	27.56	3.26 <sup>†</sup>	.07	.01
Time of Testing	23.75	11.94**	.00	.02
Condition x Gender	.30	.04	.85	.00
Condition x Time	.39	.20	.66	.00
Gender x Time	.42	.21	.65	.00
Condition x Gender x Time	.08	.04	.84	.00

Note: <sup>†</sup> =  $p < .07$ , \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

***Personality Correlates.*** The relationships between the Big Five Factors (extraversion, agreeableness, conscientiousness, neuroticism, and openness) and outcome variables (pre/post state-benign and malicious envies, pre/post positive and negative affects, and pre/post state self-esteem scores) can be seen in Table 13.

Ten correlation analyses were conducted to determine the relationship between the big five personality traits and pre and post benign envy. All correlations were significant (see Table 13). Increases in reported neuroticism was associated with greater benign envy. Higher scores on extraversion, agreeableness, conscientiousness, and openness were actually related to lower levels of benign envy.

Ten correlation analyses were conducted to determine the relationship between the big five personality traits and pre and post malicious envy. Correlations with agreeableness, conscientiousness, neuroticism, and openness were significant (see Table 13). Increases in reported agreeableness, conscientiousness, and openness were associated with greater malicious envy. A higher reported score on neuroticism correlated with lower malicious envy.

Ten correlation analyses were conducted to determine the relationship between the big five personality traits and pre and post positive affect. All correlations were significant (see Table 13). Higher reported scores on extraversion, agreeableness, conscientiousness, and openness correlated with high levels of positive affect. Higher neuroticism reports were related to lower positive affect.

Ten correlation analyses were conducted to determine the relationship between the big five personality traits and pre and post negative affect. All correlations were significant (see Table 13). Increases in reported extraversion, agreeableness, conscientiousness, and openness

correlated with lower levels of negative affect. Higher scores on neuroticism were correlated with higher reports of negative affect.

Ten correlation analyses were conducted to determine the relationship between the big five personality traits and pre and post state self-esteem scores. All correlations were significant (see Table 13). Higher self-reported scores of extraversion, agreeableness, conscientiousness, and openness all correlated with increased state self-esteem. Increased self-reported neuroticism correlated with decreased state self-esteem.

Table 13

*Big Five and Outcome Variable Correlations*

Variable	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Pre-Benign Envy	-.16**	-.24**	-.16**	.13**	-.11**
Post-Benign Envy	-.20**	-.34**	-.16**	.11**	-.13**
Pre-Malicious Envy	.06	.24**	.14**	-.19**	.09*
Post-Malicious Envy	-.00	.22**	.16**	-.15**	.10*
Pre-Positive Affect	.44**	.39**	.39**	-.36**	.31**
Post-Positive Affect	.40**	.37**	.33**	-.37**	.30**
Pre-Negative Affect	-.10*	-.48**	-.44**	.40**	-.13**
Post-Negative Affect	-.12	-.46**	-.44**	.40**	-.13**
Pre-Self-Esteem	.40**	.34**	.41**	-.61**	.19**
Post-Self-Esteem	.40**	.45**	.55**	-.67**	.25**
Difference Benign Envy	-.08	-.14**	-.03	.01	-.04
Difference Malicious Envy	-.03	.03	.03	-.01	.04
Difference Positive Affect	.01	.00	-.06	-.07	.05
Difference Negative Affect	-.05	.04	.03	-.06	.01
Difference State Self-Esteem	.07	-.01	-.01	-.02	.04

Note : \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

In order to determine which factors were most important to how participants felt at the conclusion of the study, regressions were run to explore each factor's contribution to predicting outcome measures. The results for these regressions are shown in Tables 14 - 18.

A regression was run to determine the correlation between the big five personality traits and post state-benign envy (see Table 14). The overall model was significant, indicating a 13% ability to predict a participant's post state-benign envy scores by knowing how he or she scored on measure of the Big Five personality traits  $F(5, 539) = 16.78, p < .001, Adj R^2 = .13$ .

Extraversion ( $p = .01$ ), agreeableness ( $p < .001$ ), and neuroticism ( $p = .02$ ) were the only significant predictors of post state-malicious envy. Agreeableness was the strongest predictor ( $\beta = -.36, t = -7.17, r_{zero\ order} = -.34, r_{partial} = -.30$ ), where higher agreeableness predicted lower post state-benign envy. The next strongest predictor was extraversion ( $\beta = -.13, t = -2.85, r_{zero\ order} = -.20, r_{partial} = -.12$ ) with higher levels of extraversion predicted lower levels of post state-benign envy. Finally, higher levels of neuroticism predicted lower levels of benign envy ( $\beta = -.13, t = -2.42, r_{zero\ order} = .11, r_{partial} = -.10$ ). There were no concerns of collinearity.

Table 14

*Big Five and Post State Benign Envy Regression*

	<u>Beta</u>	<u>t</u>	<u>p</u>	<u>r<sub>zero order</sub></u>	<u>r<sub>partial</sub></u>
Extraversion	-.13	-2.85*	.01	-.20	-.12
Agreeableness	-.36	-7.17**	.00	-.34	-.30
Conscientiousness	.01	.17	.86	-.16	.01
Neuroticism	-.13	-2.42*	.02	.11	-.10
Openness	-.01	-.21	.83	-.13	-.01

Note:  $Adj R^2 = .13$ , \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

A regression was run to determine the correlation between the big five personality traits and post state-malicious envy (see Table 15). The overall model was significant, indicating a 5.3% ability to predict a participant's post state-malicious envy scores by knowing how he or she scored on measure of the Big Five personality traits  $F(5, 539) = 7.03, p < .001, Adj R^2 = .053$ ). Extraversion ( $p = .01$ ), agreeableness ( $p < .001$ ), and neuroticism ( $p = .05$ ) were the only significant predictors of post state-malicious envy. Agreeableness was the strongest predictor ( $\beta = .20, t = 3.73, r_{zero\ order} = .22, r_{partial} = .16$ ), with higher agreeableness predicted higher post state-malicious envy. The next strongest predictor was extraversion ( $\beta = -.12, t = -2.51, r_{zero\ order} = -.00, r_{partial} = -.11$ ), with higher levels of extraversion predicted lower levels of post state-malicious envy. Finally, higher levels of neuroticism predicted lower levels of malicious envy ( $\beta = -.12, t = -1.93, r_{zero\ order} = -.15, r_{partial} = -.08$ ). There were no concerns of collinearity.

Table 15

*Big Five and Post State Malicious Envy Regression*

	<u>Beta</u>	<u>t</u>	<u>p</u>	<u><math>r_{zero\ order}</math></u>	<u><math>r_{partial}</math></u>
Extraversion	-.12	-2.51*	.01	-.00	-.11
Agreeableness	.20	3.73**	.00	.22	.16
Conscientiousness	-.03	-.47	.64	.12	-.02
Neuroticism	-.12	-1.93*	.05	-.15	-.08
Openness	.07	1.46	.15	.10	.06

Note:  $Adj\ R^2 = .05$ , \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

A regression was run to determine the correlation between the big five personality traits and post positive affect (see Table 16). The overall model was significant, indicating a 26% ability to predict a participant's post positive affect scores by knowing how he or she scored on measure of the Big Five personality traits  $F(5, 538) = 39.13$ ,  $p < .001$ ,  $Adj\ R^2 = .26$ .

Extraversion ( $p < .001$ ), agreeableness ( $p < .001$ ), neuroticism ( $p < .001$ ), and openness ( $p < .001$ ) were significant predictors of post positive affect. Extraversion was the strongest predictor ( $\beta = .22$ ,  $t = 5.26$ ,  $r_{zero\ order} = .40$ ,  $r_{partial} = .22$ ), with higher extraversion predicting higher post positive affect. The next strongest predictor was openness ( $\beta = .18$ ,  $t = 4.43$ ,  $r_{zero\ order} = .30$ ,  $r_{partial} = .19$ ), with higher levels of openness predicting lower levels of post positive affect. Neuroticism was the next strongest predictor ( $\beta = -.16$ ,  $t = -3.26$ ,  $r_{zero\ order} = -.37$ ,  $r_{partial} = -.14$ ), with higher levels of neuroticism correlating with lower levels of post positive affect. Finally, higher levels of agreeableness predicted higher levels of post positive affect ( $\beta = .13$ ,  $t = 2.70$ ,  $r_{zero\ order} = .36$ ,  $r_{partial} = .12$ ) There were no concerns of collinearity.



Table 16

*Big Five and Positive Affect Regression*

	<u>Beta</u>	<u>t</u>	<u>p</u>	<u><math>r_{zero\ order}</math></u>	<u><math>r_{partial}</math></u>
Extraversion	.22	5.26***	.00	.40	.22
Agreeableness	.13	2.70**	.01	.36	.12
Conscientiousness	.07	1.43	.15	.33	.06
Neuroticism	-.16	-3.26***	.00	-.37	-.14
Openness	.18	4.43***	.00	.30	.19

Note:  $Adj\ R^2 = .26$ , \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

A regression was run to determine the correlation between the big five personality traits and post negative affect (see Table 17). The overall model was significant, indicating a 29% ability to predict a participant's post negative affect scores by knowing how he or she scored on measure of the big five personality traits  $F(5, 538) = 44.26$ ,  $p < .001$ ,  $Adj\ R^2 = .29$ ).

Extraversion ( $p < .001$ ), agreeableness ( $p < .001$ ), conscientiousness ( $p < .001$ ), and neuroticism ( $p < .001$ ) were significant predictors of post negative affect. Agreeableness was the strongest predictor ( $\beta = -.28$ ,  $t = -6.13$ ,  $r_{zero\ order} = -.46$ ,  $r_{partial} = -.26$ ), with higher agreeableness predicting lower post negative affect. The next strongest predictor was conscientiousness ( $\beta = -.23$ ,  $t = -4.92$ ,  $r_{zero\ order} = -.44$ ,  $r_{partial} = -.21$ ) with higher levels of conscientiousness predicting lower levels of post negative affect. Neuroticism was the next strongest predictor ( $\beta = .19$ ,  $t = 4.05$ ,  $r_{zero\ order} = .40$ ,  $r_{partial} = .17$ ) with higher levels of neuroticism correlating with higher levels of post negative affect. Finally, higher levels of extraversion predicted higher levels of post

negative affect ( $\beta = .13$ ,  $t = 3.21$ ,  $r_{zero\ order} = -.12$ ,  $r_{partial} = .14$ ). There were no concerns of collinearity.

Table 17

*Big Five and Negative Affect Regression*

	<u>Beta</u>	<u>t</u>	<u>p</u>	<u><math>r_{zero\ order}</math></u>	<u><math>r_{partial}</math></u>
Extraversion	.13	3.21***	.00	-.12	.14
Agreeableness	-.28	-6.13***	.00	-.46	-.26
Conscientiousness	-.23	-4.92***	.00	-.44	-.21
Neuroticism	.19	4.05***	.00	.40	.17
Openness	-.01	-.16	.87	-.13	-.01

Note:  $Adj\ R^2 = .26$ , \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

A regression was run to determine the correlation between the big five personality traits and post state self-esteem (see Table 18). The overall model was significant, indicating a 52% ability to predict a participant's post state self-esteem scores by knowing how he or she scored on measure of the Big Five personality traits  $F(5, 536) = 115.13$ ,  $p = .00$ ,  $Adj\ R^2 = .52$ ). Extraversion ( $p = .01$ ), conscientiousness ( $p < .001$ ), neuroticism ( $p < .001$ ), and openness ( $p < .001$ ) were all significant predictors of post state self-esteem scores. Neuroticism was the strongest predictor ( $\beta = -.48$ ,  $t = -12.30$ ,  $r_{zero\ order} = -.67$ ,  $r_{partial} = -.47$ ), where higher neuroticism predicted lower state self-esteem. The next strongest predictor was conscientiousness ( $\beta = .23$ ,  $t = 5.90$ ,  $r_{zero\ order} = .55$ ,  $r_{partial} = .25$ ), with higher levels of conscientiousness predicting higher

levels of state self-esteem. The next strongest predictor was openness ( $\beta = .11$ ,  $t = 3.41$ ,  $r_{zero\ order} = .25$ ,  $r_{partial} = .15$ ), with higher levels of openness predicting higher levels of state self-esteem. Finally, higher levels of extraversion predicted higher levels of state self-esteem ( $\beta = .09$ ,  $t = 2.50$ ,  $r_{zero\ order} = .40$ ,  $r_{partial} = .12$ ). There were no concerns of collinearity.

Table 18

*Big Five and State Self-Esteem Regression*

	<u>Beta</u>	<u>t</u>	<u>p</u>	<u><math>r_{zero\ order}</math></u>	<u><math>r_{partial}</math></u>
Extraversion	.09	2.50**	.01	.40	.12
Agreeableness	.03	.74	.46	.45	.03
Conscientiousness	.23	5.90***	.00	.55	.25
Neuroticism	-.48	-12.30***	.00	-.67	-.47
Openness	.11	3.41***	.00	.25	.15

Note:  $Adj\ R^2 = .52$ , \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

## CHAPTER 4

### DISCUSSION

Since its inception, Facebook has become a ubiquitous presence on the computers and smartphones of the world (Wilson et al., 2012). Curious as to how this new way of connecting to others may impact people, and perhaps inspired by anecdotes of feelings of depression, countless researchers examined various aspects of Facebook and how it relates to factors of wellbeing (see Banjanin et al., 2014; Jelenchick et al., 2013; Simoncic et al., 2014 ). When Facebook use is examined in the context of social comparison, there are negative effects on wellbeing, predominantly increases in depressive symptoms (see Chou & Edge, 2012; Haferkamp & Kramer, 2011; Kross et al., 2013). Comparing oneself on Facebook to another user who is perceived as doing better mediates the relationship between Facebook use and depressive symptoms (see Krasnova, Wenninger, Widjaja, & Buxman, 2013, Krasnova et al., 2015; Tandoc, Ferrucci, & Duffy, 2014). Tesser's (1988) Self-Evaluation Maintenance Theory (SEM) illustrates the ways in which people preserve their self-esteem when confronted by the success of others and can serve to guide interventions for mental health counselors and Facebook users alike who wish to avoid potentially negative consequences of social media use.

Despite the plethora of studies on Facebook, to date, there are significant gaps in the literature. Research regarding social comparisons on Facebook has largely ignored the experience of benign envy (Lange & Crusius, 2015), and may not accurately capture the average Facebook user's experience. Furthermore, studies have focused on correlational data and self-reports of Facebook use without the use of controlled manipulation. The present study's novel approach of utilizing experimental manipulation grows the literature by furthering the field's understanding of how Facebook use impacts affect and self-esteem.

## Interpretation of Results

**Main hypotheses.** In the present study, Facebook use was operationalized as viewing the status update of another user, specifically a goal oriented post (condition). The outcome variables measured were negative affect, positive affect, and state self-esteem, and the anticipated mediators were benign and malicious envies. This study did not replicate a mediated relationship between Facebook use and outcome measures as seen in previous studies (see Appel 2015). However, clear patterns of changes in affect and self-esteem emerged as a result of viewing another's status update on Facebook.

*Hypothesis 1. Viewing Facebook posts with greater self-relevance will result in increased reports of negative affect from pre- to post tests, decreased reports positive affect from pre- to post tests, and lower state self-esteem from pre- to post tests.* Despite a lack of mediation, results indicate significant changes in malicious envy, negative affect, positive affect, and state self-esteem after interacting with Facebook. Malicious envy increased significantly over the course of the study. Both negative and positive affect decreased, and state self-esteem increased. The increase in malicious envy as it relates to Facebook use is in line with existing studies maintain that Facebook use increases social comparison and feelings of envy (Krasnova et al., 2013; Park & Baek, 2018; Tandoc et al., 2015). The present study provides a keener understanding of the relationship between envy and Facebook use as previous studies do not differentiate between the experiences of benign and malicious envy. The decrease in positive affect after interacting with Facebook is congruent to recent findings that Facebook use decreases emotional well-being (Steers et al., 2014; Verduyn et al., 2015). However the decrease in negative affect and increase in self-esteem warrant further exploration. These results may indicate a more complex relationship between Facebook use, affect, and self-esteem. The present study shows that the act

of reading the status updates of others' Facebook posts does have a significant impact on feelings of envy, affect, and self-esteem, which is paramount to the field's understanding of this ever evolving technology.

*Hypothesis 2. Reported scores for benign episodic envy should increase from pre- to post tests for irrelevant goals. Reported scores for malicious episodic envy should increase from pre- to post tests for relevant goals.* Previous studies' operationalizing of envy was most analogous with malicious envy. In this study, the effects of benign envy are seen for what may be the first time. Results also showed that over the course of the study, state malicious envy increased while state benign envy decreased, regardless of condition. While the type of post participants viewed did not have an effect on their feelings of envy, the act of viewing a Facebook post of another user did change reports of benign and malicious envies. This could mean that simply browsing the Facebook interface can increase thoughts of wanting what others have, hoping that other people will fail, or thinking that other people do not deserve what they have, all aspects of malicious envy. Additionally, browsing others' Facebook posts can decrease feelings of motivation to improve oneself, feelings of inspiration and admiration of others, all factors of benign envy. This may indicate that what people see on Facebook is irrelevant when determining what factors produce a change in envy. Rather, just seeing others post on Facebook may be enough to incite a change in how people are feeling and what they are thinking. Participants' experiences of benign and malicious envies did impact affect and self-esteem, as detailed in the corresponding hypotheses below.

*Hypothesis 3. As benign episodic envy increases, state self-esteem should increase from pre- to post tests. As malicious episodic envy increases, state self-esteem should decrease from pre- to post tests.* Although counter to the anticipated pattern, results showed that as benign envy

increased, state self-esteem decreased. While I manipulated the relevancy of the goal participants compared themselves to, I did not control for upward or downward comparison. Upward and downward comparison have opposite effects on self-esteem, with downward comparisons improving low self-esteem (Aspinwall & Taylor, 1993), and upward comparisons decreasing self-esteem (Gibbons & Gerrard, 1989). It's possible that participants engaged primarily in upward, rather than downward comparisons, and that the experience of benign envy does not outweigh the negative effects of upward comparisons.

*Hypotheses 4a and 4b. As benign episodic envy increases, positive affect should increase. As malicious episodic envy increases, positive affect should decrease. As benign episodic envy increases, negative affect should decrease. As malicious episodic envy increases, negative affect should increase.* Counter to this hypothesis, as benign envy increased, positive affect decreased, and as malicious envy increased, negative affect decreased. By definition, envy is the desire of something that another person has (van de Ven, Zeelenberg, & Pieters, 2009), which is related more to an upward social comparison than a downward social comparison. Given the past research on the potentially negative effects of upward social comparisons (see Tesser, Millar, & Moore, 1988) particularly on Facebook (Nesi & Prinstein, 2015; Tran, Uebelacker, Wenzel, Collins, & Broughton, 2015) it stands to reason that if participants engaged in more upward social comparisons, positive affect would be decreased, and negative affect would increase.

Of note is that positive affect only decreased when benign envy increased, and negative affect only increased when malicious envy decreased. To explore these results I turn to SEM, and one possible explanation of how people act when confronted by a more successful other (Tesser, 1988). When comparison against another person decreases one's self-evaluation, negative emotions are likely to increase, and there is a motivation to regain self-evaluation by

mentally or socially decreasing the status of the other person (Tesser, 1988; Tesser & Collins, 1988). In my study, participants rated how close or far they were from completing a goal in relation to a friend. For participants that perceived that their friend was closer to completing the goal, and therefore more successful, steps may have been taken subconsciously in order to prevent a loss of self-evaluation. These subconscious steps include emotionally or physically distancing oneself from the friend, lowering the importance of the goal to the self, or hindering the success of the other person by intervening. The latter may be difficult to achieve through the internet, however the first two steps could easily have taken place either during my study or before my study. Facebook allows users to “unfollow,” or block out the status updates of any friends they choose. This is one way to distance oneself from a threatening other. Participants identified a goal first, before choosing a friend to compare themselves to, and it is possible that given the choice of whose status update to examine, participants picked a friend or an update that was not as threatening to their self-evaluation.

It is possible that users who reported higher malicious envy engaged in steps to maintain their self-evaluation more often or more successfully than those who reported higher benign envy, based on the changes in their reported affect. Taking steps to maintain one’s self-evaluation would logically result in either an increase in positive affect or a decrease in negative affect, which was seen in this study. Alternatively, when one’s self-evaluation is threatened, decreases in positive affect and self-esteem can be anticipated, which was also found. Benign envy is closely tied to “leveling up,” or bringing oneself up to the perceived status of another, while malicious envy is tied to “leveling down,” or bringing another person down to improve oneself (van de Ven et al., 2009). Leveling up may take time and effort; while motivated to improve, one cannot improve a skill, further oneself along a goal, or obtain a coveted material



object immediately. However, leveling down can be instantaneous through gossip, negative thoughts, or actions such as “unfollowing” or posting a negative comment. It is possible that the experience of state benign envy may temporarily quell positive emotions until one can “level up,” whereas malicious envy can quell negative emotions immediately through self-protective measures.

*Hypothesis 5. The relationship between goal relevance and changes in negative affect, positive affect, and state self-esteem will be mediated by envy.* In order for mediation to take place, mediators must have a relationship with both the predictor (condition) and outcomes (negative and positive affect, state self-esteem). As reported above, benign and malicious envy did not have a relationship with condition, and therefore the conditions for mediation were not satisfied. However, this does not take away from the significant findings detailed above.

***Personality factors.*** Although my main hypotheses were not supported, several interesting findings persist, particularly involving the Big Five Personality factors. People who score high on agreeableness tend to be more friendly and compassionate, and less challenging. Those who score high on extraversion are less solitary, less concerned with themselves (Toegel & Barsoux, 2012). High scores on the neuroticism trait indicate sensitivity, nervousness, and less confidence in oneself (Friedman, Shustack, Howard, & Miriam, 2016). It may stand to reason that people who are friendlier and more gregarious may be more inclined to feel good about their friends’ accomplishments, a cornerstone of benign envy, while those who are less secure may be critical of others. However, the opposite was found in the present study. Counter to what was anticipated, higher levels of agreeableness and extraversion correlated with lower state benign envy, while higher levels of neuroticism correlated with higher state benign envy. This pattern was seen in scores on malicious envy as well; increased agreeableness and predicted higher

malicious envy, and higher neuroticism predicted lower malicious envy. High levels of neuroticism, when combined with high levels of time spent on Facebook, correlate with depressive symptoms (Chow & Wan, 2018). Depressive symptoms were not an outcome measure in this study, however the correlation between higher neuroticism, higher benign envy, and lower malicious envy indicates the need for additional research on benign and malicious envies and depression. Particularly, my results indicate that there may be unforeseen negative outcomes of benign envy when this envy is experienced on Facebook that have yet to be explored.

This study did not compare Facebook users to non-Facebook users. Past research has shown that there are personality differences between those who use the social media platform and those who do not in the traits of extraversion, narcissism, exhibitionism, and loneliness in relation to their family (Ryan & Xenos, 2011). Big Five personality factors also play a role in the different ways that people interact with others on Facebook (Marshall, Lefringhausen, & Ferenczi, 2015). It may be that Facebook users have different reactions to viewing friends' achievements than non-Facebook users, due to these or additional differences.

Interestingly, trait benign envy is not significantly correlated with pre-state benign envy but is negatively correlated with pre-state malicious envy. Dispositional benign envy only significantly correlated with openness, whereas dispositional malicious envy significantly correlated with all Big Five personality traits (negatively with extraversion, agreeableness, conscientiousness, and openness, and positively with neuroticism, see Table 18). Perhaps those who score high in neuroticism may be nervous or worried about the loss of or damage to friendships and may be motivated to respond more positively to others as opposed to negatively, as anticipated. Perhaps Big Five personality traits have the opposite relationship on state envy

than they have on dispositional envy. This can have interesting implications for how social media impacts people differently. Perhaps the assumption that people who are extraverted and agreeable are less affected by envy is inaccurate.

***Patterns in envy.*** Trait malicious envy positively correlated with post state benign envy so that higher trait malicious envy correlated with higher state benign envy after manipulation, while also correlating with lower state malicious envy. This is counterintuitive and may relate to the patterns of benign envy seen throughout the results. Pre-state benign envy was negatively correlated with pre and post-positive affect, meaning that the more benign envy participants reported, the less positive affect they reported feeling at the start of the study and the end of the study post-positive affect. Alternatively, higher benign envy at the start of the study correlated with higher levels of negative affect at the start and end of the study. This is counterintuitive, along with the findings that higher state benign envy correlated with lower state self-esteem at both the start and completion of the study. One might expect that benign envy, which includes the experiences of admiration and motivation, may correlate with positive feelings. This study is the first known study to examine state benign envy, with a newly developed and validated scale. The results above run counter to what was intuitively anticipated, and additional research is needed to replicate these results and determine if any revisions to the Benign Episodic Envy Scale are warranted.

Reported state malicious envy at the start of the study was correlated with higher positive affect, lower negative affect, and higher state self-esteem prior to manipulation. While initially seeming contrary to what is anticipated, this may be a reflection of “malicious joy,” also known as schadenfreude. Historically, schadenfreude is described as taking pleasure in another person’s misfortunes (Smith et al., 1996). Schadenfreude is a pleasure experience affectively, despite the

negative feelings of malicious envy. It is possible that the positive relationship between the reported experience of malicious envy and positive affect may be reflective of schaudenfreude in participants.

***Gender trends.*** Interestingly, men who were in the unimportant condition reported higher levels of benign envy, compared to reports of women in the unimportant condition and men in the important condition. The pattern in this subgroup was as hypothesized, however it was hypothesized that this relationship would exist for both men and women. Women's responses indicated a trend of reporting higher levels of state malicious envy than men across timepoints and conditions. While this trend was not statistically significant, it was clearly a departure from the reports of their male counterparts. Men and women differ in what traits and advantages in others provoke feelings of envy (DelPriore, Hill, & Buss, 2012). In particular, factors relating to romantic success and physical attractiveness are more envy-provoking for women than for men. Future research with this database may explore possible differences in the types of goals that men and women explored. Women display more jealousy over romantic relationships, particularly perceived infidelity (Hudson et al., 2015; Muise, Christofides, & Desmarais, 2009). This may be a function of socialization, as women tend to express jealousy more emotionally than men, and men expressing jealousy more physically (Buss & Schmitt, 1993). Jealousy, though not the same as malicious envy, is a related construct which includes unpleasant feelings related to perceived threats of others. If these patterns are the same for envy as jealousy, then it follows that expression of malicious envy through identification of negative emotions as dictated on the Episodic Envy Scale (Cohen-Charash, 2009) may be more likely seen in women than in men.

## **Limitations and Strengths**

As aforementioned, the freedom participants had to pick what post they looked at may have influenced the results of this study. Despite having good faith in participants' ability to follow the instructions as written, it is possible that participants did not choose posts that were goal focused as instructed. Participants may have unconsciously avoided posts that increase feelings of both benign and malicious envy, dulling the responses, or they may not have spent adequate time searching for a post that met the criteria being asked of them.

When this study was first proposed, Facebook was the premier social media network. Over the years of completion, many people have moved away from using Facebook to update their friends on their lives and have chosen other social media apps such as Instagram and Snapchat. This study focused only on Facebook, and it cannot be determined at this time if the same results would be found if this study was conducted asking participants to view posts on different platforms. The ever changing and evolving nature of social media, however, does make it difficult to produce research that is concurrent with popular trends, and it could be that any research conducted in this area may always be one or more steps behind the latest trend.

While this study limited participant age to 18 years or older, many social media users are teenagers or children. The results of this study cannot necessarily be generalized to younger demographics, though it is highly likely that younger age groups are affected by social media.

This was a lengthy survey included several questionnaires. Customary on many mTurk surveys are attention checks throughout. However, there were no checks within the study to ensure that participants were paying attention, and to prevent response sets. Given the length of my survey, it may have been helpful to include these checks to weed out participants who did not pay attention throughout the entire study.

Studies on Facebook and other social media continue to be predominantly self-report in nature, focusing on correlations (see Chow & Wan, 2018; Parent, Gobble, & Rochlen, 2018; Wright, White, & Obst, 2018). Research is just now starting to utilize experimental methods (Sherlock & Wagstaff, 2018), making this study one of the first to use highly controlled methods in examining Facebook's impact on affect and self-esteem. Research on Instagram, another widely popular social media application, shows that viewing posts about fitness and beauty decreased participants' ratings of their own attractiveness, compared to no effect by viewing pictures of travel. Those with higher anxiety and lower self-esteem rated themselves even lower (Sherlock & Wagstaff, 2018). This is relevant to the current study, which asked participants to single out posts related to specific goals, one of which came up frequently was weight loss. Research supporting that fitness goals have a potentially negative impact on psychological factors is in line with the present study.

### **Application to the Mental Health Field**

It is common for clients to provide anecdotal evidence of how social media affects them; parents will be eager to share with their child's therapist that their son or daughter is obsessed with social media apps, that this has caused a decline in their grades or increased isolation at home. Adult clients may complain of frustration over seeing other people succeed in life while they feel cheated. These stories are valuable insights into a client's own experience with social media, but without scientific research, mental health professionals may not know how to treat the underlying factors that contribute to these experiences.

Social media use may directly impact a client's emotional wellbeing, potentially interfering with goals of counseling. Studies have shown the potential for increased depression through Facebook use (see Kross et al., 2013). Mental health professionals commonly work with

individuals who already struggle with behavioral or emotional challenges, and the use of social media may exacerbate existing concerns. Being aware of a client's online activities adds to a holistic view of the client's life outside of the therapy session, activities that may help or hinder the therapeutic work. Equally important is knowing the research on these activities; who is at risk for negative affects, can negative affects be mitigated or reversed, and are there populations that are more vulnerable than others. The results in this study highlight the variables that impact a person's experience in using Facebook, variable that may make for a more positive or negative experience, including personality factors and gender. When counselors are aware of their clients' social media use, they allow the possibility to intervene to curb behaviors that are potentially harmful.

### **Future Areas for Exploration**

Future studies may do well to explore various platforms, if only to excise generalizability of results. For example, asking half of the participants to log into Facebook and half into Instagram, or perhaps allowing participants to choose the social media platform for themselves. This could provide interesting data on possible differences between platform affects. Future studies may find a way to manipulate what posts are seen by participants to filter in or out the specific posts that I hoped to study. This kind of undertaking may be outside the scope of one researcher, or one research entity, though the owners of Facebook have been successful and manipulating what is viewed in users' timelines (Kramer, Guillory, & Hancock, 2014). Including or focusing on different ages; this study excluded anyone under the age of 18. Replication of findings, particularly those of benign and malicious envy in order to determine if results are reliable, as patterns were in the opposite direction than anticipated.

Additional tests can be performed to further explore the role that goal type plays in experiencing benign or malicious envy. Participants identified the type of goal they viewed, for example a family related goal, academic goal, career goal, or weight loss goal. Although beyond the scope of this dissertation, mediation analyses can be run to include only certain types of goals. I believe that some goals may lend themselves more easily to SEM theory than others. When illustrating SEM theory, I created a story about a weight loss goal. Weight loss is visible, tangible, and very common. It is clear if another person has lost more or less weight than oneself, and one's own weight loss goal can be clearly defined. Future analyses on only those participants who viewed weight loss goals may indicate different response patterns due to these concrete factors.

## **Conclusion**

Many studies attempt to inform the public on the impact of social media, and this present study enriches this literature. This study aimed to illustrate the SEM theory at work through the platform of Facebook, using benign and malicious envy as mediators of outcome measures. Although the main hypotheses of this study were not supported, many interesting findings have emerged. Comparing oneself to others based on their Facebook status updates has a significant impact on feelings of envy, negative and positive affect, and state self-esteem, regardless of the kinds of posts users are viewing. The counterintuitive findings on the relationship between extraversion, agreeableness, and neuroticism with benign and malicious envy is informative in how different personalities can be impacted by Facebook posts in a way that many may not predict. Also seen is the role of gender in how others' posts may influence feelings of envy. These findings contribute to the quickly growing literature of social media impact on wellbeing. Social media and social networking platforms have shown themselves to be mainstays in our



culture, and not passing fads. Their ubiquity in our lives begs information on how they affect us, and how we can use them to benefit rather than harm us. Without this research, only anecdotal information would exist, and we would be limited in our understanding of how social media truly impacts our experiences.

## CHAPTER 5

### VALIDATION STUDY

Envy, the experience of wanting what another person has, is often perceived as a negative emotion (van de Ven, Zeelenberg, & Pieters, 2009). Despite this common misconception, envy can be a positive experience which results in motivating positive behavior (van de Ven et al., 2009). van de Ven, Zeelenberg, and Pieters (2009) describe the existence of two specific types of envy; malicious and benign. Malicious envy is a deleterious experience also characterized by frustration, motivates individuals to not to better themselves, but to hinder or put down the object of envy. Examples of this “leveling down” include gossip, attempt to hurt the other person, or wish that the other person fail in the future. Benign envy is the experience of admiring another person, even though one desire’s what that other person has accomplished and may feel inferior or frustrated. Benign envy motivates “leveling up,” or improving oneself in order to be closer to the object of envy. (van de Ven et al., 2009). There is currently a scale that measures dispositional or trait benign and malicious envy (Lange & Crusius, 2015), and a scale that measure the state or moment to moment experience of malicious envy (see Cohen-Charash, 2009), but not one that examines the state experience of benign envy. This study aimed to address this limitation in the research.

### Method

#### Scale Development

The Benign Episodic Envy Scale (BEES) is modeled after the Episodic Envy Scale in length and ratings (Cohen-Charash, 2009). Both scales contain nine items that ask participants to respond to prompts that compare themselves to another individual on a scale of 1 (not characteristic at all) to 9 (extremely characteristic). The Episodic Envy Scale consists of two

factors, feeling and comparison. Feeling items include “some hatred, rancor, gall,” and comparison items include “[this person] has things going better for him/her than I do.” The BEES incorporates both feelings and comparison items, though does not separate these factors into to subscales. Instead, the BEES items were developed through the literature on benign envy (Lange & Crusius, 2015; van de Ven et al., 2009; van de Ven et al., 2012). Benign envy is marked by feelings of admiration when one is outperformed by another and pleasant emotions that motivate an individual to improve their own situation.

### **Participants**

Participants were 195 undergraduate students from Pace University, 47 participants were male (24.10%) and 146 were females (74.90%) with a mean age of 18.91 years ( $SD = 2.33$ ). Data from two participants were excluded, one entered in duplicate data, another did not address the study prompts. All participants received class credit in exchange for their voluntary participation in the study.

### **Procedures**

Participants from introductory psychology courses participated in this study. Participants read a consent form, and upon consent, began the survey. Participants completed the BeMaS (Lange & Crusius, 2015), and the BEES. Next, they viewed a prompt asking them to think of a person that they felt neutral toward. Participants identified this person without mentioning the person’s name, and rate on a scale of 1 (very negative) to 5 (very positive) how they felt toward this person. Participants then completed the BEES keeping in mind this neutral other. Then, participants viewed a prompt asking them to think about a time that they felt motivated to improve themselves after viewing someone they are close with achieving a goal or performing well on a task. Participants identified this close other without providing that person’s name and

spent at least three minutes writing about this experience. Participants then completed the Benign Episodic Envy Scale a second time, and viewed a page thanking them for their participation.

## **Measures**

In order to establish convergent validity, participants completed the Benign and Malicious Envy Scale (BeMas), a measure of dispositional benign and malicious envy (Lange & Crusius, 2015). The BeMas is a ten item measure of trait benign and trait malicious envy. Participants report how much they agree that an item represents themselves based on a Likert scale of 1 (strongly disagree) to 6 (strongly agree). There are five items that measure benign envy, such as: “When I envy others, I focus on how I can become equally successful in the future,” “If I notice that another person is better than me, I try to improve myself.” Malicious envy items include, “Seeing other people’s achievements makes me resent them,” and “I feel ill will toward people I envy.” This scale has strong internal consistency for both benign and malicious envy subscales ( $\alpha$ s = .84, .86 respectively).

## **Results**

Researchers wanted first to establish internal consistency of the BEES. A factor analysis was run in order to establish item loadings. The loading for item #6, “I hope this person will fail,” was below .045. The alpha for the scale including this item was not substantially higher or lower than the alpha with this item included, and as a result, this item was removed from future analyses. The BEES showed strong internal consistency at both time one ( $\alpha$  = .93) and time two ( $\alpha$  = .94).

Next, researchers wanted to assess whether or not benign envy could be measured as an episodic event. A t-test was conducted to examine the pre/post BEES scores, and researchers determined that benign envy can be manipulated in a state fashion,  $t(186) = 17.30, p < .001$ .

During the portion of the survey when participants were asked to think of a neutral other, they reported lower levels of benign envy than when they were thinking of a positive event ( $M = 5.05$ ,  $SD = 1.98$ ,  $M = 7.8$ ,  $SD = 1.42$ ).

Researchers examined discriminant validity of the BEES against the BeMas. Looking to establish a state measure of benign envy, discriminant validity is shown through the state measure, BEES, not correlating with trait/dispositional measures, BeMas. At time one, the BEES failed to correlate significantly with the BeMas scores of dispositional benign envy ( $r = .09$ ,  $p = .22$ ) but did correlate at time two ( $r = .19$ ,  $p = .01$ ). The BEES did not correlate at all with dispositional malicious envy ( $r_s > -.11$ ,  $p_s > .15$ ). Also of note is that that patterns of relationships between state and dispositional envy are in the anticipated directions; there is a positive correlation between state and dispositional benign envy and a negative correlation with dispositional malicious envy.

Finally, we wanted to know if the change in benign episodic envy was due to dispositional envy, or the manipulation. The regression model in which dispositional envy (both types) was parsed out to see if time 1 was more predictive of time 2 illustrated that disposition did predict how people responded at time 2 ( $\beta = .30$ ,  $p = .004$ ). A linear regression showed that when dispositional envy is parsed out, the change in state benign envy scores is due to the manipulation, illustrating that benign envy does exist as an episodic experience that can be manipulated ( $R^2 = .09$ ,  $R^2$  change = .03),  $F(1, 183) = 6.14$ ,  $p = .001$  (see Table 19).

Researchers analyzed the brief writing prompt for exploratory data. Participants were asked to spend at least three minutes writing about an experience of benign envy. Participants high in dispositional benign envy had a significantly higher word count ( $r = .171$ ,  $p < .05$ ), though state benign envy did not have any impact on word count. Scores on the BEES at time 2

had a significant positive relationship with use of comparison words ( $r = .183, p < .05$ ). The BEES at time 2 had a significant negative relationship with authenticity ( $r = -.280, p < .001$ ).

Table 19

*Regression Results Predicting Time 2 Benign Envy from Dispositional Measures and Time 1 State Measure*

	<u><math>\beta</math> (Std. error)</u>	<u>Stdzd Coeff.</u>	<u><math>T</math></u>	<u>Partial correlations</u>
Constant	7.11 (.443)		16.052	
Dispositional benign envy	.33 (.10)	.23	3.16	.23
Dispositional malicious envy	-.25(.11)	-.17	-2.29	-.17
Time 1 Episodic Benign Envy	.12(.05)	..17	2.43*	.18

Note: \* =  $p < .05$

## Conclusion

Based on the results from this study, the BEES is an internally consistent and valid measure of episodic benign envy. This scale fills a gap in the envy literature and provides researchers with a way to measure state benign envy. Furthermore, while personality traits do predict a change in experience of benign envy, the current manipulation explains change above and beyond personality factors.

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## **APPENDIX A: CONSENT FORM**

### **Consent Form**

**Study Purpose:** The purpose of this research study is to examine the experience of browsing Facebook.

**Procedures:** Participation in this study involves looking at a Facebook post made by one of your Facebook friends, answering questions about this post, completing five questionnaires, and a brief writing prompt. Completion of this study should take no longer than 30 minutes.

**Compensation:** By completing this study you will receive compensation through Amazon's mTurk of \$1.00.

**Benefits:** Your participation in this study may benefit you in that you may feel positive emotions when viewing Facebook posts. The indirect benefits of this research involve improving how researchers measure the experience of using Facebook.

**Risks:** There are no foreseeable risks associated with participating in this study.

**Anonymity:** Your responses to this study will be anonymous, and will not be linked to your name. No identifying information is collected in this study.

**Voluntary Participation; Right to Withdraw:** Your participation in this study is voluntary. There is no penalty for not participating. You have the right to withdraw from the study at any time without consequence.

**Additional Information:** You will not be exposed to any drugs, pharmaceuticals, or other substances that you may intake. If you elect not to participate in this study there are no other alternative procedures offered. You may feel free to print a copy of this consent form. You may consult with family members or other advisors before consenting to participate in this study. This consent form in no way legally restricts or denies your rights.

**Contact Information:** For questions about this study and participant rights, please contact Jenna Meyerberg, Doctoral Candidate, at JMeyerberg@gmail.com, or Dr. Angela M. Legg, Dept. of Psychology, alegg@pace.edu or (914)773-3929. The Institutional Review Board (IRB) at Pace University has approved the solicitation of subjects for this study. If you have any questions or concerns, please contact the Office of Sponsored Research at (212) 346-1273.

- ☐ I agree to participate in this study
- ☐ I do not agree to participate in this study

## APPENDIX B: DISPOSITIONAL BENIGN AND MALICIOUS ENVY SCALE

Please indicate how much you agree with the statements below.

1. When I envy others, I focus on how I can become equally successful in the future.

1 Strongly Disagree   2   3   4   5   6 Strongly Agree

2. I wish that superior people lose their advantage.

1 Strongly Disagree   2   3   4   5   6 Strongly Agree

3. If I notice that another person is better than me, I try to improve myself.

1 Strongly Disagree   2   3   4   5   6 Strongly Agree

4. Envyng others motivates me to accomplish my goals.

1 Strongly Disagree   2   3   4   5   6 Strongly Agree

5. If other people have something that I want for myself, I wish to take it away from them.

1 Strongly Disagree   2   3   4   5   6 Strongly Agree

6. I feel ill will toward people I envy.

1 Strongly Disagree   2   3   4   5   6 Strongly Agree

7. I strive to reach other people's superior achievements.

1 Strongly Disagree   2   3   4   5   6 Strongly Agree

8. Envious feelings cause me to dislike the other person.

1 Strongly Disagree   2   3   4   5   6 Strongly Agree

9. If I notice that another person is better than me, I try to improve myself.

1 Strongly Disagree   2   3   4   5   6 Strongly Agree

10. Seeing other people's achievements makes me resent them.

1 Strongly Disagree   2   3   4   5   6 Strongly Agree



## APPENDIX C: EPISODIC ENVY SCALE

Please rate how much you agree that the statements below are characteristic of you right now in this moment.

1. I feel some hatred

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

2. I have a grudge

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

3. I feel rancor.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

4. I feel bitter.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

5. I feel gall (irritated, annoyed)

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

6. I have a desire to have what others have.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

7. I feel that I lack some of the things others have.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

8. Other people have things going better for them than I do.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

9. I feel envious.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

#### **APPENDIX D: BENIGN EPISODIC ENVY SCALE**

10. I feel admiration.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

11. I have positive thoughts about others.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

12. Other people make me want to improve my own position.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

13. I want to be near or close to other people.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

14. I want to compliment other people.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

15. I hope other people will do well or succeed.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

16. I feel empowered.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

17. I feel inspired.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

## APPENDIX E: BIG FIVE INVENTORY

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please indicate the extent to which you agree or disagree with the statements below.

1. Is talkative

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

2. Tends to find fault with others

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

3. Does a thorough job

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

4. Is depressed, blue

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

5. Is original, comes up with new ideas

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

6. Is reserved

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

7. Is helpful and unselfish with others

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

8. Can be somewhat careless

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

9. Is relaxed, handles stress well

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

10. Is curious about many different things

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

11. Is full of energy

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

12. Starts quarrels with others

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

13. Is a reliable worker

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

14. Can be tense

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

15. Is ingenious, a deep thinker

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

16. Generates a lot of enthusiasm

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

17. Has a forgiving nature

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

18. Tends to be disorganized

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

19. Worries a lot

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

20. Has an active imagination

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

21. Tends to be quiet

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

22. Is generally trusting

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

23. Tends to be lazy

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

24. Is emotionally stable, not easily upset

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

25. Is inventive

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

26. Has an assertive personality

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

27. Can be cold and aloof

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

28. Perseveres until the task is finished

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

29. Can be moody

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

30. Values artistic, aesthetic experiences

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

31. Is sometimes shy, inhibited

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

32. Is considerate and kind to almost everyone

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

33. Does things efficiently

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

34. Remains calm in tense situations

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

35. Prefers work that is routine

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

36. Is outgoing, sociable

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

37. Is sometimes rude to others

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

38. Makes plans and follows through with them

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

39. Gets nervous easily

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

40. Likes to reflect, play with ideas

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

41. Has few artistic interests

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

42. Likes to cooperate with others

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

43. Is easily distracted

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

44. Is sophisticated in art, music, or literature

Strongly Disagree (1)	Disagree A Little (2)	Neither Agree nor Disagree (3)
Agree A Little (4)	Agree Strongly (5)	

## APPENDIX F: PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. Indicate to what extent you feel this way right now, that is, at the present moment.

### 1. Interested

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 2. Disinterested

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 3. Excited

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 4. Upset

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 5. Strong

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 6. Guilty

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 7. Scared

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	



8. Hostile

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

9. Enthusiastic

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

10. Proud

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

11. Irritable

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

12. Alert

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

13. Ashamed

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

14. Inspired

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

15. Nervous

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
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Quite a Bit (4)      Extremely (5)

16. Determined

Very Slightly or Not at All (1)      A Little (2)      Moderately (3)  
Quite a Bit (4)      Extremely (5)

17. Attentive

Very Slightly or Not at All (1)      A Little (2)      Moderately (3)  
Quite a Bit (4)      Extremely (5)

18. Jittery

Very Slightly or Not at All (1)      A Little (2)      Moderately (3)  
Quite a Bit (4)      Extremely (5)

19. Active

Very Slightly or Not at All (1)      A Little (2)      Moderately (3)  
Quite a Bit (4)      Extremely (5)

20. Afraid

Very Slightly or Not at All (1)      A Little (2)      Moderately (3)  
Quite a Bit (4)      Extremely (5)

## APPENDIX G: STATE SELF-ESTEEM SCALE

This is a questionnaire designed to measure what you are thinking at this moment. There is of course, no right answer for any statement. The best answer is what you feel is true of yourself at the moment. Be sure to answer all of the items, even if you are not certain of the best answer. Again, answer these questions as they are true for you RIGHT NOW.

1. I feel confident about my abilities.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

2. I am worried about whether I am regarded as a success or failure.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

3. I feel satisfied with the way my body looks right now.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

4. I feel frustrated or rattled about my performance.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

5. I feel that I am having trouble understanding things that I read.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

6. I feel that others respect and admire me.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

7. I am dissatisfied with my weight.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

8. I feel self-conscious.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

9. I feel as smart as others.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

10. I feel displeased with myself.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

11. I feel good about myself.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

12. I am pleased with my appearance right now.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

13. I am worried about what other people think of me.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

14. I feel confident that I understand things.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

15. I feel inferior to others at this moment.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

16. I feel unattractive.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

17. I feel concerned about the impression I am making.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

18. I feel that I have less scholastic ability right now than others.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

19. I feel like I'm not doing well.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

20. I am worried about looking foolish.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

## **APPENDIX H: RANDOM ASSIGNMENT PROMPT**

(Randomly assigned to one of the two conditions below)

In the space below, please list 3 goals that you are working toward (for example: weight loss, getting engaged or married, having children, completing a degree, getting a new job, etc)

OR

In the space below, please list 3 goals that are not important to you at this time in your life (for example: weight loss, getting engaged or married, having children, completing a degree, getting a new job, etc)

## **APPENDIX I: GOAL IDENTIFICATION INSTRUCTIONS**

Please log into your Facebook account on a computer or on your smartphone. Logging in will take you to your "Newsfeed," a listing of recent updates made by Facebook users that you are friends with. You will see status updates, or text that people have written regarding what they may be doing, and posts, which may include both text and images. Look for a status update or a post that relates to one of the goals you listed earlier as being (un)important in your life. Please write what goal this post relates to:

How important is this goal is to you?

- ☐ Extremely Unimportant
- ☐ Somewhat Unimportant
- ☐ Neither Important/Unimportant
- ☐ Somewhat important
- ☐ Extremely important

## APPENDIX J: DESCRIPTIVE QUESTIONS

In the space below, please describe what status you are looking at, for example, “This post is about my friend’s new car,” or “This is a picture of my friend on vacation.” Please include if this post includes text, an image, or both.

In the space below, please write how many “likes” this post has:

In the space below, please write how many “comments” this post has:

In the space below, please write the date that this post was made:

Did you "like" this post?

- ☐ Yes
- ☐ No

Did you "comment" on this post?

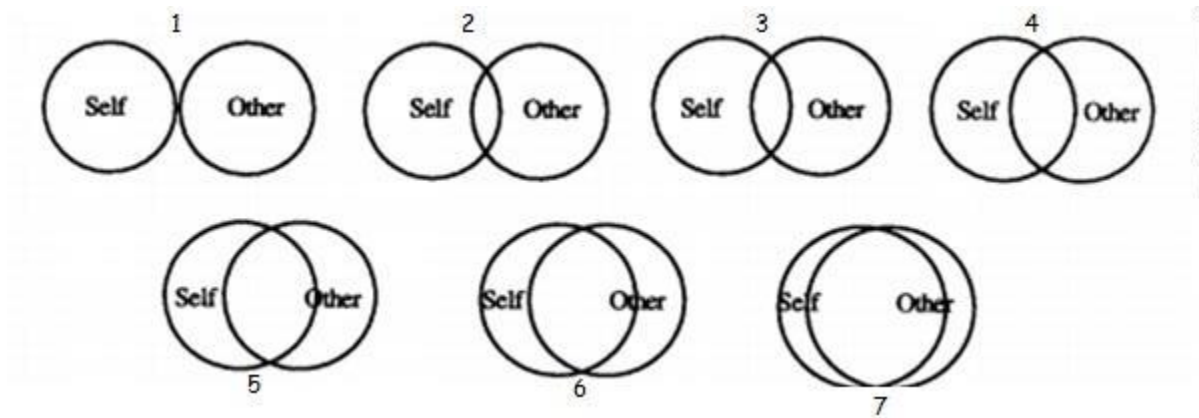
- ☐ Yes
- ☐ No

Based on this post, how close would you say your friend is to accomplishing this goal in relation to your accomplishing this goal?

- ☐ My friend is much closer to accomplishing this goal than I am
- ☐ My friend is slightly closer to accomplishing this goal as I am
- ☐ My friend is equally as close to accomplishing this goal as I am
- ☐ My friend is slightly farther away to accomplishing this goal as I am
- ☐ My friend is significantly farther away to accomplishing this goal as I am

## APPENDIX K: INCLUSION OF OTHERS IN THE SELF SCALE

Feeling close refers to being listened to, understood by, able to share feelings and to talk openly with another person. The images below show various levels of closeness; the more the circles overlap, the closer you feel to the friend who created the post you are looking at.



Please select the image number that represents how close you currently feel to the Facebook friend who created this post:

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7



## **APPENDIX L: WRITING TASK**

Please take at least three minutes to write about what you think about this person, how you feel toward this person, and what your thoughts are on the reason this person created this post. Please refrain from writing about any details that could identify you or your Facebook friend (i.e., do not use real names, addresses, phone numbers, email addresses, etc.). Do not write about anything that you are not comfortable sharing.

## APPENDIX M: EPISODIC ENVY SCALE POST-MEASURE

Please rate how much you agree that the statements below are characteristic of you right now in this moment.

1. I feel some hatred

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

2. I have a grudge

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

3. I feel rancor.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

4. I feel bitter.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

5. I feel gall (irritated, annoyed)

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

6. I have a desire to have what others have.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

7. I feel that I lack some of the things others have.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

8. Other people have things going better for them than I do.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

9. I feel envious.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

## **APPENDIX N: BENIGN EPISODIC ENVY SCALE POST-MEASURE**

10. I feel admiration.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

11. I have positive thoughts about others.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

12. Other people make me want to improve my own position.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

13. I want to be near or close to other people.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

14. I want to compliment other people.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

15. I hope other people will do well or succeed.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

16. I feel empowered.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

17. I feel inspired.

Extremely Characteristic (1) (2) (3) (4) (5) (6) (7) (8) Extremely Uncharacteristic (9)

## APPENDIX O: PANAS POST-MEASURE

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. Indicate to what extent you feel this way right now, that is, at the present moment.

### 1. Interested

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 2. Disinterested

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 3. Excited

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 4. Upset

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 5. Strong

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

### 6. Guilty

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

7. Scared

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

8. Hostile

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

9. Enthusiastic

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

10. Proud

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

11. Irritable

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

12. Alert

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

13. Ashamed

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
Quite a Bit (4)	Extremely (5)	

14. Inspired

Very Slightly or Not at All (1)	A Little (2)	Moderately (3)
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	Quite a Bit (4)	Extremely (5)	
15. Nervous			
Very Slightly or Not at All (1)	A Little (2)	Moderately (3)	
	Quite a Bit (4)	Extremely (5)	
16. Determined			
Very Slightly or Not at All (1)	A Little (2)	Moderately (3)	
	Quite a Bit (4)	Extremely (5)	
17. Attentive			
Very Slightly or Not at All (1)	A Little (2)	Moderately (3)	
	Quite a Bit (4)	Extremely (5)	
18. Jittery			
Very Slightly or Not at All (1)	A Little (2)	Moderately (3)	
	Quite a Bit (4)	Extremely (5)	
19. Active			
Very Slightly or Not at All (1)	A Little (2)	Moderately (3)	
	Quite a Bit (4)	Extremely (5)	
20. Afraid			
Very Slightly or Not at All (1)	A Little (2)	Moderately (3)	
	Quite a Bit (4)	Extremely (5)	

## APPENDIX P: STATE SELF-ESTEEM POST-MEASURE

This is a questionnaire designed to measure what you are thinking at this moment. There is of course, no right answer for any statement. The best answer is what you feel is true of yourself at the moment. Be sure to answer all of the items, even if you are not certain of the best answer. Again, answer these questions as they are true for you RIGHT NOW.

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Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

2. I am worried about whether I am regarded as a success or failure.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

3. I feel satisfied with the way my body looks right now.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

4. I feel frustrated or rattled about my performance.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

5. I feel that I am having trouble understanding things that I read.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

6. I feel that others respect and admire me.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

7. I am dissatisfied with my weight.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

8. I feel self-conscious.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

9. I feel as smart as others.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

10. I feel displeased with myself.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

11. I feel good about myself.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

12. I am pleased with my appearance right now.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

13. I am worried about what other people think of me.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

14. I feel confident that I understand things.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

15. I feel inferior to others at this moment.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

16. I feel unattractive.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

17. I feel concerned about the impression I am making.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

18. I feel that I have less scholastic ability right now than others.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

19. I feel like I'm not doing well.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)

20. I am worried about looking foolish.

Not at All (1) A Little Bit (2) Somewhat (3) Very Much (4) Extremely (5)



## **APPENDIX Q: DEMOGRAPHICS AND THANK YOU**

What is your age?

What is your gender?

- ☐ Male
- ☐ Female

What is your race/ethnicity?

What is your highest level of education completed?

- ☐ Some high school, no diploma
- ☐ High school graduate, diploma or the equivalent (for example: GED)
- ☐ Some college credit, no degree
- ☐ Trade/technical/vocational training
- ☐ Associate degree
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctorate degree

Thank you for your time in completing this survey! Please enter your mTurk username/ID below.