The Effects of Priming Representations of Close Relationship Partners on Self-Control Performance

by

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Abstract

Through a fundamental need to belong, individuals are drawn to various social connections and interactions. These interactions have been shown to influence behaviour, cognitions, affect, and self-control of the participants involved. Although research on the negative effects of social interactions on self-control resources is plentiful, the influence on the same resources that positive relationship partners can have has been slowly emerging. With self-control crucially contributing to overall personal well-being and success in various domains of one's life, it is imperative to understand factors that can help strengthen resources when they are weakened. Across two studies, I examined whether cognitively depleted participants primed with representations of close relationship partners, both subtly and explicitly, were able to recover self-control strength. In Study 1, priming depleted individuals with images of their dating partner (versus neutral content) led to increased performance on a self-control task. More specifically, an explicit or subtle prime both elicited increased self-control performance compared to instances in which individuals were primed with neutral content. Study 2 varied the relationship type to include close others, dating partners, and acquaintances, while also employing a different method of priming and a second measure of self-control. Results indicated that priming close others and dating partners lead to greater self-control performance than priming acquaintances for depleted individuals. In both studies, potential mediators of the prime by self-control effect were explored; however only Study 2 revealed a significant mediator of inclusion of other in self (or self-other overlap). These findings suggest that both subtle and overt reminders of close others provide important resources that attenuate instances of cognitive depletion. Implications for future research are discussed.

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Dedication

To my parents, for providing me with the resources, encouragement, and opportunities that have made me who I am today and allowed me to choose my own path in life. To my husband, for your unwavering support every step of the way

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Human beings are social animals as they have been shown to be quite dependent on interactions with others (Baumeister & Leary, 1995). Most individuals are influenced and conditioned to desire social interactions with friends, family, and romantic partners. While humans are drawn to such interactions, not all interactions are necessarily positive or beneficial for the self. Certain lines of research have shown the deleterious effects that negative interaction partners (both close others and strangers) can have on the self, specifically on self-control resources (Ackerman, Goldstein, Shapiro, & Bargh, 2009; Finkel & Campbell, 2001; Finkel, Campbell, Brunell, Dalton, Scarbeck, & Chartrand, 2006; Richeson & Trawalter, 2005; Vohs, Baumeister, & Ciarocco, 2005). Despite the fact that interactions can sometimes have negative effects, why do relationships and interactions also offer positive benefits that ultimately leave individuals wanting more? What are the psychological benefits of such interactions? The present research will investigate the effects of positive relationship partners on self-processes. Specifically, I will examine if both explicit and implicit reminders of either dating partners or close others can have positive effects on self processes, specifically those involving self-control.

Positive Benefits of Close Relationships

Research has established the widespread benefits that positive romantic relationships offer, including, but not limited to, bringing meaning to people's lives and improving overall well-being (Clark & Lemay, 2010). Some of these benefits include opportunities for self-disclosure, companionship, and enjoyable interactions (Reis & Shaver, 1988). These same factors are present in not only romantic relationships but also in satisfactory close relationships, such as family and friends (Antonucci & Jackson, 1987; Schwarzer & Leppin, 1991). Thus, it is evident that both satisfactory romantic and other close relationships have an impact on people's

well-being by offering various benefits. In addition to social benefits, supportive relationships have been shown to be health protective (e.g., Berkman, Glass, Brissette, & Seeman, 2000). People who lack social ties or social integration experience higher mortality rates especially from cardiovascular disease but also from other diseases such as cancer (see Holt-Lunstad, Smith, & Layton, 2010).

Baumeister and Leary (1995) assert that humans ultimately learned to form close relationships and create intimate bonds with others to secure the survival benefits (i.e., connection, inclusion into the group, reproduction) that accompany belongingness. The authors provided preliminary evidence that close relationships in particular offer important benefits to individuals at the most basic and fundamental level. Studies have since begun to demonstrate the positive effects that romantic relationships have on various psychological processes such as relieving cognitive dissonance, bolstering self-esteem, buffering anxiety (Mikulincer , Florian, & Hirschberger, 2003), and inducing exploratory intentions (Green & Campbell, 2000).

An important psychological process that has received a considerable amount of attention both in and outside the study of close relationships is self-control. Self-control involves the ability to regulate self-interested desires and replace them with more socially acceptable responses (Baumeister & Leary, 1995). For example, after a long day at work, Sam may want to stop at the local bar on the way home and a have a drink. While at the bar with friends, Sam may be tempted to have a few more drinks. Self-control is the process that causes Sam to regulate her desire to drink more by replacing this desire with abstinence. The ability to utilize self-control is an important key to not only positive life outcomes but to maintaining social relationships (Baumeister & Leary, 1995). For example, a husband's inability to refrain from drinking could hurt his marital relations; a mother's failure to stop shopping could lead to financial devastation.

Baumeister, Heatheron, and Tice (1994) assert that the majority of social and personal problems involve a substantial failure in self-control. For example, when individuals experience self-control depletion, they are more likely to fall prey to a plethora of negative behaviours including, but not limited to, being less able to manage their lives, hold their tempers, keep their diets, fulfill their promises, stop after a couple of drinks, save money, persevere at work, keep secrets, and so forth.

The current research takes a different focus as it centers on how individuals can create conditions that affect the self-control performance of another. Specifically, it is postulated that romantic relationship partners and other close relationship partners (friends and family) can have a positive influence on self-control processes of the self. Extensive research on self-control has shown that a person can deplete and negatively influence the self-control resources of another (Baumeister, DeWall, Ciarocco, & Twenge, 2005; Richeson & Shelton, 2003; Vohs, Finkenauer, & Baumeister, 2011). In contrast, little research has examined the positive role of social relationships and interactions that influence self-control (Finkel et al., 2006; vanDellen & Hoyle, 2010; Vohs et al., 2005). Moreover, no research to date has assessed whether strength of self-control performance varies based on relationship type (i.e., romantic relationships vs. close others) and how overt the interactions with close others needs to be (explicit vs. more subtle in nature). The value of examining the positive side of social relationships lies in detecting methods or processes that can aid in buffering against the negative effects of self-control exhaustion, which can be a likely outcome when facing stressors of everyday life. The present research examined whether romantic relationship partners and other close relationship partners are a resource in bolstering against self-control failure. I tested this idea by examining whether exposure to a romantic relationship partner (which could refer to either a dating partner, fiancé

or, spouse) or close other (i.e., family or friend) via a priming task would bolster self-control resources of a depleted individual. Aside from providing additional evidence that close relationship partners have a resource potential, the current research is important as it focuses on new ways to buffer against the negative experience of cognitive depletion. Past research on self-control has found that positive mood (Muraven, Baumeister, & Tice, 1999), self-affirmation (Schmeichel and Vohs (2009), and glucose (Gailliot, Baumeister, DeWall, Mane, Plant, Tice et al. (2007), all attenuate the cognitive depletion effect. My research will add exposure to a close relationship partner.

To date, research has not specifically examined if close relationship partners can provide a means to attenuate self-control failure and whether the strength of the effect varies based on the type of relationship. Across two studies, I measured self-control performance after both explicitly and subtly priming participants with the image or description of their dating partner or close other to determine if the partner would provide a bolstering effect. Using both a subtle and an explicit priming method was important as it demonstrated the extent to which close relationship partners could influence self-control resources. More specifically, could simply providing subtle reminders of one's partner prove to be just as effective as more active intentional strategies? The first study tested whether there was a bolstering effect by using both an explicit and subtle prime, while study 2 compared whether this effect varied by relationship type (dating vs. close other vs. acquaintance).

Self-Control Theory

Self-control refers to the capacity to override and regulate desired responses (Baumeister et al., 1994). It is the regulatory process by which people attempt to control urges to gain control of the initial response. Self-control involves change, specifically a change to bring behaviour into

line with a standard such as a principle or a goal. Regulating the self requires a central psychological resource, called *self-regulatory strength*, which refers to the internal resources available to inhibit, override, or alter responses. This strength is limited and varies as a function of will-power, stress, and exhaustion. According to Muraven and Baumeister (2000), this process functions analogous to that of a muscle; just as physical exertion causes muscle fatigue, repeated self-control exertion leads to self-control exhaustion called cognitive depletion. A temporary decrease in state levels of self-control following a particularly difficult or prolonged self-control task has been demonstrated in many experiments using a broad array of manipulations and measures of self-control (Baumeister et al., 1994; Muraven, Baumeister, & Tice, 1999; Baumeister, Bratslavsky, Muraven, & Tice, 1998; Vohs, Finkenauer, & Baumeister, 2007).

A large body of research has provided evidence that various interpersonal interactions can influence individual levels of self-control strength resources. Finkel et al. (2006) explored whether interpersonal interactions with a high-maintenance interaction partner impair later self-control performance on a follow-up task. The researchers conducted several studies in which participants either experienced a well-coordinated interaction with another person (low-maintenance interaction condition) versus a poorly coordinated interaction with another person (high-maintenance interaction condition). After this interaction, the participants completed a task requiring them to utilize self-control. Relative to participants who had experienced a low-maintenance interaction, those in the high maintenance interaction condition performed worse. Thus, when social coordination is inefficient, it causes individuals to expend more self-control resources, leaving fewer resources available for future tasks.

Additional studies have shown similar effects across various interpersonal domains (Ackerman, Goldstein, Shapiro, & Bargh, 2009; Finkel & Campbell, 2001; Richeson &

Trawalter, 2005; Vohs et al., 2005). For example, Vohs et al. (2005) hypothesized that an atypical self-presentation style also leads to cognitive depletion. In a set of studies, participants were given impression management goals that countered normative impression management goals. Participants were instructed to act modestly with acquaintances and act in a very self-enhancing manner with friends. Subsequently, participants partook in a manipulation which created high cognitive load. Those participants who had to present in an atypical impression manner performed significantly worse on a self-control task than those who were not instructed to act atypically. Even inte racting with people of various ethnicities and cultures other than one's own has been shown to influence individual levels of self-control strength (e.g., Richeson & Trawalter, 2005). One line of research specifically demonstrated that the extent to which Whites attempted to control their interracial interactions predicted a significant decrease in self-control resources (Richeson & Shelton, 2003).

A commonality among the studies discussed is the focus on negative outcomes of experiencing a high cognitive load, specific to taxing interpersonal interactions. As stated previously, a smaller body of research has examined the positive effects that social processes and interactions can have on individuals who are experiencing cognitive depletion. Initial research suggests that other people can on occasion bolster an individual's self-regulatory strength. Knowles, Finkel, and Williams (2007) found that when participants were well synchronized with a partner in a game of charades, they exhibited a significant increase in self-control strength following a depletion task in comparison to participants who were not synchronized. These results provide preliminary evidence that positive well-functioning relationship partners can indeed have a replenishing effect on depleted resources.

Factors that Bolster Depleted Resources

While it seems evident that people require some sort of replenishment or bolstering of resources subsequent to depletion, processes involved in counteracting depletion still remain generally uncharted. This is most likely because people are not generally aware when they are actually experiencing cognitive depletion; thus, they do not actively seek out strategies to offset it. Both sleep and rest provide a means for replenishing the self. Tyler and Burns (2008) tested the effects of time in bolstering self-regulatory resources. Results indicated that well-rested people had better self-control and individuals demonstrated less self-control failure after 7 to 8 hours of sleep. Additional research has shown that as time wears on, self-control gets weaker and people are easier to influence, specifically at the end of the day. For example, diets are usually broken in the evening as a result of cognitive depletion (Baumeister et al., 1994).

Positive emotions can also attenuate the negative effects of depletion (Tice, Baumeister, Shmueli, & Muraven, 2007). After completing a self-control task, participants who watched comedy video clips did not show depletion effects on a secondary self-control task, compared to participants who viewed a video with neutral affective content. Furthermore, participants demonstrated depletion effects when a sad mood manipulation was used, revealing that the bolstering effects were attributable to only positive mood and not negative moods.

Gailliot, Baumeister, DeWall, Mane, Plant, Tice et al. (2007) found that enacting behaviours to control the self consumes one of the body's main sources of energy (glucose). Reduced levels of glucose were found to be associated with reduced performance on tests of self-control. When levels of glucose were restored by way of a sugary drink (lemonade), participants had a similar capacity for self-control as those who had not been depleted. More recently, Schmeichel and Vohs (2009) examined whether self-affirmation could reduce the likelihood of

self-regulatory failure. Self-affirmation refers to behavioural or cognitive actions that support and bolster the perceived integrity of the self (Steele, 1988). Across four studies, depletion effects were attenuated among cognitively depleted participants who were instructed to write about their core life values and beliefs. The results also suggested that self-affirmation attenuates cognitive depletion by promoting high levels of mental construal. In other words, the process of self-affirmation changes the way people think about their tasks or goals, such that they think about tasks in more abstract value-related ways (high mental construal) as opposed to concrete, tangible, lower-level actions (low level mental construal). Schmeichel and Vohs (2009) suggest that affirming the self by contemplating and writing about aspects that bring the most meaning to one's life allows individuals to look beyond themselves, to more important higher-level aspects of their life.

Along similar lines, the present research focuses on how priming close relationships either explicitly or subtly can influence self-control. That is, in addition to explicit reminders, it may not be necessary to intentionally write about the meaning a partner brings to one's life-simply having a subtle reminder may also elicit the same positive effects. But why should explicit and subtle reminders of close others be a resource potential that could strengthen depleted resources? The rationale for focus on close relationships is the abundance of research that speaks to the benefits that these relationships bring such as social support and attachment (Berkman, et al., 2000), stress reduction (Mikulincer et al., 2003), and resilience in the face of negative feedback (Kumashiro & Sedikies, 2005). Moreover, a large majority of individuals see their romantic relationships as the most intimate adult relationship they experience and report that it serves as their primary source of affection and support (Levinger & Huston, 1990). Taken together, it is hypothesized that important close relationships (romantic partners as well as

friends and family) can be positive resources that benefit the self in the face of cognitive depletion.

Close Relationships as a Resource

Close relationships have been shown to be an integral and basic part of human existence as they are rich in resources, adding to a better quality of life. According to research on communal relationships (Reis, Clark, & Holmes, 2004), spouses are generally the most responsive within an individual's social network of relationships. This immediate responsiveness is a form of support that helps individuals cope with difficulties. Additionally, relationships can have positive effects on the self by shielding negativity. For example, priming a secure attachment in the context of a close relationship reduces stress and buffers anxiety (Mikulincer et al., 2003) and promotes compassion and altruism (Mikulincer & Shaver, 2005). Further, secure attachment is generally associated with attenuating the blow of various stressors, such as first-time pregnancy, the birth of an infant with heart disease, or combat training (Mikulincer & Shaver, 2005). Past research has also shown that by providing resources such as social support, close relationships also ease symptoms of stress as they fostering positive self-views, which contributes to overall well-being (Murray, Holmes, & Griffin, 1996).Finally, close relationships also have been shown to contribute to positive self-growth processes such as cognitive openness and exploration (Mikulincer et al., 2003), while ameliorating psychological and physical health symptoms (Kiecolt-Glaser & Newton, 2001; Kumashiro & Sedikes, 2005). Past research demonstrates that the acquisition of such growth resources leads to increased willingness to obtain accurate, unfavorable and even threatening information about the self (Kumashiro & Sedikes, 2005; Trope, Gervey, & Bolger, 2003).

Altogether, it is apparent that close relationships are a resource prospect, as they contribute to processes that help the self maintain both physical and mental well-being.

Therefore, as close positive relationships offer strength in the face of self-threat and negative events, they could also possess the ability to buffer against cognitive depletion. It is hypothesized that priming both explicit and subtle representations of romantic partners will counteract the negative outcomes associated with cognitive depletion.

Self-Control and Romantic Relationships

Why exactly could reminders of a romantic relationship partner bolster depleted self-control resources? According to Baumeister et al. (2005), there is a firm link between close relationships and self-control. This relationship is bi-directional as relationships and the social context influence self-control resources while self-control also influences the quality of human relationships. From an evolutionary perspective, Baumeister et al. (2005) assert that human beings learned to self-regulate to ensure a life of inclusion with others. Generally speaking, those who were able to successfully self-regulate were rewarded with the benefits of close relationships, belongingness, and, ultimately, increased survival. Maintaining close relationships requires sacrifices and the ability to curb selfish desires, a hallmark of self-control. For example, if a person wants to live in concordance with close others and society, he or she must adhere to certain set rules such as paying taxes, cooking dinner when his or her partner is working late, adhering to traffic regulations, and making a variety of sacrifices to ensure the safety and well-being of his or her child. Such behaviours require self-control. Thus, in order to live by societal norms and achieve group inclusion, self-control is required. Alternatively, if a person fails at suppressing selfish desires, such as not helping out with dinner when his or her partner is working late, failing to wait in line, or the inability to stop gambling, he or she will likely experience rejection by close others and even society. Thus, when a person is unable to inhibit selfish impulses for the greater good of the group or family, he or she is not deemed acceptable

as a relationship partner or even as a group member (Baumeister et al., 2005). Furthermore, Baumeister and colleagues (2005) assert that social lives hold an implicit bargain, which can deteriorate on either side. It is deemed a bargain in that people have a strong need to belong (Baumeister & Leary, 1995), while simultaneously possessing strong selfish desires. When individuals experience a breakdown on one side, it leads to a breakdown on the other side. Thus, when an individual experiences a breakdown in self-control, he or she will experience negative relationship consequences. Likewise, if a person incurs negative relationship experiences, he or she will likely experience self-regulatory failure. For example in one study, when participants were excluded from a group task, they demonstrated significantly poorer performance on a subsequent self-regulation task, as measured by the of cookies eaten, how little of an unpleasant drink they consumed, or the short time they persisted on a difficult task (Baumeister et al., 2005). These studies provide empirical support for the idea that relationships with others can affect individual levels of self-control.

In other research specific to close relationships, it was found that people were more willing to strive towards goals when they were induced to think about loved ones as compared to participants in a control condition (those who were not given instructions to think of a loved one; Fitzsimons & Bargh, 2003). In a series of studies, participants were induced to think about loved ones through both conscious (writing about a close other) and non-conscious (describing a close other's appearance) primes (Fitzsimons & Bargh, 2003). When primed with close others, participants persisted longer on a verbal task, displayed more helpfulness, and used better perspective-taking skills relative to control participants. In line with the researchers' hypotheses, the presence of close relationship partners led participants to try harder to achieve a goal that they felt was important to their partner. Such behaviours are all indicative of greater self-control.

Alternatively, in the current research, it is hypothesized that individuals who are subtly and explicitly reminded of their partner will demonstrate greater self-control performance compared to those who receive a neutral prime. Fitzsimmons and Bargh did not address or manipulate self-control across their studies as they were studying goal striving and relationships. The goal of the present research is to examine how depleted individuals respond to both explicit and subtle primes of their relationship partner and how these primes influence their self-control performance, not the pursuit of goals specifically tied to a loved one as Fitzsimmons and Bargh investigated.

Fitzsimmons and Bargh (2003) used a subtle reminder method to induce and manipulate the romantic partner/close other or control prime. They posited that the priming tasks worked by activating relational schemas (which develop over time) in an individual. Relational schemas are people's mental representations of their relationships, their partners, and themselves with their partners (Baldwin, 1992). Due to the link between significant others and the self, when a close other representation is activated, it causes the automatic activation of the connected relational self, leading an individual to think, feel, and behave in ways that reflect the person he or she becomes when with the close other (Chen, Boucher, & Tapias, 2006). Given that close-other representations are readily accessible (Andersen, Glassman, Chen & Cole, 1995), it can be assumed that people's thoughts, feelings, and behaviours may often reflect those associated with their significant others.

Potential Mediators

In the current research, I tested several mediators that had the potential to influence the hypothesized prime and self-control association. Three general types of mediators were tested: relationship variables, individual related variables, and mood (positive and negative affect). It

was expected that the close relationship primes could temporarily affect an individual's focus and as such, influence self-perceptions and feelings. If so, then priming individuals with representations of their close other, both explicitly and implicitly could induce higher scores on the mediators.

I expected that relationship variables such as inclusion of other in self (Aron, Aron, Tudor, & Nelson, 1991), relationship satisfaction (Finkel & Campbell, 2001; Kumashiro & Sedikides, 2005), and self-expansion (Lewandowski & Aron, 2002) could all impact the prime by self-control relationship. That is, once individuals are primed with representations of a close other or dating partner, this could lead to reported increases in greater self-other overlap, self-expansion, and satisfaction with their relationship, which could influence performance on a self-control task. Individual related variables were also hypothesized to mediate the relationship. Specifically, I tested self-esteem, approach and/or avoidance motivation (Gable & Impett, 2012), in addition to mood (Tice et al., 2007) due to past established associations with self-control. I expected that participants primed (both implicitly and explicitly) with a dating partner or close other would experience increases in self-esteem, and/or approach or avoidance motives, influencing the hypothesized prime by self-control effect. Finally, I tested mood (positive and negative affect) as priming individuals could lead to increased positive affect, thus accounting for an increased self-control performance for depleted participants.

I expected the relationship variables would be the most likely to be significant mediators, given that the primes used involved either a participant's dating partner (Studies 1 and 2) or close other (Study 2). Previous research shows that inducing thoughts of others through priming activates cognitive structures such as images of self and the primed other, rather than the self in isolation (Baldwin, 1992). This activation exerts an influence on cognition, affect, motivation

and behaviour, with a strong focus on the relational self (Chen, Fitzsimmons, & Andersen, 2007). Thus, inducing thoughts of a loved one was hypothesized to have a stronger influence on the relationship focused variables such as self-other overlap, self-expansion, and relationship satisfaction, and subsequently influence self-control performance compared to the individual related variables. It was posited that the close other and dating partner prime as compared to the neutral prime, would lead to increased ratings on each of the relationship variables and drive greater self-control performance among depleted participants. In line with hypotheses, it was expected that the relationship variables could be more likely to be mediators in the explicit condition followed by the subtle, and, neutral conditions.

With regard to self-other overlap, greater overlap between the self and partner (as measured by the inclusion of Other in Self scale; IOS) and greater self-expansion (as measured by the self-expansion questionnaire) were expected to have a positive impact on self-control performance. Inclusion of other in self, or self-other overlap, involves the inclusion of resources, perspectives, and characteristics of others into the self (Aron, et al., 1991). Essentially, it is a lessened distinction between self and other. The process of self-other overlap is posited to form and maintain close relationships. Recent research has linked inclusion of other in self with self-control processes. Egan, Hirt, and Karpen (2012) found that taking the perspective of an individual who modeled positive self-control lead to benefits in subsequent self-control performance. That is, individuals benefited from the perspective taking approach if they felt more similar to, or interdependent with, the perspective taking target. Other research has shown that primes of relationship partners can induce feelings of greater perceived self-overlap (Colzato, de Bruijn & Hommel, 2012). Self-expansion is related to inclusion of other in self however, it focuses more on the extent to which a specific relationship offers increased

experiences, knowledge, and skills (Aron & Aron 1986; Lewandowski & Aron, 2002). Aron, Norman, and Aron (1998) posited that self-expansion is assisted by self-other overlap (Aron et al., 1991). Specifically, that a coming together of self and other in regards to resources, characteristics, and skills results in self-expansion. Given the relatedness of both self-other overlap and self-expansion it was expected that both would prove to be significant mediators of the hypothesized effect. Finally, relationship satisfaction was included as mediator as it has been associated optimal self-control performance in the previous studies (Vohs et al., 2011). Specifically, the benefits of high self-control are less maladaptative behaviours, for example, attention to alternative relationship partners which subsequently leads to lower relationship satisfaction. Overall, relationship satisfaction is considered to be a benefit of a relationship marked by high self-control (Vohs et al., 2011).

Additional mediators that had the potential to influence the partner prime and self-control relation, such as self-esteem, approach/avoidance orientation (Gable & Impett, 2012), and positive/negative affect (Baumeister et al., 2005) were also tested. Self-esteem was included a mediator for exploratory purposes. It is possible that the priming techniques used in the current research (e.g., actively thinking about the meaning that a close relationship partner brings to one's life) could lead individuals to feel temporary boosts in self-worth and feel better about themselves and thus increases in self-esteem. Thus, I included self-esteem as a mediator. Next, I tested approach/avoidance motives and hypothesized that priming a dating partner/close other could activate strong approach or avoidance motives, and aid in greater self-control performance. Gable and Impett (2012) assert that self-control performance can be influenced by both approach and avoidance motives. Specifically, some individuals are motivated to approach relationship goals to obtain rewards such as greater intimacy and passion, while others are motivated by

avoidance relationship goals which refer to avoiding threats (i.e., security, trust). I hypothesized that both the approach and avoidance motives could influence the relationship between the dating prime and self-control performance. It seemed most likely that approach motives would yield the greatest influence as participants might be motivated by a reward system (e.g., greater intimacy or passion) after receiving a prime of a close other. Finally, I also tested mood (both positive and negative affect) as a mediator which has previously been linked to self-control performance. Specifically, priming representations of close others could increase positive affect and account for increased self-control performance, while negative affect could further exacerbate cognitive depletion (Tice, et al., 2007).

Research Paradigm and Hypotheses

Two studies were conducted to examine the positive effects that close relationship partners can have on individuals' self-control resources. In both studies, subsequent to the prime, participant's performance on a self-control task was assessed as the dependent variable along with additional variables that included possible mediators. The methods employed in both studies have been successfully used in past research examining implicit priming as well as self-control (e.g., Baldwin, 1992; Fitzsimmons & Bargh, 2003; Schmeichel & Vohs, 2009). In the above referenced studies, participants were exposed to primes that either explicitly or subtly instructed them to think of other people and/or close relationship partners.

In Study 1, participants were randomly assigned to either a task that elicited high cognitive load or a control task that did not effect self-control resources. They were then exposed to one of three primes: an explicit prime of their dating partner, a subtle prime of their dating partner, or a neutral prime (control). It was expected that, overall, participants in the control condition would perform better on a self-control task compared to those assigned to the depletion

condition (Hypothesis 1). It was also posited that after experiencing a situation that requires a high cognitive load, participants exposed to a romantic dating partner prime would benefit from a bolstering effect to their depleted self-control resources in comparison to the conditions in which individuals were exposed to a neutral prime. In other words, I hypothesized that priming a depleted individual explicitly with his or her dating relationship partner would lead to increased self-control performance, followed by the subtle prime condition and neutral condition (Hypothesis 2). Furthermore, I expected that the greatest self-control performance would be found in the explicit prime condition followed by the subtle prime, as compared to neutral prime (Hypothesis 3). The present research examined all potential mediators that were expected to influencing the proposed link between the dating partner prime and self-control performance.

Study 2 differed from Study 1, as the focus examined the types of close relationships (i.e. dating partner vs. close other vs. acquaintance) and their effects on self-control performance. In Study 1, the prime manipulation examined only dating partners and varied whether the prime was subtle, explicit or a control. In Study 2, all participants were depleted and randomly assigned to either a dating partner prime, close other of their choice prime, or acquaintance prime. The acquaintance prime (defined as someone the participants didn't know well) functioned as the control group. I hypothesized that performance on the dependent measure of self-control would be stronger in the dating partner condition, followed by the close other as compared to the acquaintance condition (Hypothesis 4). Finally, in Study 2, two different measures of self-control were used. It was expected that there would be a significant effect of prime type on both behavioural measures of self-control, such that there would be evidence of greater self-control performance in the dating partner prime, followed by close other prime as compared to the acquaintance prime conditions (Hypothesis 5).

Study 1

Study 1 was designed to provide an initial test of the first three hypotheses and examined dating partners. In study 1, participants were randomly assigned to a depletion condition (depletion vs. control) and prime type condition (explicit vs. subtle vs. neutral). Subsequently, they completed a measure of self-control (the Stroop task) along with additional measures to rule out alternative explanations (mood) and test for mediation (i.e., relationship variables and individual related variables). It was hypothesized that there would be a main effect of condition, such that performance on the Stroop task (measure of self-control) would differ based on whether participants were assigned to the control vs. depletion conditions. Specifically, participants assigned to the depletion condition would evidence poorer self-control performance (have slower reaction times) on the Stroop task compared to participants in the control condition (Hypothesis 1). Slower reaction times on the self-control task are indicative of cognitive depletion. Second, I hypothesized that there would be a significant Condition by Prime Type interaction (Hypothesis 2). Specifically, I expected that within the depletion prime conditions, participants who were exposed to the neutral prime would demonstrate longer reaction times (evidence of depletion) on a self-control task. Alternatively, if depleted participants were exposed to the subtle or explicit prime, they would have significantly shorter reaction times on the self-control task in comparison to those who received the neutral prime. Faster reaction times indicate superior performance. Third, I hypothesized that the most optimal self-control performance (fastest reaction times) would be found in the explicit prime condition followed by the subtle prime condition (hypothesis 3). In the control condition, I did not expect any significant differences in self-control performance between any of the prime conditions (explicit vs. subtle vs. neutral). The goal of this study was to provide evidence as to whether priming

dating partners would have a bolstering effect on depleted resources both subtly and explicitly and if so which, if any, variables would mediate the effect.

Method

Participants. One hundred and sixty-three individuals (94 Women, 69 Men) participated in exchange for partial course credit for their Introductory Psychology research requirement. Participants' ages ranged from 17 to 35 years (M = 19.32, SD = 5.61 years). The average reported length of participants' current romantic relationship was 1.45 years (SD = 1.11 years). Participants were randomly assigned to one of the six conditions in the 2 (Cognitive Load: Depletion vs. Control) x 3 (Prime Type: Explicit vs. Subtle vs. Neutral) design. No significant gender effects were found.

Procedure. Participants were initially told they were participating in a study examining "facial relatedness and cognitive resources". To qualify for this study, they were required to have been in their dating relationship for at least 6 months. This requirement was implemented to ensure participants were in a fairly committed relationship versus one that was characterized as casually dating. In a casual dating relationship, the hypothesized interactions might not be as strong.

Forty-eight hours prior to the session, participants were instructed to email the experimenter two photos - one of themselves and one of their romantic partner. In the study session itself, participants were given a consent form on the computer detailing the nature of the study and ethics information. They were told that the purpose of the study was to examine how problem solving strategies on certain tasks may be related to various aspects of facial relatedness. The photo of the participant was not used in the study, but was requested as a means of bolstering the cover story. Subsequent to being given a brief description of the study and

filling out the consent form, participants were randomly assigned to either a free writing (control) or a regulated writing (depletion) condition and received instructions for the specific task to which they were assigned. Following the writing task, participants in the subtle partner prime condition had the photo of their partner brought up on the computer screen and were asked to rate the photo on several superficial attributes. In the explicit partner prime condition, the photo of the partner was loaded to the computer screen and participants were asked to make the same superficial ratings on the photo, in addition to writing about the importance that the relationship has in their life. No mention of the photo was made in the control condition, thus participants were not exposed to reminders of their partner during the session. All participants were then instructed to complete a Stroop task, the dependent measure of self-control. Lastly, they completed a set of additional measures (six questionnaires) on the computer. The session ended with the distribution of feedback forms and a full debriefing. The session took no more than 50 minutes.

Materials

Self-control manipulation. To manipulate self-control, participants were randomly assigned to either a depletion (regulated writing) or control (free writing) condition adapted from Schmeichel (2007). If assigned to the control condition, participants were asked to write a short description about a recent trip they had taken (Appendix A). The instructions specified that the trip could be small in nature (e.g., to the mall, a neighboring city) or larger (e.g., to another country). They were asked to write a substantial amount, enough to fill approximately half a page. Participants in the depletion condition were asked to write about the same topic; however, they received instructions not to use the letter "n" anywhere in the description of their trip (Appendix A). Thus, this group was required to regulate their writing as they could not use the

specific letter indicated. Performance on this task was assessed to ensure compliance with the instructions. One participant failed to comply and as a result, his or her data was removed.

Dating partner prime manipulation. To prime participants with their dating partners, they received either a subtle, explicit, or neutral prime, adapted from Baldwin (1992). In the subtle dating partner prime condition, the picture of the partner was loaded onto the computer and participants were asked to rate the pictures based on superficial attributes. For example, participants answered questions about whether the picture displayed a typical way of dressing for their partner, how long ago the picture was taken, where the picture was taken, and whether this was a typical hairstyle/haircut of the partner? In the explicit partner prime, participants were additionally instructed to reflect and write about the importance of the relationship (see Appendix B). In the neutral prime condition, the picture was not shown and no ratings were made.

Dependent measure of self-control. As a measure of self-control, participants completed the Stroop color word interference task. The Stroop task is one of the most frequently used measures of self-control (see MacLeod, 1991). This exercise consists of completing sets of blocked trials in which words such as *red*, *blue*, or *green* appear on the computer screen in either red, blue, or green colored font. Participants are asked to indicate the font color by pressing one of three computer keys and to respond as quickly and accurately as possible. The first block consisted of congruent trials in which the meaning and font colour of the word were the same. The second block consisted of incongruent trials in which the meaning and font color of the word were different. Participants had to indicate the color ink (e.g., *blue*) of color words (e.g., *red*). These trials required self-control because participants had to inhibit the tendency to read the words (e.g., *red*) and instead respond according to the color ink (e.g., *blue*). Responding faster on

these trials and with fewer errors indicates superior performance and hence higher self-control. Average response times for the incongruent-colour trials were used as the dependent measure for self-control.

Proposed mediators.

Self-other overlap. The Inclusion of Other in Self Scale (IOS; Aron, Aron, & Smollan, 1992) which is typically used to assess closeness in romantic relationships (Appendix C) was used to assess the degree of perceived overlap between the participant and his or her partner. The scale consists of seven Venn diagrams showing increasingly overlapping circles representing the self and partner. The scale is scored from 1 (no overlap) to 7 (almost complete overlap). Participants were instructed to indicate which set of circle represents their current relationship.

Self-expansion. The Self Expansion Scale, (SEQ; Lewandowski & Aron, 2002) is a 14-item measure used to assess the extent to which a person experiences increased knowledge, increased skill, increased abilities, increased mate value, enhanced life experiences, and the extent to which the partner is a source of new experiences (Appendix D). Items are rated on a 7 point scale from 1 (not very much) to 7 (very much). In sum, it provides an assessment of the extent to which a given relationship provides self-expansion (Cronbach's $\alpha = 0.79$).

Self-esteem. Self-esteem was also assessed as a possible mediator. The Rosenberg Self-Esteem Scale (SES; Rosenberg, 1965) a 10-item likert-type scale designed to measure global self-esteem was used (Appendix E). The items are rated on a 4-point scale from “strongly disagree” (1) to “strongly agree” (4). The SES contains an equal number of positively and negatively worded items. A total score is derived by reversing the ratings of the five negative items and summing them with the ratings for the five positive items. Higher scores indicate higher self-esteem (Cronbach's $\alpha = 0.69$).

Relationship satisfaction. The Relationship Assessment Scale (RAS; Hendrick, Hendrick, & Dicke, 1998) is a seven-item measure of romantic relationship satisfaction (Appendix F). The RAS measures general satisfaction, how well a partner meets one's needs, how well the relationship compares to others, and one's regrets about the relationship (Hendrick et al., 1998). Participants answer questions about their relationship on a scale ranging from 1 (low satisfaction) to 5 (high satisfaction) (Cronbach's α = 0.79). Higher scores indicate greater satisfaction.

Mood. Positive mood was measured with the Positive Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) which consists of 10 negative and 10 positive mood terms rated on a 5-point Likert-type response scale (Appendix G); (Cronbach's α for positive affect = 0.69; Cronbach's α for negative affect = 0.78). Separate means were calculated for the positive and negative affect variables. Higher scores on either indicate greater reported positive or negative affect.

Approach/avoidance motivation. The Behavioural Inhibition System and Behavioural Activation System Scales (BIS/BAS; Carver & White, 1994) were used to measure approach and avoidance motivation. The measure is made up of twenty items divided into four subscales - one to measure the Behaviour Inhibition System (BIS) and three to measure the Behavioural Activation System (BAS). Seven items comprise the BIS subscale(e.g., "I feel worried when I think I have done poorly at something."), whereas four measure BAS Fun Seeking (e.g., "I crave excitement and new sensations."), five measure BAS Reward Responsiveness (e.g., "When good things happen to me, it affects me strongly."), and four measure BAS Drive (e.g., "When I want something, I usually go all out to get it."), (see Appendix H). The BIS and BAS were both found to be reliable in the current sample (*Cronbach's* α's = 0.71 and 0.78, respectively). Higher

scores indicate on the BIS indicate greater behavior inhibition motives, whereas higher scores on the BAS indicate higher activation motives.

Results

The dependent variable of self-control was analyzed with a 2 (Depletion: Regulated writing vs. Control) x 3(Prime Type: Explicit vs. Subtle vs. Neutral) Analyses of Variance (ANOVA). Overall descriptive statistics and correlations for all study 1 effects are depicted in Tables 1 and 2; all results related to hypotheses are discussed further.

Condition and self-control performance. It was hypothesized that participants in the depletion condition would show greater self-control performance compared to those in the control condition (Hypothesis 1). Results confirmed this hypothesis as there was a main effect of Condition, $F(1, 157) = 21.67$, $p < .001$, $\eta^2 = .12$. Participants in the control conditions displayed shorter reaction times (M = 806 ms, SD = 139.80 ms) compared to those in the depletion conditions (M = 913 ms, SD = 239.24 ms).

Prime conditions and self-control performance. There was a significant main effect of Prime, $F(2, 157) = 39.96$, $p = .00$, $\eta^2 = .34$, such that participants in the explicit ($t(110) = -7.56$, $p < .001$; M = 789.47, SD = 146.87) and Subtle (t (110) = -7.91, $p < .001$; M = 788.82, SD = 122.18) conditions evidenced shorter reaction times compared to those in the neutral prime conditions (M = 1062.25, SD = 218.93). It was hypothesized that Condition would interact with the Prime to influence self-control performance (hypothesis 2). This hypothesis was supported as there was a significant Condition X Prime type interaction, $F(2, 157) = 27.28$, $p < .001$, $\eta^2 = .26$. Specifically, in line with the idea that dating partners can have a positive influence on cognitive processes, simple effects tests revealed that participants in the explicit and subtle prime conditions demonstrated faster reactions times on the self- control task. That is, depleted

participants demonstrated greater self-control (i.e., shorter reaction times in milliseconds (ms)) after both subtle primes of their dating partner *(t* (66) = -11.40, $p < .001$; $M = 781.37$, $SD = 116.94$) and explicit primes ($t(66) = -10.38$, $p < .001$; $M = 785.85$, $SD = 149.86$) in comparison to those in the neutral condition ($M = 1722$, $SD = 116.94$). There were no significant effects between any of the prime conditions in the control (free writing) condition, where no constraints were placed on participants (see Table 4). Hypothesis 3 was not supported as there were no significant differences found in self-control performance between the subtle and explicit conditions ($t(52) = .12$, $p = .90$) for depleted participants. Thus, the effect of greater self-control performance was not contingent upon whether participants were exposed to a subtle or more explicit prime.

Preliminary tests of mediation. I conducted preliminary analyses of the mediator variables to ascertain whether they influenced the interaction between prime and self-control performance. Thus, three 2 (Depletion: Regulated writing vs. Control) x 3 (Prime type: Subtle vs. Explicit vs. Neutral) ANOVAs were conducted separately with all relationship focused mediators (self-other overlap, relationship satisfaction, and self-expansion) as dependent variables. This method was employed as opposed to adding the variables as covariates into an ANCOVA, as the relationship variables were found to be significantly correlated with one another (see Table 1). Therefore, in line with the general assumptions of the ANCOVA which state that highly correlated variables may alter results, simple ANOVAs were used to preliminarily assess whether there were higher scores of the potential mediators in the prime/depletion conditions. That is, I wanted to examine whether the primes had an effect on the relationship variables before including them into the mediation model.

Results for self-other overlap revealed a significant main effect for prime, $F(2, 157) = 55.13$, $p < .001$, $\eta^2 = .41$. Specifically, self-other overlap was higher in the explicit ($t(110) = -9.54$, $p < .001$; $M = 6.31$, $SD = .86$, $p = .00$) and subtle conditions ($M = 6.27$, $SD = 1.08$, $t(110) = -5.43$, $p < .001$) compared to the neutral condition ($M = 4.20$, $SD = 1.38$). Self-other overlap was not significantly different between the subtle and explicit conditions ($t(100) = .20$, $p = .84$). There was no significant main effect found for Condition $F(1, 157) = 1.98$, $p = .16$. There was a significant Prime type X Condition interaction on IOS, $F(2, 157) = 24.30$, $p < .001$, $\eta^2 = .24$ Follow-up simple effects tests revealed that participants in the depletion condition who were exposed to either the explicit ($t(66) = -12.46$, $p = .00$; $M = 6.52$, $SD = .64$, $p < .001$) or subtle conditions ($t(66) = 12.81$, $p = .00$; $M = 6.59$, $SD = .63$, $p < .001$) had higher self-other overlap compared to those exposed to the neutral prime ($M = 3.61$, $SD = 1.09$). There were no differences between the subtle and explicit conditions in the depletion condition ($t(52) = -.43$, $p = .68$).

Concerning relationship satisfaction, results also revealed a significant main effect for Prime type, $F(2, 149) = 5.04$, $p < .001$, $\eta^2 = .06$. Follow-up comparisons showed that participants in the explicit condition ($t(104) = 3.71$, $p = .00$; $M = 6.31$, $SD = .38$) and subtle condition ($t(105) = 3.71$, $p = .01$; $M = 6.18$, $SD = .91$) reported greater relationship satisfaction compared to the neutral condition ($M = 5.48$, $SD = 1.18$). There were no significant main effects found for Condition, $F(1, 149) = 2.65$, $p = .11$, nor a significant interaction effect, $F(2, 149) = 2.37$, $p = .10$, for relationship satisfaction.

Finally, there were no significant main effects found for Prime, $F(2, 147) = .82$, $p = .44$, or Condition, $F(1, 147) = .09$, $p = .76$, on self-expansion. There was however, a significant interaction, $F(2, 147) = 4.84$, $p = .01$, $\eta^2 = .06$. Simple effects tests revealed that depleted

participants in the neutral condition (M = 4.81, SD =1.38) reported less self-expansion than depleted participants who received the explicit prime ($t(66) = 4.21$, $p < .001$; M = 5.54, SD =.58) or subtle prime ($t(65)= 3.65$, $p < .001$; M = 5.64, SD =.65). See Table 5 for means by prime type for the control condition. None of the simple effects comparisons in the control conditions indicated significant differences (all p's > .05). The preliminary analyses reveal that across depletion conditions, prime type and condition did exert an impact on self-other overlap, relationship satisfaction, and self-expansion. As a result, these three variables were included in the mediation model for testing.

Tests for additional potential mediators that were not relationship related were assessed through a 2(Depletion: Regulated writing vs. Control) x 3(Prime Type: Explicit vs. Subtle vs. Neutral) Analyses of Covariance (ANCOVA). Specifically, the individual related variables self-esteem (SE), approach/avoidance motivation (BIS/BAS), and positive/negative affect (as measured by the PANAS) were used as covariates in an ANCOVA because they were not found to be correlated. Self-control performance was included as the dependent variable and SE, BIS, BAS, positive, and negative affect were entered simultaneously into the model to control for their effects on self-control performance. Effects were not significant for SE ($F(1, 129) = .25$, $p = .62$, $\eta^2 = .00$), BIS ($F(1, 129) = 1.53$, $p = .22$, $\eta^2 = .01$), and BAS ($F(1, 129) = 1.21$, $p = .27$, $\eta^2 = .01$). These results indicated that neither self-esteem nor approach/avoidance motivations were accounting for a significant amount of variance in the dependent variable. Results also confirmed no significant effects for positive affect ($F(1, 129) = 2.27$, $p = .13$, $\eta^2 = .02$) or negative affect ($F(1, 129) = 2.15$, $p = .15$, $\eta^2 = .02$), indicating that affect was not influencing the relationship between condition and prime type on self-control performance. In sum, across all analyses, and

in line with predictions, the relationship variables appeared to have the most potential to mediate the observed prime type by self-control effect.

Mediation. Given the preliminary mediation results, two mediation models were tested to examine potential mechanisms. Only those variables that were found to be significant in the preliminary analyses were included in the models. The mediation models tested whether the effects of self-other overlap, relationship satisfaction, and self-expansion mediated the Condition by Prime interaction on self-control. This was tested by using Hayes and Preacher (2014) bootstrapping method for multicategorical independent variables. This method allows for multiple mediators to be tested in addition to estimating indirect effects in a mediation model with a multicategorical independent variable. Unfortunately, Preacher and Hayes specify that when testing a multilevel variable, there cannot be more than one independent variable. Consequently, two identical models were generated and tested, one for the depletion condition and one for the control condition. The mediate macro (Hayes & Preacher, 2014) allows mediations to be tested using an indicator coding method, where different conditions are denoted a value of 1 or 0 as means for comparison. In the present research, the explicit prime condition was used as a reference condition and was compared to the subtle condition (D_1) and neutral conditions (D_2) separately. For both models, the analysis functions by using the indicator variable (D_1, explicit vs. subtle) as the IV and the other as a covariate (D_2, explicit vs. neutral), before simultaneously substituting the variables to complete the second mediational analysis (D_2, explicit vs. neutral as the IV and D_1, explicit vs. subtle as the covariate). This method allows the mediation models to be tested in parallel while controlling for the effects of the analogous analyses. The mediate macros' indicator coding is programmed to code for *k-1* new variables of the multicategotical independent variable. This means it generates a model with D_1 and D_2 from

the three level Prime condition. Accordingly, the macro analyzed the explicit vs. the neutral and explicit vs. the subtle conditions. Given the initial results of the study, it was expected that the subtle and explicit conditions would have a similar effect on self-control performance.

For both Depletion and Control conditions, mediation models (with mediators running in parallel) were run with the relationship variables (IOS, RAS, and SEQ) as potential mediators (M) of D_1, and D_2 on self-regulatory performance (Y_1) independently (see Figure 1). Once the models were run, both indirect and direct effects were computed by the mediate macro. An indirect effect is determined to be significant when the confidence intervals do not contain zero, rather than the traditional manner of testing the significance of the individual paths (Preacher & Hayes, 2004). Results are presented below for the depletion model first, followed by the control model.

Depletion mediation model. Using D_1 as the independent variable while controlling for the relationship variables, the explicit relative to the subtle condition was not related to greater self-control, B = -12.04, se = 39.11, p = .76. Using D_2 as the independent variable, controlling for the relationship variables, the explicit condition relative to the neutral condition significantly predicted self-control performance, B = 401.63, se = 36.03, p < .001. When examining the indirect pathways, the explicit condition (relative to the neutral condition, D_2) predicted greater self-other overlap, B = -3.76, se = .20, p = .00, self-expansion, B = - .09, se = .25, p < .001, and relationship satisfaction, B = - .67, se = .24, p < .001. None of the indirect pathways from D_1 (explicit vs. subtle) predicted greater self-other overlap, relationship satisfaction, or self-expansion (see Figure 1). Finally, I tested the paths pertaining to the relationship mediators predicting self-control while controlling for each other. Results showed that none of the indirect effects through self-other overlap, B = 34.37, se = 20.37, p = .10, relationship satisfaction, B =

.02, *se* = .21, *p* = .21, or self-expansion, *B* = 20.60, *se* = 16.67, *p* = .22, were predicting self-control. Using the bootstrapping method, the multiple mediation model with self-other overlap, relationship satisfaction and self-expansion predicting self-control and prime condition predicting self-control while controlling for each other was tested. Results indicated that for D_1 (explicit vs. subtle) none of self-other overlap (D_1: 95% CI= -10.49 to 15.55), relationship satisfaction (D_1: 95% CI= -20.13 to 4.52) or self-expansion (D_1: 95% CI= -15.69 to 3.79) mediated the prime by self-control effect. This was determined as all of the 95% confidence intervals contained zero. Preacher and Hayes (2004) indicate that for an indirect effect to be significant, the confidence interval for each indirect effect must not contain 0. Results for D_2 (explicit vs. neutral) were similar to D_1 in that self-other overlap (D_2: 95% CI= -315.26 to 2.58), relationship satisfaction (D_2: 95% CI= -52.07 to 2.22) and self-expansion (D_2: 95% CI= -8.18 to 52.94) were not mediating the prime by self-control effect.

In summary, the type of prime that depleted participants were exposed to was predicting subsequent self-control performance. Specifically, individuals in the explicit condition performed better on the self-control task, relative to individuals in the neutral condition. This effect was not evident when comparing the explicit vs. the subtle conditions. Additionally, participants in the explicit prime condition, relative to the neutral condition reported self-other overlap, relationship satisfaction, and self-expansion. The prime by self-control performance effect was not mediated by self-other overlap, relationship satisfaction, or self-expansion. These results provide partial support for hypotheses as they show that relative to the neutral prime, the explicit dating partner prime predicted greater self-control performance. However, results showed that the relationship variables were not providing a mediating effect.

Control mediation model. First, with D_1 as the independent variable while controlling for the relationship variables, the explicit vs. subtle primes were not related to greater self-control, *B* = -2.64, *se* = 44.66, *p* = .95 (see Figure 2 for full model). Using D_2 as the independent variable, controlling for the relationship variables, the explicit condition relative to the neutral condition was also not predicting greater self-control performance, *B* = 9.95, *se* = 47.74, *p* =.84. In examining the indirect pathways, the explicit condition (relative to the neutral condition, D_2) did not predict greater self-other overlap, *B* = -.44, *se* = .38, *p* = .25, self-expansion, *B* = .24, *se* = .31, *p* = .45, or relationship satisfaction, *B* = -.03, *se* = .22, *p* =*.88.* Additionally, none of the indirect paths from D_1 (explicit vs. subtle) to the relationship mediators were significant (see Figure 2). Second, I tested the paths pertaining to the relationship mediators predicting self-control, while controlling for each other. Results showed that neither the indirect effects through self-other overlap, *B* = -5.38, *se* = 23.65, *p* = .82, relationship satisfaction, *B* = -22.21, *se* = 38.97, *p* = .58, or self-expansion, *B* = 32.23, *se* = 24.31, *p* = .20, were predicting self-control performance. Using the bootstrapping method, the multiple mediation model with self-other overlap, relationship satisfaction, and self-expansion predicting self-control and prime condition predicting self-control while controlling for each other was tested. Results indicated that for D_1 (explicit vs. subtle) neither self-other overlap (D_1: 95% CI= -19.93 to 21.42), relationship satisfaction (D_1: 95% CI= -8.93 to 42.72) or self-expansion (D_1: 95% CI= -19.84 to 40.12) mediated the prime by self-control effect. This was determined as all of the 95% confidence intervals contained zero. As previously stated, for indirect effect to be significant, the confidence interval for each indirect effect must not contain 0 (Preacher & Hayes, 2004). Results for D_2 (explicit vs. neutral) indicated that none of self-other overlap (D_2: 95% CI= -20.69 to 46.94), relationship satisfaction (D_2: 95% CI= -23.26 to 32.43), or self-expansion (D_2: 95% CI= -10.24

to 37.60) variables mediated the prime by self-control effect. In line with hypotheses, the control condition the prime that participants were exposed to, did not predict subsequent self-control performance. Specifically, there was no difference in performance for those exposed to the explicit or subtle conditions relative to the neutral condition. Thus, none of the relationship variables were mediated the prime by self-control relationship.

Discussion

Results of Study1 demonstrated support for Hypothesis 1 and past research, as participants in the depletion condition showed evidence of greater cognitive depletion compared to those in the control condition. Further, consistent with Hypothesis 2, the prediction that close relationship partners can be considered a resource potential, the present study found that subsequent to a cognitive depletion task, participants who received an explicit or subtle partner prime performed better on a subsequent self-control task in comparison to participants who received a neutral prime. In conditions where no constraint or depletion was experienced, there was no difference in self-control performance based on the prime. This was expected as the participants were not experiencing any decrements to cognitive load. These results suggest that reminders of a dating partner can have positive effects on depleted self-control. Past research has found that explicitly writing about a partner can lead to increases in self-control performance (Schmeichel & Vohs, 2009). The current study additionally found that even subtle reminders such as looking at a photo had the same effect as active intentional reflections of one's partner. Support was not found for Hypothesis 3 which predicted that the strongest effect would be found in the explicit prime, followed by the subtle and, lastly, the neutral prime. The current study found that both the explicit and subtle prime conditions provided a means to bolster depleted resources.

In mediation analyses of the depletion model, I found that the prime condition did predict self-control performance. Specifically, the explicit condition lead to greater self-control performance compared to the neutral condition (while controlling for the relationship variables). Further, the depletion model showed that the explicit prime condition did predict greater ratings of self-other overlap, relationship satisfaction, and self-expansion. Bootstrapping analyses of the indirect effects revealed none of the relationship variables to be significant mediators of the prime by self-control performance effect. Taken together, these findings suggest that when experiencing cognitive depletion, both reminders of one's partner ultimately lead to greater self-control performance. The reminders were also posited to influence greater feelings of relationship satisfaction, self-other overlap, and self-expansion; however none of these variables influenced subsequent self-control performance. In line with hypotheses and preliminary analyses, no similar or significant effects were found in the control model.

Additionally, positive mood did not account for a significant proportion of variance. It was a concern that positive mood would be found to be a significant covariate and mediator of the prime by condition interaction and, thus, drive the positive effects on self-control performance. However, Study 1 was able to rule out positive mood accounting for the significant effect. Thus, study 1 provided evidence that reminders of a dating partner are a bolstering resource that can attenuate cognitive depletion.

Study 2

While Study 1 showed that priming depleted individuals with representations of a dating partner leads to greater self-control performance, another question remains: Is this effect only present with dating partners? There are important relationships beyond a dating partner that have the potential to have a similar or greater effect on self-control performance. Past research

suggests that close others (i.e., friends and family), in addition to dating partners, have the possibility of being a resource (Kushner & Sterk, 2005). Accordingly, Study 2 sought to examine how differing types of relationships (i.e., romantic partners vs. friends and family) could bolster depleted resources. If both romantic and close others have the potential to be a resource, it speaks to the strength and importance that close relationships have as self-control resources. As stated previously, most of the research on bolstering resources has paid attention to non-social variables such as glucose (Gailliot, Baumeister, DeWall, Mane, Plant, Tice et al., 2007), sleep (Tyler & Burns, 2008), and mood (Muraven et al., 1999).

Study 2 employed a priming method that differed from study 1 and a supplementary methodology for testing self-control performance. An important component of the study involved testing the partner prime manipulation. Specifically, the dating partner prime was compared against a close other of the participant's choice (friend, sibling, or parent) prime and to an acquaintance prime. Thus, participants were assigned to one of three prime conditions: a dating partner, a close other of their choice, or acquaintance. For the priming manipulation, participants were exposed to words previously supplied by the participant describing their dating partner, a close other, or an acquaintance. Study 2 used a supplementary self-control variable that incorporated a delay of gratification paradigm that required participants to actively restrain an impulse. Being able to curb a desire has been shown to be a significant marker of self-control (Baumeister & Vohs, 2004). The goal of Study 2 was to examine whether the presence of a dating partner/close other would not only result in shorter reaction times on a Stroop task compared to the acquaintance reminders, but also indicate greater self-control performance on a behavioural measure of self-control (resisting tempting unhealthy food). This research design allowed for a test of how positively dating partners can influence self-control resources in

comparison to other close relationships in one's life as well as to individuals not known well (acquaintances).

In Study 2, all participants were assigned to a depletion condition, with the rationale that Study 1 effectively demonstrated that dating partner prime effects on self-control were found in the depletion condition and not the control condition. Additionally, in Study 2, the focus of interest was whether relationship types (dating partner, close other, or acquaintance) were important factors in attenuating depletion. Thus, in an effort to create a more parsimonious design, the control (non-depletion) condition was not included in Study 2.

Past research has shown that individuals cite their important relationships such as a spouse, offer the primary source of support, unconditional positive regard, and responsiveness (Kumashiro & Sedikes, 2005; Levinger & Huston, 1990; Mikulincer et al., 2003). Accordingly, I expected that the dating partner prime would elicit the greatest self-control performance (shorter reaction times and eating fewer unhealthy food items) in comparison to those exposed to a close other prime, followed by the acquaintance prime. Specifically, it was hypothesized that there would be a significant main effect of prime type on self-control performance, such that performance on the Stroop task would differ based on which prime participants were assigned to receive (Hypothesis 4). I expected that the most optimal Stroop task performance (shortest reaction times) and restrained eating in the dating partner prime condition followed by the close other prime condition as compared to the acquaintance prime. In addition, I hypothesized that there would be a significant main effect of prime type on the behavioural measure of self-control, such that there would be healthier eating (greater raisins vs. cookies) in the dating partner condition, followed by close other prime and then the acquaintance prime condition (Hypothesis 5). As in Study 1, the same relationship and individual related variables were tested as mediators

of the hypothesized effect. Although, there were no effects for the mediators found in Study 1, they included for a more robust test of mediation.

Method

Participants. One hundred and fifty-six introductory psychology students (65 men, 91 women) were asked to participate in exchange for partial course credit. Participants' ages ranged from 18 to 32 years (M = 19.73 years, SD = 1.56 years).The average reported length of participants' current romantic relationship was 1.09 years with a standard deviation of .59 years. In study 2, participants were randomly assigned to one of three conditions (Prime Type: Dating partner vs. Close other vs. Acquaintance). As in study 1, to qualify for this study, participants were required to have been in their dating relationship for at least 6 months.

Procedure. Participants were instructed through email not to eat for three hours prior to the experiment. This served as part of the delay of gratification manipulation. They arrived at the laboratory with the expectation of participating in an experiment investigating relationships between word associations and information processing. As stated previously, the method for priming differed from study 1. Forty-eight hours before the session began participants were instructed to email the experimenter with a list of attributes that best described their dating partner, a close other, or an acquaintance (see Method for greater detail). The specific instructions participants received was contingent upon the condition to which they were randomly assigned. That is, if participants were assigned to the dating partner condition, they were instructed to provide attributes descriptive of their dating partner. Likewise, if they were assigned to the close other or acquaintance conditions, they were asked to send in a list of attributes descriptive of only their close other or acquaintance respectively. This condition information was then used to prime the partner during the experimental session itself. In the

experiment, all participants were assigned to the same depletion task (regulated writing) used in Study 1. Following the writing task, participants were told they were to complete a memory task and were exposed to the prime to which they were randomly assigned. For example, in the partner prime condition, participants completed a task on the computer using E-prime which exposed them to the dating partner-descriptive words they had previously compiled. Following to the prime, all participants completed the Stroop task. Lastly, participants completed the same set of measures as in study 1, with the addition of one scale measuring eating restraint. While completing the measures the second measure of self-control was administered. Specifically, while given instructions for the next task, participants were told to help themselves to cookies or raisins leftover from an earlier lab meeting. The number of cookies vs. raisins consumed was used as a second measure of self-control.

Materials.

Self-control depletion manipulation. Similar to study 1, all participants were depleted using the regulated writing task (see Appendix A). They were asked to write a short description about a recent trip they had taken. They were also instructed to write to write the story without using any words containing the letter "n".

Dating partner, close other, acquaintance prime manipulation. Participants were asked to submit a list of attributes that would best describe either their partner, close other of their choice (sibling, parent, friend, etc,), or an acquaintance (someone they do not know well and just met recently) forty-eight hours prior to the experimental session. During the in-lab portion of the study, participants were primed with the descriptive words they had previously submitted. The method of priming the partner was adapted from research on activating significant-other representations (Andersen & Baum, 1994). Participants were shown the words they had sent in

as descriptive attributes on a computer along with filler neutral words (e.g., chair, hammer, and sunny). Participants were told that the task was memory related and asked to keep as many words as possible in their memory.

Dependent measures of self-control. Following the prime, participants completed the Stroop task (see Study1). After the Stroop task, participants were told to help themselves to leftovers from a lab meeting and a plate of cookies and raisins was placed in front of them. Approximately 10 cookies and 50 raisins were put out each session. The number of cookies and raisins remaining after each session was noted by the experimenter. The number of cookies and raisins consumed while filling out the questionnaire was the second dependent measure of self-control. At the end of the session, the experimenter returned and participants were debriefed.

Proposed mediators. As in study 1, the IOS, RAS (α = 0.72), SES (α = 0.77), SEQ (α = 0.78), BIS (α = 0.71), BAS (α = 0.64), positive affect (α = 0.68), and negative affect (α = 0.88) were given the participants as additional measures. There was one added measure to assess eating motives, the Restraint Scale (RS; Herman & Polivy, 1975). This is a 10-item scale measuring the extent to which participants had desires to restrain their eating. This scale was used to control for the participants' pre-existing goals with regards to various eating restrictions (Appendix H). Individuals scoring 15 or higher on the Restraint Scale were classified as restrained eaters and those scoring lower than 15 were classified as unrestrained eaters. Such goals had the potential to influence the new behavioural measure of self-control. The RS scale demonstrated good reliability (α = 0.72).

Results

Both self-control measures were analyzed in one way (Prime type: Dating partner vs. Close other vs. Acquaintance) ANOVAs. Overall descriptive statistics and correlations for Study 2 measures are depicted in Tables 6 and 7. All results related to hypotheses are discussed below.

Prime conditions and self-control performance.

Stoop performance. The analysis of participants' self-control performance yielded a significant main effect for Prime type, $F(2,153) = 65.83$, $p < .001$, as in Study 1 that the type of prime participants were exposed to, influenced their subsequent performance on the Stroop task. Follow-up comparisons demonstrated that those exposed to the dating partner prime ($t(104) = -9.26$, $p < .001$; $M = 785.81$ ms, $SD = 124.30$ ms) and close other prime ($t(107) = -9.38$, $p < .001$; $M = 766.56$ ms, $SD = 138.92$ ms), evidenced significantly shorter reaction times compared to participants in the acquaintance prime ($M = 1041.17$ ms, $SD = 174.78$ ms) condition. There was no significant difference between the dating partner prime and close other prime ($t(95) = -.29$, $p = .78$).

Healthy eating dependent measure. The analysis of the proportion of cookies eaten did not yield a significant main effect for Prime type, $F(2, 153) = .10$, $p = .90$. Contrary to predictions, priming depleted participants with their dating partner, close other, or an acquaintance did not influence the number of cookies they consumed. See Table 8 for means and standard deviations.

The number of raisins consumed by participants also did not yield a significant main effect for Prime type, $F(2, 146) = .06$, $p = .94$. That is, contrary to predictions, the number of raisins consumed was not related to the prime condition. See Table 8 for means and standard deviations.

Preliminary tests for mediation. Akin to study 1, before testing the final mediation model, preliminary analyses were conducted on several measures that were theorized to mediate the effect between prime type and self-control performance. To this end, the final mediation model would include only those variables that were found to be significant in the preliminary analyses, resulting in a more parsimonious model.

Three one-way ANOVAs were conducted to assess the potential mediators of the established effect, with the relationship focused variables (i.e., IOS, self-expansion, and relationship satisfaction) as the dependent variables. As stated in study 1, this method was employed as opposed to an ANCOVA because the relationship variables were found to be correlated with one another. Thus, to assess whether the prime conditions exerted an effect on the mediator variables, the ANOVAs were conducted.

Similar to study 1, results revealed a significant difference in self-other overlap between prime conditions, $F(2, 153) = 45.85$, $p = .00$. Self-other overlap was higher in the dating partner ($t(104) = 8.31$, $p = .00$; $M = 6.28$, $SD = .88$) and close other ($t(107) = 7.72$, $p = .00$; $M = 6.26$, $SD = 1.08$) conditions compared to the acquaintance condition ($M = 4.63$, $SD = 1.11$). Self-other overlap was not significantly different between the dating partner and close other conditions ($t(95) = -.08$, $p = .93$).

Results also revealed significant differences in relationship satisfaction between conditions, $F(2, 148) = 8.82$, $p = .00$. Relationship satisfaction was significantly higher in the dating partner ($t(101) = 3.86$, $p = .02$; $M = 6.32$, $SD = .37$) and close other ($t(105) = 2.71$, $p < .001$; $M = 6.18$. $SD = .85$) compared to the acquaintance condition ($M = 5.65$, $SD = 1.10$). No significant differences were found between the close other and dating partner conditions ($t(90) =$

1.04, p = .30). Finally, there wasn't a significant main effect for self-expansion between conditions, $F(2, 146) = 2.74$, p = .07.

An ANCOVA was run to test the remaining six independent difference variables which were not correlated with one another. Self-esteem, BIS, BAS, RS, positive and negative affect were entered into the same model to test for their effects on the Stroop task. Results were not significant for self-esteem, $F(1, 131) = 3.47$, p = .07, η^2 = .00, BIS, $F(1, 131) = .63$, p = .43, η^2 = .00, BAS, $F(1, 131) = .70$, p = .40, η^2 = .01, and RS, $F(1, 131) = .55$, p = .46, η^2 = .02. Therefore, neither self-esteem, approach/avoidance motivations nor, the desire to restrain eating accounted for a significant amount of variance. Results also revealed no significant effects for positive affect, $F(1, 131) = .00$, p = .97, η^2 = .00, or negative affect, $F(1, 131) = .52$, p = .47, η^2 = .00. Taken together, across all preliminary analyses, two relationship variables (IOS and RAS) appeared to be potential candidates for mediating the prime type effect and were included in the mediation model.

Mediation. It was hypothesized that the relationship specific variables could potentially mediate the association between prime type and self-control performance. As in Study 1, Hayes and Preachers' (2014) bootstrapping procedure for multicategorical independent variables was used for testing mediation. Only those variables that were found to be significant in the preliminary analyses were included in the final mediation model (see study 1 results for greater detail).

For the current analyses, the dating partner prime condition was used as the reference group and was evaluated against the close other condition (D_1) and acquaintance condition (D_2) separately. The model used the following indicator coding: (D_1, dating partner vs. close other) as the IV, and the other as a covariate (D_2, dating partner vs. acquaintance), prior to substituting the

variables to complete the second mediation analysis (D_2, dating partner vs. acquaintance as the IV and D_1, dating partner vs. close other as the covariate). As stated in Study 1, the mediate macros' indicator coding uses *k-1* new variables of the multicategotical independent variable, D_1 and D_2. Thus, the macro analyzed the dating partner vs. the acquaintance and dating partner vs. the close other conditions.

One multiple mediation model (mediators running in parallel) was run with the significant relationship variables (IOS and RAS) as potential mediators (M_1, and M_2) of D_1, and D_2, on self-regulatory performance (Y_1) separately (see Figure 3). Once the model was run, both indirect and direct effects were computed. Results for the model are presented below.

Depletion mediation model. Using D_1 as the independent variable while controlling for the relationship variables, the dating partner condition relative to close other condition did not predict greater self-control performance, B = -9.95, se = 37.34, p = .79 (See Figure 3 for full model). Using D_2 as the independent variable, controlling for the relationship variables, the dating partner condition relative to the acquaintance condition significantly predicted self-control performance, B = 292.03, se = 35.91, p < .001. Results for the indirect pathways revealed that the dating partner condition (relative to the acquaintance condition) predicted greater self-other overlap, B = -2.16, se = .24, p = .00, and relationship satisfaction B = -.67, se = .18, p < .001. Additionally, for D_1 (dating partner vs. close other), none of the indirect pathways to the relationship mediators were related to one another (see Figure 3). Next, I tested the paths of the relationship mediators predicting self-control while controlling for each other. Results showed that the indirect effect of self-other overlap predicting self-control to be significant, B = -48.49, se = 15.12, p < .001. The indirect effect of relationship satisfaction predicting self-control was not significant, B = 22.34, se = 20.08, p = .27. Using the bootstrapping method, the multiple

mediation model was tested with self-other overlap and relationship satisfaction predicting self-control and prime predicting self-control, controlling for each other. Results indicated that in Study 2, D_2 (dating partner vs. acquaintance)'s effect of self-control performance was mediated by self-other overlap (D_2: 95% CI= 36.74 to 192.15). For an indirect effect to be significant, the confidence interval for each indirect effect must not contain 0 (Preacher & Hayes, 2004). Relationship satisfaction did not yield significant results in mediating the prime type by self-control effect (D_2: 95% CI= -44.09 to 7.59). Further, results for D_1 did not reveal any significant mediation effects for self-other overlap (D_1: 95% CI= -28.49 to 18.78) or relationship satisfaction (D_1: 95% CI= -16.60.74 to 1.68).

Overall, these results revealed that the prime to which depleted participants were exposed predicted subsequent self-control performance. Specifically, that individuals in the dating partner condition, relative to the acquaintance condition, performed better on self-control tasks. Additionally, the dating partner prime condition, relative to the acquaintance condition, predicted greater reported self-other overlap and relationship satisfaction. Further, the prime by self-control performance effect was found to be mediated by self-other overlap only. These results provide partial support for the Hypothesis 4 as the dating partner prime predicted greater performance. Results also showed that only self-other overlap was mediating the observed effect. Given the initial results of the study, it was expected that the close other and dating partner conditions would have a similar effect on self-control performance.[1]

Discussion

The results of Study 2 were relatively consistent with those of Study 1, with self-control performance being influenced by the type of prime to which participants were exposed. The

[1] Analyses examining the subtle vs. close other conditions on self-control performance revealed no significant mediation results for the relationship-focused mediators.

current study did not find support for Hypothesis 4 (which predicted the most optimal self-control performance to be found in the dating partner prime, followed by the close other, and, acquaintance primes). My results indicated that when participants were primed with words describing either a dating partner or a close other, both conditions showed evidence of increased self-control performance. Neither the close other or dating partner significantly differed from one another, thus there was no support for Hypothesis 4. This result provides additional evidence that important people in one's life can indeed be considered a bolstering resource, attenuating cognitive depletion. In Study 1, I found that when depleted participants were explicitly or even subtly reminded of their partners they demonstrated faster reaction times on a self-control task, compared to those not exposed to reminders of their dating partners. In Study 2, I found that priming representations of both dating partners and close others could provide this bolstering effect in the face of depletion.

In Study 1, mediation analyses did not reveal the relationship variables to be mediators of the prime by self-control association. However, in Study 2, the degree of self-other overlap was found to mediate this effect. That is, priming participants with words descriptive of their dating partner relative to words descriptive of an acquaintance, lead to increases in perceptions of self-other closeness, thus impacting self-control and resulting in shorter reaction times. Consistent with Study 1, neither self-expansion, nor relationship satisfaction mediated the observed effect.

Additionally, like Study 1, neither mood nor any of the other individual related variables (self-esteem, approach/avoidance motivation, and eating restraint) were found to be mediators of the effect of prime on self-control performance. It did not appear that the prime conditions were having any significant effect on the individual related variables. Past research would suggest that positive mood could have been a significant mediator (Tice et al., 2007). Specifically,

participants primed with representations of dating partners or close others could show more positive mood compared to those primed with an acquaintance. However, this was not the case for Study 2. Further, self-esteem was also not found to be a significant mediator. It was thought that priming individuals explicitly or subtly with thoughts of their dating partner could lead to increases in self-esteem. Possible explanations for the lack of support with regards to the mediators are discussed further in the General Discussion.

An important goal of Study 2 was to test self-control in a delay of gratification paradigm. Contrary to predictions, there was no support for hypothesis 5 which specified that participants who received the dating partner or close other prime would enact healthier eating- eating more raisins compared to cookies. Results showed that the number of cookies vs. raisins consumed was not contingent upon the type of prime participants received. Perhaps the paradigm employed may not have been strong enough to elicit the proposed effect. Given there was no manipulation check, participants may not have refrained from eating the required 2 to 3 hours prior to the session. The lack of manipulation check was to ensure that the true nature of the study was not uncovered and suspicion was not aroused. Thus, such a requirement is difficult to monitor and manage to ensure that participants have indeed not eaten. Additionally, the participants were given the options of eating the cookies vs. raisins at the same time as they completed the set of questionnaires. Thus, participants may have been completing the eating restraint scale at the same time that they were deciding to consume cookies and/or raisins. The lack of significant results may be due to this confound; completing a measure that specifically related to eating goals could have easily made such goals salient and influenced subsequent eating behaviours.

General Discussion

The present findings underscore the positive influence that close relationships can exert on cognitive resources. The overarching findings of the present studies suggest that there may be

a benefit to having reminders of a close relationship partner when experiencing cognitive depletion. This conclusion was drawn across two studies. Both studies employed different methods of priming with consistent results. That is, the explicit and subtle primes of dating partners (Studies 1 and 2) and subtle primes of dating partners and close others (Study 2) were effective in bolstering self-control in comparison to the control prime conditions. Further, a number of mediators were tested to examine possible underlying mechanisms accounting for the effect and to rule out alternative explanations.

Can Close Relationship Partners Bolster against Cognitive Depletion?

Studies 1 and 2 provide promising evidence that our close relationships can provide us with resources in the face of negative experiences such as cognitive depletion. In Study 1, consistent with past research, there were significant differences in self-control performance between the control and depletion conditions. Specifically, results showed that participants in the control (non-depletion) conditions displayed greater self-control (across priming conditions) compared to the depletion conditions. Hypothesis 2 was also supported, as priming depleted individuals both explicitly and subtly with representations of a dating partner lead to greater self-control performance compared to those who received the neutral prime. In line with expectations, this effect was found only in the depletion conditions and was not evident in the control condition. Thus, when participants were experiencing decrements in self-control, the primes functioned to buffer against the experience of cognitive depletion. These results compliment past research further highlighting the resource potential of our close relationships. For example, research on relationship partners and threats has shown that after interacting with partners, individuals are more likely to seek out self-threatening (Kumashiro & Sedikides, 2005). The present research found that subtle and explicit primes of one's close others went a step

further and attenuated the negative effects associated with cognitive depletion. Thus, not only can close relationships help individuals deal with self-threatening information and increase cognitive openness, but they can also help replenish resources to protect against negative cognitive states with the use of subtle and explicit reminders.

Hypothesis 3 was that the greatest self-control performance would be observed in the explicit prime condition followed by the subtle prime and neutral prime. Support for this hypothesis was not found as there were no significant differences between the explicit and subtle prime conditions on self-control performance. Both prime conditions elicited significantly shorter reaction times on the Stroop task compared to the neutral condition. These results are interesting as they reveal that the even a subtle prime can have a strong effect on bolstering self-control resources. An individual does not necessarily need to intentionally write or contemplate the meaning of a relationship for the manipulation to work. This lends greater support to research showing how our romantic others can provide benefits to the self, some even during negative instances, (Green & Campbell, 2000; Kumashiro & Sedikides, 2005; Mikulincer et al., 2003; vanDellen & Hoyle, 2010). Furthermore, the current studies show that even subtle reminders such as having a picture present (Study 1) or being exposed to words describing our partners (Study 2) are beneficial when experiencing cognitive depletion. Along this line, the current research also lends support to research examining relationship processes by use of more subtle and implicit priming measures.

In Hypothesis 4, I specified that the greatest self-control performance would be found in the dating partner prime, followed by the close other prime, and lastly the acquaintance prime conditions. There was no support for this hypothesis as participants exposed to the dating partner and close other prime both demonstrated faster reaction times compared to those in the control

condition. There was no significant differences in performance between close others and dating partners. Both lead to greater self-control performance compared to the acquaintance condition. Thus, not only dating partners but also close friends and family are a bolstering resource in the face of cognitive depletion. Hypothesis 5 (I predicted more raisins than cookies would be consumed) was also not supported, as participants did not differ in the number of cookies vs. raisins consumed based on exposure to prime conditions. In sum, the results across both studies compliment research on positive factors that can aid in restoring depleted resources (Gailliot, Baumeister, DeWall, Mane, Plant, Tice et al., 2007; Muraven et al., 1999; Tyler & Burns, 2008). Demonstrating that relationship partners and close others may counteract depletion paves the way for additional research on how one's social environment can be used as support against cognitive depletion. Thus far, there has been a focus on more non-social variables such as increased glucose consumption, rest, positive mood (Gailliot, Baumeister, DeWall, Mane, Plant, Tice et al., 2007; Muraven et al., 1999; Tyler & Burns, 2008). The current research examined how our close relationships can also provide beneficial effects on individuals' self-control performance. That is, close and romantic relationship partners can do more than just make us feel loved and supported but can also provide resources to help self processes.

It could be argued that the current studies examine a process similar to that of self-affirmation. Self-affirmation involves affirming the self by contemplating and writing about aspects that bring the most meaning to one's life. This process allows individuals to look beyond themselves to important higher-level aspects of their lives (Steele, 1988). Previous research has shown that self-affirmation can attenuate cognitive depletion and replenish resources (Schmeichel & Vohs, 2009). The explicit prime manipulation in Study 1 could be considered similar to a self-affirmation exercise. However in Study 1, participants were instructed to only

write about their close relationship partner and not permitted to write about any alternate important value. In self-affirmation manipulations participants are given a choice to write about a value that is most important to them, relationships being one of approximately six other unrelated value domains (e.g., business, pursuit of knowledge). The current research cannot address whether a great majority of the participants would experience self-affirmation from only their relationship partners. Further, the subtle prime in Study 1 and the priming method used in Study 2 were more implicit in method as participants were not fully aware that they were being primed with representations of their partner (Studies 1 and 2) or close other (Study 2 only). That is, unlike self-affirmation, participants were not instructed to intentionally contemplate and write down the meaning that their close others/dating partners bring to their life. Taken together, I believe that the priming methods used were not serving as an active self-affirmation strategy that individuals would employ.

Mediation Analyses

Studies and 1 and 2 also explored a number of mediators to uncover the mechanisms behind the effect that the prime had on self-control resources. Testing the mediators also helped to rule out alternative explanations. Testing for mediation as opposed to moderation was used as all of the additional measures (relationship-focused and individual focused) followed the independent variables across both studies. Thus, testing for moderation was not possible as the all variables had been exposed to the prime manipulations. The focus of solely testing for mediation was due to past research indicating that primes influence people's mental representations of their relationships, their partners, and themselves with their partners (Baldwin, 1992). In the current research, once these representations were activated via the primes, it was posited to alter subsequent cognitions and behavior, leading the individual to perhaps experience

changes in the various potential mediator variables. For example, thinking of a close other might influence perceptions of closeness and similarity (self-other overlap) thus, influencing subsequent self-control performance.

The mediation results were not consistent between studies. In Study 1, the depletion mediation model did not provided support for the hypothesis that the relationship variables (self-other overlap, relationship satisfaction, or self-expansion) were mediating the observed self-control effect. In Study 2, only self-other overlap (as measured by the IOS) was found to mediate the prime by self-control association. That is, being exposed to the dating partner prime (vs. the acquaintance prime) was associated with greater reported self-other overlap, which was related to greater self-control. It is unclear as to why the mediation results related to self-other overlap were not consistent across Studies 1 and 2. Given the dating partner prime was mediated through self-other overlap, it would appear likely that the explicit Study 1 prime should have elicited the same effect through self-other overlap. In Study 2 participants only reported slightly greater mean self-other overlap compared to those in Study 1 (See Tables 2 and 7). One possibility for the lack of consistency could involve sample size. Study 1 required the generation of two mediation models and it is plausible that the split sample size for each model was too small to obtain a mediating effect.

The results of Study 2 are consistent with previous research also showing that self-other overlap is a significant mediator of self-control performance (Egan et al., 2004). The findings highlight the importance that perceived self-other overlap has in determining whether close relationships are a bolstering force. Participants who were exposed to the acquaintance prime showed weaker self-control compared to those in the dating partner prime. Self-other overlap in the acquaintance conditions was also significantly lower compared to the other conditions. It was

expected that the close other condition would generate a similar mediation effect given the preliminary results demonstrating that participants in the close other condition had greater self-control performance than those in the acquaintance condition, but did not differ from the dating partner condition. Additionally, the preliminary results showed that those in the close other prime evidenced greater reported self-other overlap relative to those in the acquaintance condition. In general, results show that individuals who report less self-other overlap may not experience the same benefits when experiencing cognitive depletion. Further, they imply that simply being in a relationship may not be sufficient to receive the bolstering benefits, but rather a close relationship marked by greater perceived overlap and closeness may be the key.

With regard to the other relationship variables, neither relationship satisfaction nor self-expansion were found to be consistent mediators in either study. Contrary to predictions, the dating partner and close other primes did not influence greater self-control performance through greater reported satisfaction or perceptions that the relationship promotes self-growth. It was posited that relationship satisfaction would be the strongest mediator, as this construct has been related to increased self-control in other relationship-focused research (Finkel & Campbell, 2001; Vohs, et al., 2011). Preliminary results showed that both self-other overlap and relationship satisfaction were significantly correlated with one another; however in the mediation analyses only self-other overlap was driving the desired effect (Study 2 only). It is unclear as to why relationship satisfaction was not found to be a significant mediator as both previous research and its' relationship with the significant mediator (self-other overlap) would seem to be indicative of a significant mediation result. I also tested self-expansion as a mediator, which is a construct that is related to inclusion of other in self. As previously stated this variable assessed the impact that personal experiences with a relationship partner can have on facilitating increased

knowledge, skills, abilities, mate value, positive life changes and novel experiences (Lewandowski & Aron, 2002). Self-expansion was also not found to be a significant mediator of the prime by self-control effect. Again, it is unclear why self-other overlap but not self-expansion was found to mediate the relationship, given that in Studies 1 and 2, both were significantly correlated (see Tables 1 and 6). Further, self-expansion is said to be facilitated by self-other overlap (Aron et al., 1991). Perhaps individuals can simply perceive greater closeness and overlap with a partner but not report more concretely of how this overlap translates into skills, knowledge, and abilities.

Positive affect, negative affect, self-esteem, and approach/avoidance motivations were also tested as potential mediators. None of the mediators was found to significantly influence the prime effect on self- control. Positive affect (or mood) was an important potential mediator as it was quite possible that priming an individual with representations of a close other could simply be increasing positive and warm affect. In fact, previous research has found that positive mood attenuates cognitive depletion (Tice et al, 2007). Across two studies, I was able to test positive mood as a mediator and rule it out as an alternative explanation. Self-esteem was also included as an exploratory mediator as writing about or being exposed to subtle reminders of a close relationship partner could lead to increases in self-esteem. In Study 1, when using the explicit prime to remind partners of their close other, they were asked to write about the meaning or importance that their partner held in their life. It was thought that perhaps writing about a close other or even a subtle exposure could have lead to increases self-esteem, and influenced the observed effect. However, this was not the case, as self-esteem was not found to be a significant mediator. Finally, approach and avoidance motivations were also assessed as an individual's general motivational disposition could influence self-control. It was hypothesized that the prime

would elicit increased motivation to approach rewards and thus, greater self-control performance. However, across both studies, the general inclination to avoid punishment or seek rewards was not an important factor in influencing self-control performance. In sum, none of the individual related variables was found to be significant mediators across studies.

Limitations

One limitation of the present research is the lack of consistency in the findings for the two self-control measures. Whereas enhanced self-control performance (Stroop task) in connection with the dating and close other prime was found in Study 1 and Study 2, this effect was not found for the healthy eating measure of self-control in Study 2. As previously stated, it could be that the manipulation was not strong enough to elicit changes in eating in the face of depletion. Given that participants were asked to refrain from eating three hours prior to the experiment, it is quite possible that they did not actually perform the instructed behaviour as no experimenter was present to monitor compliance. If participants did not comply with the instructions, it is highly likely that they were not hungry and did not need to regulate behaviour with regard to eating cookies and/or raisins. Further, a manipulation check to assess degree of hunger was not used in Study 2. This decision was made on the basis of not wanting to arouse suspicion. Specifically, I did not want participants to connect the initial instructions of refraining from eating for three hours, to the offering of cookies and raisins during the experimental session. Thus, it is possible that filling out a scale measuring eating goals and motivations (the restraint scale) interfered with the actual manipulation itself. That is, participants may have been made aware of various eating goals/thoughts which would have led them to eat fewer cookies and/or raisins.

A second limitation involves the population that the research was tested on, which could influence external validity of the studies. Studies 1 and 2 were comprised of first year undergraduates. Participants at this age differ compared to older segments of the population who are working and are more likely to face greater family, financial, and work related pressures. Such demands likely translate into increased regulation attempts, and, as such, better practice and performance compared to their younger cohorts. Along related lines, this research only examined individuals in dating relationships and did not include those in more long term relationships (e.g., those who are married or cohabitating). Perhaps individuals later in their undergraduate career or even graduates who are in relationships of greater length and commitment may report greater self-other overlap and benefit more from primes of their partner compared to younger participants. Results may differ for participants in younger less mature relationships compared to more long term marriages.

Directions for Future Research

The present research provides important information in terms of how close relationship's can aid in greater self-control performance after instances of cognitive depletion. Although the current research found a mediator (the IOS) of the prime and self-control effect in one study, there are other potential mediators that should be tested. Future studies could examine whether the primed partner is perceived to be a positive model of self-control. Studies have shown that vicarious restoration of resources can occur after reading about someone who demonstrates general good self-control vs. bad self-control (vanDellen & Hoyle, 2010).

A second direction would be to test the primes in real working environments to examine their effects. That is, participants could be asked to place pictures at their desks or have other subtle reminders around, or even take part in explicit affirmations to examine whether the

reminders aid in bolstering resources. Finally, future research should test a different behavioual measure of self-control as the delay of gratification paradigm in Study 2 did not work.

Future research could answer the question as to whether the primes were serving as self-affirmation techniques. I outlined previously how the current methods differed from self-affirmation as a) participants were only permitted to write about their close relationship partner, and b) Study 2 employed a subtle prime that did not require participants to contemplate any deep meaning of their close relationships. However, in order to strengthen the current research, future studies could be designed to address the alternative explanation of self-affirmation. This could be achieved by incorporating the use of different primes that are considered high in value by individuals (e.g., career, health) and examining their effects on self-control performance.

It is also important to ascertain how lasting the effects of the primes are. I did not test whether the effects of the prime on self-control performance were successful at a later point in the day. This is an important aspect of the research as perhaps the subtle and explicit primes differ in how long the effects last. Maybe the explicit primes last longer considering the importance of a relationship, required intentional thought, as opposed to the subtle prime which occurs outside of awareness. Future research examining this aspect could ultimately lead to the development of a strategy leading to a longer lasting solution.

Conclusions

With the abundance of research highlighting the wide array of factors that cause a reduction in self-control resources, identifying ways in which negative effects can be counteracted is important for individuals in their daily life. The results of the current research speak to the potential influence of the social environment, specifically romantic dating partners, friends, and family as positive influences. Actively thinking about the importance a specific close other has in our lives can induce feelings of self-other closeness and aid in bolstering

depleted resources. A unique result that has not been addressed in the literature is the finding that subtle primes were able to elicit the same effects as the explicit primes with regard to self-control performance. Both Studies 1 and 2 demonstrated that subtle reminders of a close relationship partner lead to increases in self-control performance for depleted participants that did not differ from the explicit condition. This has important implications as a wealth of literature has documented the importance of self-control on psychological and social well-being. The current results would suggest that importance should be placed on implicit strategies to aid in replenishing resources in the face of cognitive depletion.

Overall, the results have important implications for interventions that individuals could easily institute to attenuate effects of depletion in their day-to-day lives. Specifically, something as effortless as having pictures of one's romantic partner at one`s desk at a workplace could prove to be a simple helpful strategy on stressful days. With self-control being important in all aspects of life, including academic, work, leisure activities, personal relationships, and parenting, it is imperative that research continue to uncover methods that are effective in counteracting the negative effects associated with cognitive depletion. In conclusion, the present research contributes to a growing body of research examining the factors that attenuate cognitive depletion. Specifically, I found that our close relationships can indeed provide a bolstering effect, with the unique finding that not only intentional thoughts about close others but even subtle more implicit reminders can have a positive impact on the self.

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Table 1

Correlations between Study 1 Measures

Measures	1	2	3	4	5	6	7	8	9
1.IOS		.51**	.46**	.06	.03	-.09	.05	.-06	-.56**
2.RAS			.54*	-.07	-.00	.08	.11	-.09	-.24*
3. SEQ				.11	.01	.02	.04	-.10	-.22**
4.SES					.25*	.13	-.11	.13	-.11
5.BIS						.21	-.19*	.03	-.12
6. BAS							-.24**	-.04	-.04
7. Pos.Affect								.11	.05
8.Neg.Affect									-.09
9. Stroop									

Note. * $p < .05$, ** $p < .01$. IOS refers to Inclusion of Other in Self, RAS refers to Relationship Satisfaction, SEQ refers to Self Expansion questionnaire, SES refers to Self-Esteem Scale, BIS refers to the Behavioural Inhibition Scale, BAS refers to the Behavioural Activation Scale, Pos.Affect refers to positive affect, Neg. Affect refers to negative affect

Table 2

Means and Standard Deviations for Study 1 Measures

	M	*SD*
Inclusion of other in Self	5.51	1.52
Relationship Satisfaction	5.04	.89
Self-expansion	5.29	1.02
Self-esteem	2.74	.14
Behavioural Inhibition	1.91	.52
Behavioural Activation	2.07	.40
Positive Affect	2.84	.14
Negative Affect	4.11	1.52
Stroop Task	890	215.55

Note. Rating scale for each of the scales are as follows: Inclusion of Other in Self (1-7), Relationship Satisfaction (1-5), Self Expansion (1-7), Self-Esteem Scale (1-4), Behavioural Inhibition Scale and Behavioural Activation Scale (1-4), positive affect and negative affect (1-6).

Table 3

Study 1: Means and Standard Deviations for Measures across Depletion (Regulated Writing) Conditions

	Explicit		Subtle		Neutral	
	M	*SD*	*M*	*SD*	*M*	*SD*
Inclusion of other in Self	6.52_a	.64	6.59_a	.63	3.61_b	1.09
Relationship Satisfaction	6.31	.38	6.18	.91	5.48	1.18
Self-expansion	5.54_a	.58	5.64_a	.65	4.81_b	1.38
Self-esteem	2.75	.11	2.72	.12	2.71	.17
Behavioural Inhibition	1.94	.53	1.85	.44	1.80	.53
Behavioural Activation	2.11	.45	2.01	.31	2.03	.37
Positive Affect	2.70	.78	3.07	.72	2.92	.83
Negative Affect	1.54	.48	1.58	.65	1.55	.59

Subscripts indicate significant differences between conditions.

Table 4

Study 1: Means and Standard Deviations for Stroop Task across Control and Depletion Conditions

	Control						Depletion					
	Explicit		Subtle		Neutral		Explicit		Subtle		Neutral	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Average reaction times for incongruent colour trials (ms)	793	146	797	129	832	146	789	146	788	122	1062	218

Note. No significant differences between explicit ($p = .36$) and subtle prime ($p = .41$) compared to neutral prime in the control condition. Explicit and subtle prime also did not significantly differ compared to the neutral condition ($p = .92$) in the control condition. In the depletion condition, both explicit ($p < .001$) and subtle ($p < .001$) significantly differed from the neutral condition.

Table 5

Study 1: Means and Standard Deviations for Measures across Control (Free Writing) Conditions

	Explicit		Subtle		Neutral	
	M	*SD*	*M*	*SD*	*M*	*SD*
Inclusion of other in Self	6.08	1.02	5.92	1.34	5.40	1.10
Relationship Satisfaction	6.31	.34	6.21	.78	6.13	.82
Self-expansion	5.30	.89	5.30	1.13	5.60	.55
Self-esteem	2.78	.41	2.74	.16	2.76	.13
Behavioural Inhibition	1.94	.32	2.20	.50	2.01	.38
Behavioural Activation	1.99	.34	2.20	.50	2.14	.38
Positive Affect	2.73	.71	2.77	.75	2.73	.85
Negative Affect	1.37	6.11	1.56	.40	1.47	.43

No significant differences found between conditions.

Table 6

Correlations between Study 2 Measures

Measures	1	2	3	4	5	6	7	8	*9*	*10*
1.IOS		.36**	.21*	.00	-.07	-.07	.13	.03	-.01	-.43*
2.RAS			.41**	.09	.01	.10	.13	-.11	-.01	.36**
3. SEQ				.12	.03	.05	.21*	-.11	.02	.21*
4.SES					.25**	.12	-.12	.09	-.07	-.21*
5.BIS						.78**	.19*	-.10	.16*	-.16*
6. BAS							-.09	-.07	-.07	-.03
7. Pos.Affect								.28**	.06	.04
8. Neg.Affect									.01	.03
9. RS										.13
10. Stroop										

Note. * $p < .05$, ** $p < .01$. IOS refers to Inclusion of Other in Self, RAS refers to Relationship Satisfaction, SEQ refers to Self Expansion questionnaire, SES refers to Self-Esteem Scale, BIS refers to the Behavioural Inhibition Scale, BAS refers to the Behavioural Activation Scale, Pos.Affect refers to positive affect, Neg. Affect refers to negative affect, RS refers to Restraint Scale.

Table 7

Means and Standard Deviations for Study 2 Measures

	M	*SD*
Inclusion of other in Self	5.65	1.30
Relationship Satisfaction	6.02	.90
Self-expansion	5.28	1.02
Self-esteem	2.73	.15
Behavioural Inhibition	1.90	.51
Behavioural Activation	2.07	.39
Positive Affect	2.99	.87
Negative Affect	1.52	.54
Eating Restraint	5.48	1.08
Stroop Task	877.95	202.85

Note. Rating scale for each of the scales are as follows: Inclusion of Other in Self (1-7), Relationship Satisfaction (1-5), Self Expansion (1-7), Self-Esteem Scale (1-4), Behavioural Inhibition Scale and Behavioural Activation Scale (1-4), positive affect and negative affect (1-6), Restraint Scale (1-5).

Table 8

Study 2: Means and Standard Deviations for Healthy Eating Dependent Measure

	Dating partner		Close Other		Acquaintance	
	M	*SD*	*M*	*SD*	*M*	*SD*
Mean number of cookies consumed	2.77	1.16	2.72	1.26	2.66	1.15
Mean number of raisins consumed	9.06	2.49	9.12	2.67	9.23	2.80

No significant differences were found between conditions.

Table 9

Study 2: Means and Standard Deviations for all Measures across Prime Conditions

	Dating partner		Close other		Acquaintance	
	M	*SD*	*M*	*SD*	*M*	*SD*
Inclusion of Other in Self	6.28_a	.88	6.26_a	1.08	4.63_b	1.11
Relationship Satisfaction	6.32_a	.37	6.18_a	.85	5.65_b	1.10
Self-expansion	5.45	.75	5.43	.92	5.04	1.23
Self-esteem	2.76	.13	2.73	.14	2.70	.15
Behavioural Inhibition	1.94	.44	1.96	.57	1.81	.50
Behavioural Activation	2.04	.41	2.11	.42	2.07	.40
Positive affect	2.84	.91	3.10	.85	3.02	.87
Negative Affect	1.47	.52	1.57	.54	1.52	.54

Subscripts indicate significant differences between conditions.

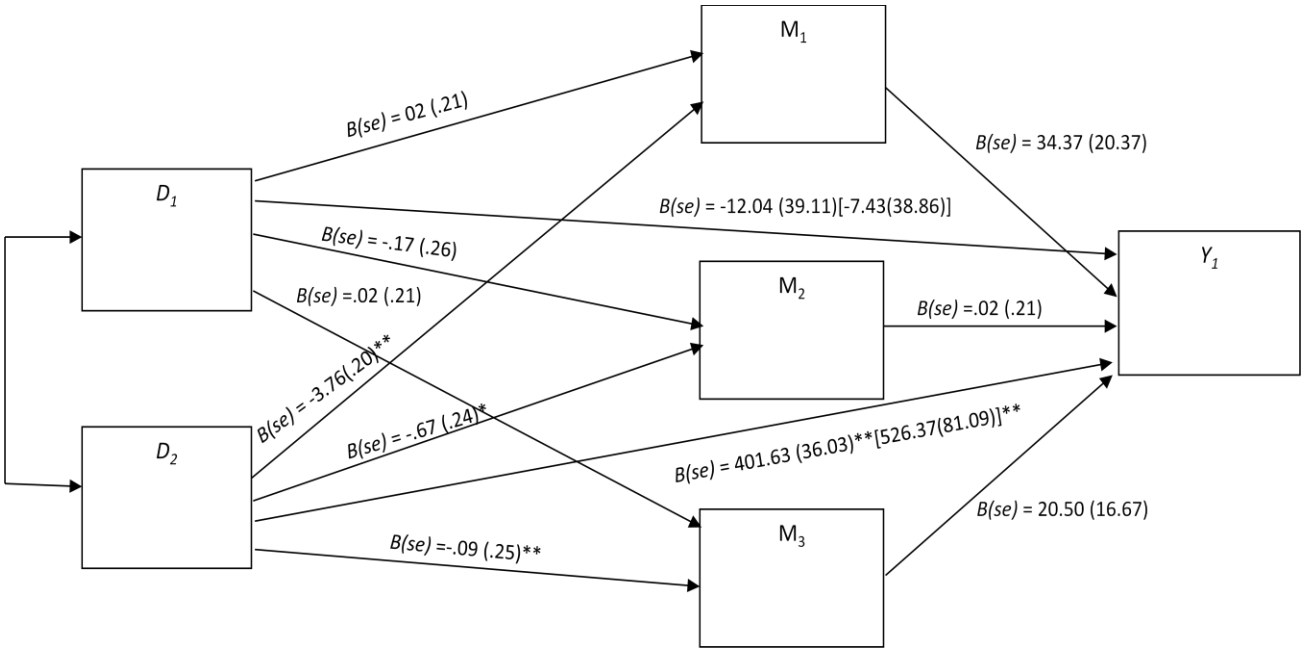


Figure 1. Depletion mediation model of prime condition (D_1, explicit vs. subtle vs. D_2, explicit vs. neutral) on self-control performance (Y_1) through inclusion of other in self (M_1), relationship satisfaction (M_2), and self expansion (M_3). Diagram adapted from Hayes and Preacher (2014).

Note. * $p < .05$, ** $p < .01$

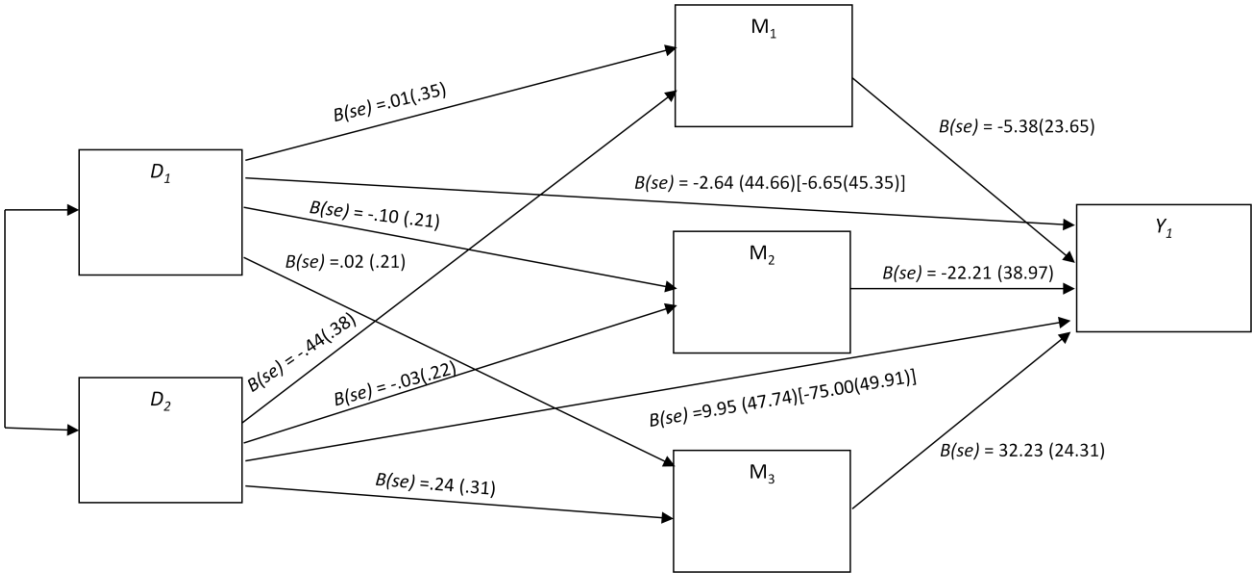


Figure 2. Control mediation model of prime condition (D_1, explicit vs. subtle vs. D_2, explicit vs. neutral) on self-control performance (Y_1) through inclusion of other in self (M_1), relationship satisfaction (M_2), and self expansion (M_3). Diagram adapted from Hayes and Preacher (2014).

Note. * $p < .05$, ** $p < .01$

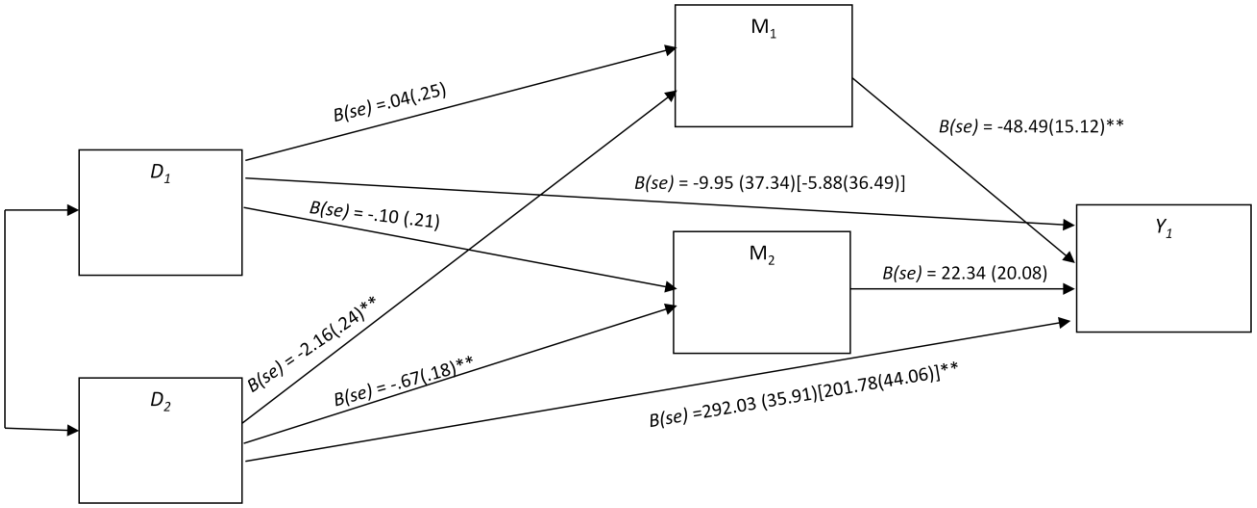


Figure 3. Mediation model of prime condition (D_1, dating partner vs. close other vs. D_2, dating partner vs. acquaintance) on self-control performance (Y_1) through inclusion of other in self (M_1) and relationship satisfaction (M_2). Diagram adapted from Hayes and Preacher (2014).

Note. * $p < .05$, ** $p < .01$

Appendix A

Regulated Writing Instructions: Please write a brief description of a trip that you most recently took. This can be a trip to the mall, another city, or another country thus, it can be anywhere. However please refrain from using the letter “n” in any word throughout your entire story.

Free Writing Instructions: Please write a brief description of a trip that you most recently took. This can be a trip to the mall, another city, or another country thus, it can be anywhere.

Appendix B

Dating partner Explicit Prime Manipulation Instructions

Written Instructions:

Please reflect on your current dating partner and complete the following questions.

What does your relationship personally mean to you?

_____

_____

_____

_____

Why is this relationship so important and special to you personally?

_____

_____

_____

_____

What are the most wonderful aspects of the relationship for you?

_____

_____

_____

How does the relationship make you feel?

_____

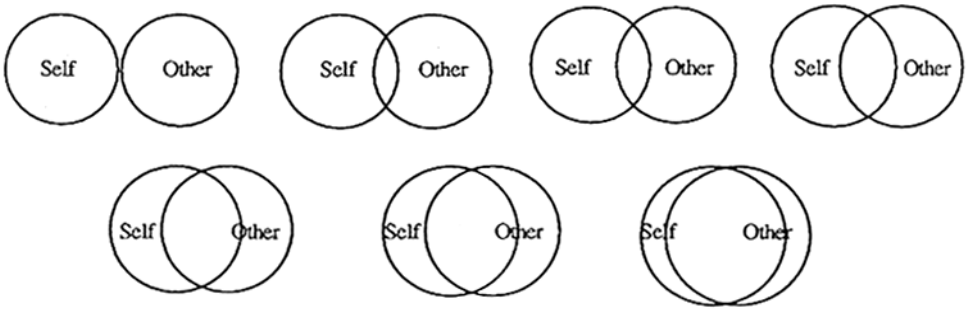
_____

_____

Appendix C

Inclusion of Other in Self (IOS: Aron et al., 1992)

Please circle the picture below which best describes your relationship



Appendix D

The Self-Expansion Scale (SEQ; Lewandowski & Aron, 2002)

These questions ask about your experience in a particular interpersonal relationship. Please answer these questions according to your experience in your current romantic relationship. Answer each question according to the way you personally feel, using the following scale. Please place your answer in the space next to each item.

1	2	3	4	5	6	7
Not Very Much						Very Much

_____ 1. How much does being with this person result in your having new experiences?

_____ 2. When you are with this person, do you feel a greater awareness of things because of him or her?

_____ 3. How much does this person increase your ability to accomplish new things?

_____ 4. How much does being with this person make you more appealing to potential future mates?

_____ 5. How much does this person help to expand your sense of the kind of person you are?

_____ 6. How much do you see this person as a way to expand your own capabilities?

_____ 7. Do you often learn new things about this person?

_____ 8. How much does this person provide a source of exciting experiences?

_____ 9. How much do this person's strengths as a person (skills, abilities, etc.) compensate for some of your own weaknesses as a person?

_____ 10. How much do you feel that you have a larger perspective on things because of this person?

_____ 11. How much has being with this person resulted in your learning new things?

_____ 12. How much has knowing this person made you a better person?

_____ 13. How much does being with this person increase the respect other people have for you?

_____ 14. How much does this person increase your knowledge?

Appendix E

The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965)

Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **SA**. If you agree with the statement, circle **A**. If you disagree, circle **D**. If you strongly disagree, circle **SD**.

1. On the whole, I am satisfied with myself.	SA	A	D	SD
2. At times, I think I am no good at all.	SA	A	D	SD
3. I feel that I have a number of good qualities.	SA	A	D	SD
4. I am able to do things as well as most other people.	SA	A	D	SD
5. I feel I do not have much to be proud of.	SA	A	D	SD
6. I certainly feel useless at times.	SA	A	D	SD
7. I feel that I'm a person of worth, at least on an equal plane with others	SA	A	D	SD
8. I wish I could have more respect for myself.	SA	A	D	SD
9. All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10. I take a positive attitude toward myself.	SA	A	D	SD

Appendix F

The Relationship Assessment Scale (RAS; Hendrick 1988)

Thinking about the relationship you have with your dating partner answer the following questions by circling the number between 1 and 7 that best describes your feelings and impressions.

1. How well does your partner meet your needs?	1 2 3 4 5 6 7 Not well Very well
2. In general, how satisfied are you with your relationship?	1 2 3 4 5 6 7 Not satisfied Very satisfied
3. How good is your relationship compared to most?	1 2 3 4 5 6 7 Not good Very good
4. How often do you wish you hadn't gotten into this relationship?	1 2 3 4 5 6 7 Not often Very often
5. To what extent has your relationship met your original expectations?	1 2 3 4 5 6 7 Not met Very met
6. How much do you love your partner?	1 2 3 4 5 6 7 Not much Very much
7. How many problems are there in your relationship?	1 2 3 4 5 6 7 Not many Very many

Appendix G

The Positive and Negative Affect Schedule (PANAS; Watson D, Clark LA, Tellegen, 1988)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the present moment. Use the following scale to record your answers.

1	2	3	4	5	6
very slightly	a little	moderately	quite a bit	extremely	or not at all

_____	interested	_____	irritable
_____	distressed	_____	alert
_____	excited	_____	ashamed
_____	upset	_____	nervous
_____	strong	_____	determined
_____	guilty	_____	attentive
_____	scared	_____	jittery
_____	hostile	_____	active
_____	enthusiastic	_____	afraid
_____	proud		

Appendix G

BIS/BAS Scales (Carver & White, 1994)

Directions: Below is a series of statements that people might use to describe how they generally feel. Read each statement and decide whether it reflects your thoughts, with

1=strongly agree and 4=strongly disagree.

Strongly Agree	Strongly Disagree
1	4

_____1. If I think something unpleasant is going to happen I usually get pretty "worked up"

_____ 2. I worry about making mistakes

_____ 3. Criticism or scolding hurts me quite a bit

_____ 4. I feel pretty worried or upset when I think I know someone is angry at me

_____ 5. Even if something bad is about to happen to me, I rarely experience fear or nervousness

_____ 6. I feel worried when I think I have done poorly at something

_____ 7. I have very few fears compared to my friends

_____ 8. When I get something I want, I feel excited and energized

_____ 9. When I'm doing well at something, I love to keep at it

_____ 10. When good things happen to me, it affects me strongly

_____ 11. It would excite me to win a contest

_____ 12. When I see an opportunity for something I like, I get excited right away

_____ 13. When I want something, I usually go all-out to get it

_____ 14. I go out of my way to get things I want

_____ 15. If I see a chance to get something I want, I move on it right away

_____ 16 .When I go after something I use a "no holds barred" approach

_____ 17. I will often do things for no other reason than that they might be fun

_____ 18. I crave excitement and new sensations

_____ 19. I'm always willing to try something new if I think it will be fun

_____ 20. I often act on the spur of the moment

Appendix H

The Restraint Scale (Herman & Polivy, 1975)

The following questions refer to your normal eating pattern and weight fluctuations. This does not include pregnancy and illness. Please answer accordingly. Circle the best answer for each question.

1. How often are you dieting?

   Never Rarely Sometimes Usually Always

2. What is the maximum amount of weight (in pounds) you have ever lost in one month?

   0-4 5-9 10-14 15-19 20+

3. What is your maximum weight gain (in pounds) within a week?

   0-1 1.1-2 2.1-3 3.1-5 5+

4. In a typical week, how much does your weight fluctuate?

   0-1 1.1-2 2.1-3 3.1-5 5+

5. Would a weight fluctuation of 5 pounds affect the way you live your life?

   Not at all Slightly Moderately Very Much

6. Do you eat sensibly in front of others and splurge alone?

   Never Rarely Often Always

7. Do you give too much time and thought to food?

   Never Rarely Often Always

8. Do you have feelings of guilt after overeating?

   Never Rarely Often Always

9. How conscious are you of what you are eating?

   Not at all Slightly Moderately Very Much

10. How many pounds over your desired weight were you at your maximum weight?

    0-1 1-5 6-10 11-20 21+

Appendix I

Study 1-Recruitment Statement

Principal Investigator: Simmi Mann, PhD Candidate
P402 Duff Roblin
Ummann4@cc.umanitoba.ca
Research Supervisor: Dr. Marian Morry, Associate Professor
474-7840; Marian_Morry@UManitoba.ca

Brief Abstract: Examining how problem solving strategies are associated with facial relatedness between dating relationship partners. You will be asked for your dating partner's email so that they can receive the description below prior to the experimental session.

Detailed Description: You will be asked to complete a writing task which will ask you to describe a short trip that you took this summer. Additionally, you will be asked to complete a a task to assess problem solving strategies. You will also be asked to supply a picture of you and your partner (which will be destroyed at the end of your experimental session). The researcher, Simmi Mann, will contact you for your dating partner's email address to obtain his/her permission to use the photograph. You will rate the pictures on several descriptive attributes, and answer several questionnaires about yourself and your relationship. You will also be asked a number of socio-demographic questions. There are minimal risks associated with this study. This study is being run as part of Simmi Mann's doctoral thesis. ONCE YOU SIGN UP FOR THIS STUDY, YOU WILL RECEIVE AN EMAIL ASKING FOR YOUR DATING PARTNER'S EMAIL ADDRESS SO THAT WE CAN SEND THEM A DESCRIPTION OF THIS STUDY AND ASK FOR THEIR PERMISSION TO USE THEIR PICTURE FOR THE EXPERIMENTAL SESSION ONLY. THEY MUST CONSENT TO SUPPLYING THE PICTURE PRIOR TO THE EXPERIMENTAL SESSION.

Eligibility Requirements: Must be in your current dating relationship for AT LEAST 6 MONTHS.
Pretest Restrictions: None
Duration: 60 minutes
Credits: 2 credits

Appendix J

Study 1- Email address request (to Psychology Student)

RE: Psychology Study – Facial relatedness and problem solving strategies

Thank you for signing up for the study. As indicated on the signup system, we need your dating partner's email address so that we can ask for their permission to use his or her picture in the experimental session. Additionally we will provide them with a description of the study prior to attending the experimental session. Please respond to this email or contact [EXPERIMENTOR NAME AND EMAIL] with your dating partner's email address. If you do not provide your dating partner's email address at the latest 24 hours prior to the start of your session, your session will be cancelled and you will not receive any research credit for this study.

Appendix K

Study 1- Email to Dating Partner

RE: Psychology Study

Your dating partner has signed up for a study requiring that your partner bring in 2 pictures, one of themselves and one of you. I am sending this email to ask you for your permission to use the photograph. You partner will be asked to rate the photograph on a few attributes, such as the date the picture was taken and whether or not this is a typical picture of you. Your name and your partner's name will not be associated with the picture. Additionally, immediately after the experimental session is finished (approximately 60 minutes) the photographs will be deleted and/or destroyed.

Below is a description of the study. If you do not consent to your partner using your picture to participate in this study please respond to this email or contact [EXPERIMENTOR NAME AND EMAIL] and we will remove you and your partner from our study. There will be no penalty to your partner's research credits as long as we are notified 24 hours prior to the session.

Principal Investigator: Simmi Mann, PhD Candidate

P402 Duff Roblin

Ummann4@cc.umanitoba.ca

Research Supervisor: Dr. Marian Morry, Associate Professor

474-7840; Marian_Morry@UManitoba.ca

Brief Abstract: Examining how problem solving strategies are associated with facial relatedness between dating relationship partners. You will be asked for your dating partner's email so that they can receive the description below prior to the experimental session.

Detailed Description: You will be asked to complete a writing task which will ask you to describe a short trip that you took this summer. Additionally, you will be asked to complete a puzzle to assess problem solving strategies. You will also be asked to supply a picture of you and your partner (which will be destroyed at the end of your experimental session). The researcher, Simmi Mann, will contact you for your dating partner's email address to obtain his/her permission to use the photograph. You will rate the pictures on several descriptive attributes, and answer several questionnaires about yourself and your relationship. You will also be asked a number of socio-demographic questions. There are minimal risks associated with this study. This study is being run as part of Simmi Mann's doctoral thesis. ONCE YOU SIGN UP FOR THIS STUDY, YOU WILL RECEIVE AN EMAIL ASKING FOR YOUR DATING PARTNER'S EMAIL ADDRESS SO THAT WE CAN SEND THEM A DESCRIPTION OF

THIS STUDY AND ASK FOR THEIR PERMISSION TO USE THEIR PICTURE FOR THE EXPERIMENTAL SESSION ONLY. THEY MUST CONSENT TO SUPPLYING THE PICTURE PRIOR TO THE EXPERIMENTAL SESSION.

Eligibility Requirements: Must be in your current dating relationship for AT LEAST 6 MONTHS.

Pretest Restrictions: None

Duration: 60 minutes

Credits: 2 credits

Appendix L

Study 1 - Feedback

At this time there are a few additional things I would like to explain to you. At the beginning of the study you were told that this was a study to learn about how facial relatedness between partners is related to various problem solving strategies.

To measure facial relatedness you were asked to email in a picture of both your partner and yourself and subsequently in the lab you were asked to rate the picture on a number of attributes. In reality I was not interested in facial relatedness but rather in giving you a reminder of your partner, via the picture and rating scale. I am interested in examining how subtle and explicit reminder of one's dating partner can influence state levels of self-control. More specifically, I hypothesize that subtle and explicit reminder of one's partner should cause increases in self-control performance.

Self- control refers to the capacity to override and alter desired responses. It is the process by which people attempt to control unwanted urges to gain control of the initial response. Regulating the self requires a central psychological resource, called *self-regulatory strength*, which refers to the internal resources available to inhibit, override or alter responses. This strength is limited and varies as a function of will-power, stress, and exhaustion. Your levels of self-control were manipulated through participation in the writing task. You were given either a regulated task where you were to write your story without the use of the letter "n", or you were simply asked to write your story. Inhibiting the use of the letter n has been shown to tax cognitive resources and cause cognitive depletion. It may comfort you to know that research has found many ways in which taxed resources can be replenished such as, increased glucose consumption (i.e chocolate or candy), sleep, happy music, and meditation to name a few.

The ability to self-regulate holds an important key to maintaining social relationships. For example, a husband's inability to refrain from drinking could hurt his marital relations; a mother's failure to stop shopping could lead to financial devastation. Thus, self-control has strong implications for the functioning of close relationships. The subtle prime, just seeing the photo of your partner, would be similar to having a picture on your desk at work. The explicit prime, writing about your partner and relationship, would be similar to you thinking about or day-dreaming about your partner.

I am interested in examining how romantic relationship partners can provide a resource potential against cognitive depletion as relationships have been shown to have numerous buffering effects. In the current study, I used either a subtle, explicit, or neutral picture prime to test my hypothesis. If you were assigned to the subtle prime, you were simply asked to rate the picture of your partner on physical attributes. If you were in the neutral prime, no mention of the picture was made, and finally if you were in the explicit prime, you rated the picture and also reflected on the importance of your relationship.

Finally, to test self-control levels you were asked to complete a difficult puzzle task. This task been shown to be exceedingly difficult and the amount of time you persisted on the task was the measure for self- regulatory strength. It was hypothesized that those who were cognitive depleted would persist for less time unless they received the explicit or subtle partner prime, in comparison to those who received the neutral prime.

Once again, thank you for participating in our study. **Please do not discuss this experiment with other students who might participate**. The results of the study will be posted outside room P259 or by email, if you indicated this option on your consent form, in April 2012.

Questions about this study can be directed to the principle investigator, PhD candidate Simmi Mann in room P402 Duff Roblin, ummann4@cc.umanitoba.ca or the research supervisor, Dr. Morry at 474- 7840 or in Room P508 Duff Roblin, or at marian_morry@umanitoba.ca. This Study, is Study 1 in a series of research being conducted by Simmi Mann for her doctoral thesis. Complaints may be reported to the Human Ethics Secretariat at 474-7122.

Thank you for participating in this study. You may now download or print off this feedback sheet and the attached informed consent for your records.

If you experience any emotional distress from the tasks associated with this study, please contact one of the following sources:

Student Counseling and Career Centre: 474-8592

Klinic Community Health Centre: 784-4090

Appendix M

Study 1- Informed Consent Form

Principle Researcher: Simmi Mann, PhD Candidate
Department of Psychology, P402 Duff Roblin, ummann4@cc.umanitoba.ca
Research Supervisor: Dr. Marian Morry, Associate Professor
Department of Psychology, P508 Duff Roblin, 474-7840,
marian_morry@umanitoba.ca.

This consent form is only part of the process of informed consent. It should give you a good sense of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this consent form carefully and to understand any accompanying information.

I agree to participate in the experiment "Facial relatedness and problem solving strategies" which is being conducted by Simmi Mann as Study 1 of her PhD dissertation and has been approved by the Psychology/Sociology Research Ethics Board at the University of Manitoba. I have been told that this study examines how facial relatedness through photographs between partners can be associated to various problem solving strategies. I understand that I will complete several measures about myself and my relationship. Additionally, I will complete a short writing task where I will be asked to write about a small trip. Also, to assess problem solving, I will complete a puzzle solving task where I will connect the dots. This study will require me to complete measures on both paper and pencil and on the computer. I understand there are minimal risks associated with this study. I understand that the experimental session will last approximately 60 minutes and that I will receive 2 experimental credits toward my Introductory Psychology research participation requirement.

I also understand that all information obtained will be kept confidential. I have been informed that my name and student number will **NOT** be associated in any way with my responses. I also have been informed that the pictures I have supplied will be destroyed upon completion of the experimental session. Finally, I understand that participation in this study is voluntary and that I can refuse to answer any question or withdraw my consent at any time without penalty or loss of my experimental credit.

I can receive the results of this study in April 2012 outside room P259 Duff Roblin or by email Any questions I have about this study can be directed to Simmi Mann in room P402 Duff Roblin or Dr. Morry at 474-7840 or in P508 Duff Roblin. Any complaints I have may be reported to the Human Ethics Secretariat at 474-7122 or margaret_bowman@umanitoba.ca. I understand a copy of this consent form with the room and phone numbers will be given to me at the end of the study today. As per the American Psychological Association, the data collected will be kept in P519 in the Duff Roblin Building which will be kept locked and all data will be shredded or destroyed in August 2016 at the latest. Only Simmi Mann and her advisor, Maian Morry, will have access to this data.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without

prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation. The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management / Assurance office may also require access to your research records for safety and quality assurance purposes.

This research has been approved by the Psychology/Sociology Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above named persons or the Human Ethics Coordinator (HEC) at 474-7122. A copy of this consent form has been given to you to keep for your records and reference**.**

I, _____, have read the above information and hereby consent to participate in this study.

Signature: _____ Student Number: _____

Date: _____ Witness (Researcher):_____

I would like to receive the results of this study by email or surface mail? _____ YES _____ NO

Email or surface mailing address:

_____

Appendix N

Study 1- In Lab Experimental Script

[Load up the consent form and have it active on the screen prior to participants arriving. Make sure to have the loaded the surveys (via Qualtric) and photograph on the computer screen before the participant arrives. Have the Stroop task loaded with the participant number, enter the same number into Qualtric]. Once participants are seated continue as follows.

Experimenter says:
The purpose of this study is to examine how facial relatedness between you and your partner is associated with the types of problem solving strategies that you use. That is, I am studying how certain features can be related to your responses on a number of tasks. To examine the different types of strategies you use, I will ask you to write a short description of a trip you recently took, then you will be asked to rate one of the pictures that you had emailed in earlier on a few attributes, then you will complete a task on the computer and a few additional measures that will assess beliefs about yourself and your relationship. Are there any questions so far?

This study will take approximately 50 minutes, so you will receive 2 credits toward your introductory psychology research requirement. I also want you to know that you can either consent to this procedure or refuse to participate without loss of your experimental credit. You also have the right to stop participating at any time without penalty. Please read and fill out the consent form that is in front of you on the computer screen.

Experimenter says:
Your first task if to write a short story about a trip you took this past summer/spring. It can be a local trip somewhere near or a trip abroad. The specific instructions are on the paper, if you have any questions please let me know and I will answer them. You have 15 minutes to complete the task. If you finish sooner, just open the door.

[When participant opens the door, enter and collect the paper. Make the loaded picture of their partner visible on the computer screen and give them the rating sheet]

Experimenter says:
Your second task is to rate the picture that you supplied on a number of aspects. The instructions are on the rating sheet. Just examine the picture and answer the questions to the best of your ability. If you have any questions please come get me, otherwise just open the door when you are finished.

[When the participant opens the door, open the stroop task on the computer]

Experimenter says:
The next task will involve solving the following colour naming identification task. Specifically, you will have to correctly identify the colour of the word written on the computer screen. The

instructions will appear on the screen in a moment. And you are to use the keys with the colour stickers on them [Point out keys to participant]. If you have any questions please open the door and ask me at anytime.

[Note the time it takes the participant to finish the task with the stopwatch provided, write the time down on the puzzle sheet. Subsequently, pull up the screen with the surveys online on the computer]

Experimenter says:
Now for the final portion of the study you will complete several short questionnaires on the computer. When you complete one survey it will prompt the next one to appear. Keep in mind there are no right or wrong answers. When you are finished just open the door.

[When participant is finished, hand out and read the feedback sheet].

Appendix O

Study 2- Recruitment Statement

Principal Student Investigator: Simmi Mann, PhD Candidate
P402 Duff Roblin
Ummann4@cc.umanitoba.ca
Research Supervisor: Dr. Marian Morry, Associate Professor
474-7840; Marian_Morry@UManitoba.ca

Brief Abstract: This study examines the relationship between certain word associations and problem solving strategies for individuals in romantic relationships.

Detailed Description: 48 hours prior to the study you will be asked to email 20 words that describe your partner or close other. Also, you will be asked not to consume any food 3 hours prior to the study as it has been found that food intake can sometimes interfere with certaint types of problem solving initiatives. In the session itself, you will be asked to complete a writing task which will ask you to describe a short trip that you took this summer. Additionally you will be asked to complete a colour task to assess problem solving strategies and a short word memory task on the computer. You will also be asked a number of socio-demographic questions. There are minimal risks associated with this study. This study is being run as part of Simmi Mann's doctoral thesis.

Eligibility Requirements: Must be in your current dating relationship for AT LEAST 6 MONTHS.
Pretest Restrictions: None
Duration: 60 minutes
Credits: 2 credits

Appendix P

Study 2 – Email to participants for dating partner, close other and acquaintance conditions

Word list request (to Psychology Student)-Dating Partner Condition

RE: Psychology Study – Word associations and problem solving strategies in romantic relationships

Thank you for signing up for the study "Word associations and problem solving strategies in romantic relationships". As indicated on the signup system, we need you to send us a list of 20 words that best describe your dating partner (i.e., caring, musical, athletic, and sensitive). A good way to do this is to mentally picture your partner and then just write down the words that come to your mind first. If you do not provide this list of descriptors of your dating partner at the latest 24 hours prior to the start of your session, your session will be cancelled and you will not receive any research credit for this study. Also, as recent food intake has been found to interfere with certain types of problem solving strategies please refrain from eating 3 hours prior to the experiment.

Word list request (to Psychology Student)-Close Other Condition

RE: Psychology Study – Word associations and problem solving strategies in romantic relationships

Thank you for signing up for the study "Word associations and problem solving strategies in romantic relationships". As indicated on the signup system, we need you to send us a list of 20 words that best describe a close other in your life (i.e., caring, musical, athletic, and sensitive). This can be a sibling, parent, friend etc. However it cannot be your dating partner. A good way to do this is to mentally picture your close other and then just write down the words that come to your mind first. If you do not provide this list of descriptors of your dating partner at the latest 24 hours prior to the start of your session, your session will be cancelled and you will not receive any research credit for this study. Also, as recent food intake has been found to interfere with certain types of problem solving strategies please refrain from eating 3 hours prior to the experiment.

Word list request (to Psychology Student)-Stranger Condition

RE: Psychology Study – Word associations and problem solving strategies in romantic relationships

Thank you for signing up for the study "Word associations and problem solving strategies in romantic relationships". Recent food intake has been found to interfere with certain types of strategies so we ask that you please refrain from eating 3 hours prior to the experiment.

Appendix Q

Study 2 – Feedback

At this time there are a few additional things I would like to explain to you. At the beginning of the study you were told that this was a study to learn about how different word associations can influence various types of problem solving strategies utilized..

To measure word associations you were asked to email in a list of words that best described either your partner or another close other in your life. In reality I was interested in giving you a reminder of your partner, via the "memory task", where you were exposed to the very words you had supplied us with. I am interested in examining how subtle and explicit reminder of one's dating partner and close other can influence state levels of self-control. More specifically, I hypothesize that subtle and explicit reminder of one's partner or a close other should cause increases in self-control performance.

Self- control refers to the capacity to override and alter desired responses. It is the process by which people attempt to control unwanted urges to gain control of the initial response. Regulating the self requires a central psychological resource, called *self-regulatory strength*, which refers to the internal resources available to inhibit, override or alter responses. This strength is limited and varies as a function of will-power, stress, and exhaustion. Your levels of self-control were manipulated through participation in the writing task. You were given either a regulated task where you were to write your story without the use of the letter "n", or you were simply asked to write your story. Inhibiting the use of the letter n has been shown to tax cognitive resources and cause cognitive depletion. It may comfort you to know that research has found many ways in which taxed resources can be replenished such as, increased glucose consumption (i.e chocolate or candy), sleep, happy music, and meditation to name a few.

The ability to self-regulate holds an important key to maintaining social relationships. For example, a husband's inability to refrain from drinking could hurt his marital relations; a mother's failure to stop shopping could lead to financial devastation. Thus, self-control has strong implications for the functioning of close relationships.

I am interested in examining how romantic relationship partners can provide a resource potential against cognitive depletion as relationships have been shown to have numerous buffering effects. In the current study, you were either primed with the descriptive words of your partner or close other. If you were in the stranger condition, you were exposed to a random assortment of words that didn't describe anyone in particular.

Finally, to test self-control levels you were asked to complete a colour naming task. This task been shown to be exceedingly difficult when resources are taxed and your reaction time (in ms) for correct answers was used as our measure for self- regulatory strength. It was hypothesized that those who were cognitive depleted would persist for less time unless they received the partner or close other prime, in comparison to those who received the stranger prime. Additionally, you will recall that the experimenter left a plate of cookies or carrots in the room and claimed it was from a previous lab party. That was actually a second measure of self-control. Past research has shown that most individuals are more likely to eat more cookies in comparison to a healthy option after a cognitive depletion task. To make this measure more powerful we asked that you not eat 3 hours before the experiment.

Knowing all of this you still have the choice to opt out of the study.

Would you like to do so? _____ YES _____ NO

Once again, thank you for participating in our study. **Please do not discuss this experiment with other students who might participate**. The results of the study will be posted outside room P259 or by email, if you indicated this option on your consent form, in April 2012. Questions about this study can be directed to the principle investigator, PhD candidate Simmi Mann in room P402 Duff Roblin, ummann4@cc.umanitoba.ca or the research supervisor, Dr. Morry at 474- 7840 or in Room P508 Duff Roblin, or at marian_morry@umanitoba.ca. This study, is Study 3 in a series of research being conducted by Simmi Mann for her doctoral thesis. Complaints may be reported to the Human Ethics Secretariat at 474-7122.

Thank you for participating in this study. You may now download or print off this feedback sheet and the attached informed consent for your records.

If you experience any emotional distress or stress from the tasks associated with this study, please contact one of the following sources:

Student counseling and Career Centre: 474-8592

Klinic Community Health Centre: 784-4090

Appendix R

Study 2- Informed Consent Form

Research Project: Word associations and problem solving Strategies
Principle Student Researcher: Simmi Mann, PhD Candidate
Department of Psychology, P402 Duff Roblin, ummann4@cc.umanitoba.ca
Research Supervisor: Dr. Marian Morry, Associate Professor
Department of Psychology, P508 Duff Roblin, 474-7840,
marian_morry@umanitoba.ca.

This consent form is only part of the process of informed consent. It should give you a good sense of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this consent form carefully and to understand any accompanying information.

I agree to participate in the experiment "Word associations and problem solving strategies" which is being conducted by Simmi Mann as Study 3 of her PhD dissertation and has been approved by the Psychology/Sociology Research Ethics Board at the University of Manitoba. I have been told that this study examines how word associations that people make can influence problem solving strategies for those in dating relationships. I understand that I will complete several measures about myself and my relationship. Additionally, I will complete a short writing task where I will be asked to write about a small trip. Also, to assess problem solving, I will complete colour naming identification task on the computer as well as a short word memory task also on the computer. This study will require me to complete measures on both paper and pencil and on the computer. I understand there are minimal risks associated with this study. If you experience any emotional distress from the tasks associated with this study, please contact one of the following sources: Student counseling and Career Centre: 474-8592Klinic Community Health Centre: 784-4090

I understand that the experimental session will last approximately 60 minutes and that I will receive 2 experimental credits toward my Introductory Psychology research participation requirement. I also understand that all information obtained will be kept confidential. I have been informed that my name and student number will **NOT** be associated in any way with my responses. Finally, I understand that participation in this study is voluntary and that I can refuse to answer any question or withdraw my consent at any time without penalty or loss of my experimental credit.

I can receive the results of this study in April 2013 outside room P519r Duff Roblin or by email Any questions I have about this study can be directed to Simmi Mann in room P402 Duff Roblin or Dr. Morry at 474-7840 or in P508 Duff Roblin. Any complaints I have may be reported to the Human Ethics Secretariat at 474-7122 or margaret_bowman@umanitoba.ca. I understand a copy of this consent form with the room and phone numbers will be given to me at the end of the study today. As per the American Psychological Association, the data collected will be kept in P519r in the Duff Roblin Building which will be kept locked and all data will be shredded or destroyed in August 2017 at the latest. Only Simmi Mann and her advisor, Marian Morry, will have access to this data.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject.

In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation. The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management / Assurance office may also require access to your research records for safety and quality assurance purposes.

This research has been approved by the Psychology/Sociology Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above named persons or the Human Ethics Coordinator (HEC) at 474-7122. A copy of this consent form has been given to you to keep for your records and reference**.**

I, _____, have read the above information and hereby consent to participate in this study.

Signature: _____ Student Number: _____

Date: _____ Witness (Researcher):_____

I would like to receive the results of this study by email or surface mail? _____ YES _____ NO

Email or surface mailing address:

_____

Appendix S

Study 2- In Lab Experimental Script

[Load up the consent form and have it active on the screen prior to participants arriving. Make sure to have the loaded the surveys (via Qualtric) and the priming program. Enter the same number into Qualtric and have the plate of cookies and raisins ready]. Once participants are seated continue as follows.

Experimenter says:
The purpose of this study is to examine how word associations that people make can influence problem solving strategies. We want to examine these differences for people in romantic relationships. To examine the different types of associations you use, I will ask you to write a short description of a trip you recently took. Then to assess problem solving strategies, you will be asked memorize a short list of words and complete a colour identification task on the computer. Finally you will complete a few additional measures that will assess beliefs about yourself and your relationship. Are there any questions so far?

This study will take approximately 60 minutes, so you will receive 2 credits toward your introductory psychology research requirement. I also want you to know that you can either consent to this procedure or refuse to participate without loss of your experimental credit. You also have the right to stop participating at any time without penalty. Please read and fill out the consent form that is in front of you on the computer screen.

Experimenter says:
Your first task is to write a short story about a trip you took this past summer/spring. It can be a local trip somewhere near or a trip abroad. The specific instructions are on the paper, if you have any questions please let me know and I will answer them. You have 15 minutes to complete the task. If you finish sooner, just open the door.

[When participant opens the door, enter and collect the paper. Make the loaded picture of their partner visible on the computer screen and give them the rating sheet]

Experimenter says:
Your second task is to do your best to keep the following words that will appear on the screen in your memory. Again, when the task is over, open the door.

[When the participant opens the door, open the stroop task on the computer]

Experimenter says:
The next task will involve solving the following colour naming identification task. Specifically, you will have to correctly identify the colour of the word written on the computer screen. The instructions will appear on the screen in a moment. And you are to use the keys with the colour stickers on them [Point out keys to participant]. If you have any questions please open the door and ask me at anytime.

Experimenter says:
Now for the final portion of the study you will complete several short questionnaires on the computer. When you complete one survey it will prompt the next one to appear. Keep in mind there are no right or wrong answers. Also we just finished up a lab party before your session and we had some leftover snacks, just some cookies and raisins. Feel free to have some while you are finishing the last part of the study. When you are finished just open the door.

[When participant is finished, hand out and read the feedback sheet and record the number of cookies and raisins left on the plate].