

**POWER AND REGULATORY FOCUS: AN INTEGRATED FRAMEWORK**

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University of Pittsburgh, 2012

Research indicates that power elicits promotion focus, a motivational tendency towards attaining desired end states, but not prevention focus, a motivational tendency towards avoiding undesired end states (Higgins, 1997; Willis, 2009). Little research has examined the mechanisms behind this relationship. Power also elicits success expectancies (Anderson & Galinsky, 2006) and success expectancies can intensify a promotion focus (van-Dijk & Kluger, 2004). This suggests a mediational role for success expectations in the relationship between power and promotion focus. Five studies tested this prediction. The first study measured power and motivational tendencies. The three following studies manipulated power and then measured success expectancies and motivational tendencies. The final study measured power, success expectancies, and motivational tendencies. Evidence for the relationship between power and promotion focus, and for the mediating role of success expectancies, was obtained only when power was measured. The results indicate that relative levels of prevention and promotion may be more important in the relationship between power and motivation than their absolute levels, and that promotion and prevention focus may have distinct aspects (i.e., they may not be unitary phenomena) that are affected differently by feelings of power. Results also suggest an explanation for the greater goal focus of powerful individuals.

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## 1.0 INTRODUCTION

People once thought that power corrupted (Kipnis, 1972). But recently, opinions about power seem to have improved. Perhaps this is the result of research showing that feeling powerful has many beneficial consequences (Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008; Guinote, 2008; 2010; Rodin & Langer, 1977). In fact, recent research shows that feeling powerless causes more problems than feeling powerful (Ashforth, 1989; Smith, Jostmann, Galinsky, & van Dijk, 2008; Whitson & Galinsky, 2008), especially where goal pursuit is concerned (Galinsky et al., 2008; Guinote, 2010; Willis, Guinote, & Rodríguez-Bailón, 2010). On an intuitive level this makes sense; it's easy to imagine driven individuals finding themselves in positions of power. But where does this drive come from and what sustains it? Doesn't power eventually make people arrogant and lazy? Shouldn't powerless individuals be equally driven to change and improve their circumstances? My research will investigate one reason this may not be the case, and in doing so integrate the recent power literature with a well-known motivational theory, regulatory focus theory (Higgins, 1997). Indeed, the relationship between power and motivation may be more complex than was once thought.

I will begin by reviewing the literature on power. After that, I will move on to the literature on regulatory focus theory. Next, I will discuss differences between powerful and powerless individuals in motivation and goal pursuit and then report the results of several studies designed to investigate the connections between power and regulatory focus. Finally, I will

discuss the implications of this research and suggest some future directions for research on this topic.

## **1.1 POWER**

Power has been studied in many different ways. French and Raven (1959) proposed six separate types of power. These types include reward power, which is based on incentives, coercive power, which is based on punishments, legitimate power, which is based on beliefs about the power hierarchy, referent power, which is based on liking and respect, expert power, which is based on the possession of accurate information, and informational power, which is based on the ability to persuade others (Raven, 1965)<sup>1</sup>. Although this taxonomy is popular and has generated a tremendous amount of research (Bass, 2008), not all of that research has been supportive (Podsakoff & Schriesheim, 1985). For example, factor analyses sometimes fail to support the existence of six types of power (Raven et al., 1998; Yukl & Falbe, 1991).

Emerson (1962) took the study of power in a more social direction. In his social exchange analysis of power, he defined power as a dependency relationship between two or more actors or groups within a social network (not as a property of any one actor or group). According to this analysis, power is manifest when one actor relies on another for resources that cannot be obtained elsewhere. This relationship suggests some predictions about the behavior and outcomes of these actors and the network as a whole. For example, dependent actors in a power imbalanced relationship can deal with that imbalance by either capitulating (e.g., changing something about themselves) or resisting (e.g., withdrawing, or forming a coalition with others who are also dependent). Much research supports this theory (Cook & Emerson, 1978;

Molm,1990; 1991), including some research showing that power relations can be used to predict the use of different types of power (Molm, 1989), and research showing that power can result from successful network navigation (Burt, 1997; 2004).

Other researchers extended the predictions made by this social exchange analysis by formulating a strategic-contingency model of power (Hickson, Hinings, Lee, Schneck, & Pennings, 1971; Pfeffer & Salancik, 1978). This model focuses specifically on subgroups in organizations and examines outcomes at both the subgroup and organizational levels. According to the model, subgroups become powerful by becoming unique providers of important resources, thereby elevating their position in the organization. This process benefits the organization as a whole, because it ensures that the most effective subgroups become the most powerful (Salancik & Pfeffer, 1974; 1977). Unfortunately, methodological problems created by studying idiosyncratic industries (e.g., breweries and universities) with the same paradigm stalled this line of research (Hinings, Hickson, Pennings, & Schneck, 1974; Saunders & Scamell, 1982).

Other research in the organizational context has examined feelings of power in the workplace produced by empowerment programs (Conger & Kanungo, 1988; Thomas & Velthouse, 1990). In this research, empowerment is typically viewed as a combination of *impact* (the effect that a person can have on the environment), *competence* (a person's self-perceived proficiency at an activity), *meaning* (the value that an activity has for the person doing it), and *self-determination* (a person's perceived freedom to do an activity). Individuals who have all of these characteristics, including managers, are more effective workers (Kanter, 1989; Spreitzer, 1995; Spreitzer, De Janasz, & Quinn, 1999).

However, other research has focused on the pernicious effects of power (e.g., Kipnis, 1972). For example, Fiske (1993) thought that powerful people tend to stereotype their

underlings. Why? First, powerful people often have distracting responsibilities that overtax their cognitive resources; using stereotypes frees some of those resources. Second, powerful people are motivated to maintain the status quo because that status quo has placed them in a powerful position. One way to perpetuate existing conditions is to assume that others lack the competence to be anything more than they are (see Jost, Banaji, Nosek, 2004). Ironically, Fiske speculated that powerless people have more accurate impressions of those who have power over them than powerful people do. She argued that the powerful typically control the outcomes of the powerless, so to have any hope of predicting and controlling those outcomes, powerless people need accurate information about the powerful. Although this theory has received some support (Goodwin, Gubin, Fiske, Yzerbyt, 2000; Rodríguez-Bailón, Moya, & Yzerbyt, 2000, see Fiske & Berdahl, 2007 for a review) recent research indicates that powerful people can form accurate (not stereotypical) impressions of the powerless when that knowledge helps powerful people to pursue their goals (Gruenfeld, Inesi, Magee, & Galinsky, 2008; Overbeck & Park, 2001; 2006).

Some recent work on power (Keltner, Gruenfeld, & Anderson, 2003) conceptualizes it as control over others and focuses on the outcomes of that control. Such outcomes include attention to rewards, flexible cognition, and positive emotions (approach tendencies). Conversely, powerlessness is thought to elicit inhibitory tendencies, including attention to threats, rigid cognition, and negative emotions. Much research supports these ideas (see Anderson & Berdahl, 2002; Galinsky, Magee, Inesi, & Gruenfeld, 2006; Guinote, 2007a; 2007b; Lammers, Galinsky, Gordijn, & Otten, 2008; Magee, Galinsky, & Gruenfeld, 2007; Rucker & Galinsky, 2009; Smith & Bargh, 2008; Smith, Jost, & Vijay, 2008; Smith et al., 2008). However, support for the link between powerlessness and inhibitory tendencies is generally weaker than support for the link between powerfulness and approach tendencies (Smith & Bargh, 2008).

Perhaps the most important impact that Keltner et al.'s (2003) analysis has had is the identification of powerful individuals' greater goal focus (Galinsky et al., 2008). Powerful people set and pursue their goals more effectively than do powerless people (Galinsky, Gruenfeld, & Magee, 2003; Galinsky et al., 2008; Guinote, 2007a; 2007b; 2008; 2010; Slabu & Guinote, 2010; Smith & Bargh, 2008; Smith, Jostmann, et al., 2008). Guinote (2010) speculates that goal derailment among powerless people is due to cognitive deficits. Powerful people have a wider range of cognitive processes to choose from and can thus be more selective about what information to process. Access to these cognitive processes and increased selectivity about what information to process assist the powerful in their goal pursuit.

However, Willis et al. (2010) found decreased goal persistence on the part of powerless individuals, which sounds more like a motivational problem. This raises two important questions. First, is the difference in goal focus between the powerful and the powerless entirely cognitive, or does it also have a purely motivational component? In addition to having greater cognitive ability, perhaps the powerful have stronger motivation, as well. Second, why do the powerful have greater motivation? Shouldn't satisfaction and complacency come along with power? I will offer answers to these questions. However, before they can be answered, background information on several relevant topics must be considered.

## **1.2 POWER AND MOTIVATION**

The finding that powerful people are more motivated to pursue their goals is not surprising, given their feelings of control, (Fast, Gruenfeld, Sivanathan, & Galinsky, 2009), greater attention to rewards (Keltner et al., 2003), and increased approach motivation (Smith &



Bargh, 2008). Anyone with these characteristics would be highly motivated. But it seems like powerless people should also be motivated, if only to change their powerless state. Research indicates that people do find this state aversive (Kay, Whitson, Gaucher, & Galinsky, 2009; Keltner et al., 2003; Langer & Keltner, 2008; Whitson & Galinsky, 2008). Does any research show that powerless people are motivated to gain more power?

People often seek information verifying their self views (Swann, Rentfrom, & Guinn, 2003) and individuals' thoughts (as opposed to their feelings) about that information may be especially susceptible to this effect (Moreland & Sweeney, 1984; Shrauger, 1975). However, when individuals suffer cognitive deficits, such as those that come with powerlessness (Guinote, 2010), self-verification effects may not occur (Swann et al., 2003). In line with such reasoning, powerless people often seek more power rather than seeking to confirm their powerlessness (Ashforth; 1989; Bruins & Wilke, 1993, Experiment 1; Winter, 1973; Van Dijke & Poppe, 2006). Furthermore, the desire for control, which is something powerless individuals surely experience, relates positively to influence attempts (Caldwell & Burger, 1997), and potentially antisocial attempts to regain control (Ashforth, 1989). Also, powerless people sometimes attempt to control their environment by seeking out patterns in random information, and they may engage in more superstitious behavior, perhaps to regain some small sense of control (Kay et al., 2009; Whitson & Galinsky, 2008). This desire for control may also lead the powerless to seek accurate information about those who control their outcomes, in the hopes of predicting the behavior of such persons and maybe even influencing them (Fiske, 1993). In other words, powerless people seem to at least have an agenda.

Despite this, most research indicates that a powerless individual's motivation aims only to gain power and does not generalize to ordinary goal pursuit, especially when people think

their powerlessness is legitimate (see Lammers et al., 2008; Willis et al., 2010). Powerless people simply seem to be less proficient at accomplishing their goals. Again, cognitive deficits (Guinote, 2010) provide one explanation for this problem. But recent research on motivation suggests another reason why powerful individuals may pursue their goals in such a committed way and why powerless individuals may be comparatively less committed to getting what they want. To understand why this is the case we must turn our attention to a recent theory of motivation, namely regulatory focus theory.

### **1.3 REGULATORY FOCUS THEORY**

Regulatory focus refers to an individual's preferred goal pursuit strategy (Higgins, 1997). Regulatory focus theory grew out of self-discrepancy theory (see Higgins, 1987), which claims that people experience negative affect when their actual self (who they believe they are) falls short of either their ideal self (who they or a significant other hope they will be) or their ought self (who they or a significant other feel they should be). Discrepancies between the actual self and ideal self cause people to feel sad and dejected, whereas discrepancies between the actual self and the ought self cause people to feel anxious and fearful. People can experience either kind of self-discrepancy chronically or as a result of situational factors. Furthermore, people can experience both discrepancies strongly (or weakly), or they can experience one kind more strongly than the other. In principle, self discrepancies operate independently, although in practice there is often a positive correlation between the extents to which people experience each of these self-discrepancies (Higgins, Shah, & Friedman, 1997).

Regulatory focus theory expands self-discrepancy theory to explain peoples' motivational tendencies (Higgins, 1997). According to regulatory focus theory, people can experience two types of motivation, namely a promotion focus (motivation to attain desired states), or a prevention focus (motivation to avoid undesired states). These motivational states affect responses to success and failure. A promotion focus makes people feel cheerful and happy after attaining a desired state, and sad or dejected after failing to attain such a state. Conversely, a prevention focus makes people feel calm and relaxed after successfully avoiding an undesired state, and anxious or fearful after failing to avoid such a state. Much like self-discrepancies, an individual's regulatory focus can be dispositional or situational, though the effects of regulatory focus are strongest when dispositional and situational circumstances match (Shah, Higgins, & Friedman, 1998). However, when a regulatory focus is primed in a situation, that focus will typically determine a person's motivation. Some individuals have more of one focus than the other, but like self-discrepancies, promotion and prevention foci operate independently; a person can be high or low in both, or high in one and low in the other. In light of this fact, researchers typically classify people according to their *predominant* regulatory focus (Idson, Liberman, Higgins, 2000).

There are further implications of this theory. People prefer to use goal attainment strategies that fit their regulatory focus (Higgins, 1997; 2000). People with a promotion focus prefer using approach strategies to attain the things that they want, whereas people with a prevention focus prefer using avoidance strategies to avoid the things that they fear. In fact, when people are able (or forced) to use focus-fitting strategies, they pursue goals more vigorously than when they use strategies that do not fit their focus (Forster, Higgins, Idson, 1998; Higgins, 2000; Liberman, Idson, Camacho, & Higgins, 1999). In other words, their motivation

increases. This may occur because they place greater value on related goals and experience related emotions more strongly (Higgins, 2000; 2005; 2006).

Perhaps most important for the current analysis is the finding that the expectation of success or failure can also “fit with” a person’s regulatory focus and therefore maintain and increase that focus (Idson, Liberman, & Higgins, 2004). People in a promotion focus experience success, anticipated success, and the emotions associated with success (cheerfulness and happiness) more intensely than they experience failure and the emotions associated with failure (Forster, Grant, Idson, Higgins, 2001; Idson et al., 2000; 2004). So, for people in a promotion focus, success (often called *promotion success*) increases motivation far more than does failure (van-Dijk & Kluger, 2004). Alternately, people in a prevention focus experience failure, anticipated failure, and the emotions associated with failure (fearfulness and anxiety) more intensely than they experience success and the emotions associated with success (Forster et al., 2001; Idson et al., 2000; 2004). So, for people in a prevention focus, failure (often called *prevention failure*) increases motivation more than success (van-Dijk & Kluger, 2004). This occurs in part because happiness and anxiety, the emotions associated with *promotion success* and *prevention failure*, respectively, are higher intensity emotions than dejection and quiescence, the emotions associated with promotion failure and prevention success, respectively.

#### **1.4 CONNECTIONS BETWEEN REGULATORY FOCUS THEORY AND POWER**

Interestingly, regulatory focus theory (Higgins, 1997), and the conceptualization of power offered by Keltner and his colleagues (2003), have many theoretical and empirical connections. Others have speculated about a relationship between power and regulatory focus

(Guinote, 2008; 2010; Keltner et al., 2003; Maner, Kaschak, & Jones, 2010; Willis, 2009; Willis & Rodríguez-Bailón, 2010), but it has received little empirical attention (see Willis, 2009; Willis & Rodríguez-Bailón, 2010 for exceptions). Perhaps they have not been studied because neither promotion nor prevention focus appear to give people a general advantage in goal pursuit, the way powerfulness confers an advantage over powerlessness. However, there is reason to expect that the effects of regulatory focus and power are not similar in regard to goal pursuit. This point will be discussed shortly.

Why should power and regulatory focus be related? Powerful people attend to rewards and may associate power with the ability to attain those rewards (Fiske, 1993; Keltner et al., 2003; Smith & Bargh, 2008). Attending to rewards can create a promotion focus (Idson et al., 2000). The feelings of eagerness that come with this focus can then generalize to other opportunities for rewards (Forster & Friedman, 2004; Higgins, 1997; 2006; Idson et al., 2004). This situation should foster a promotion focus in powerful individuals.

Only a small amount of research has provided direct evidence for the relationship between power and a promotion focus. For example, Willis (2009) manipulated power using an essay prompt (i.e., Galinsky et al., 2003) and measured regulatory focus using both reaction times to list concepts relevant to promotion and prevention focus and also goals relevant to promotion or prevention focus. Willis's results indicated a positive relationship between power and promotion focus, yet found no significant relationship between power and prevention focus. Willis & Rodríguez-Bailón (2010) found similar results when participants were led to believe they would be in charge of another individual (to manipulate power) and they viewed this power as legitimate. However, the indirect evidence for that relationship is considerable. Power levels and regulatory foci share many outcomes. For example, people who feel powerful (Anderson &

Galinsky, 2006; Lammers et al., 2008), and people with a promotion focus (Bryandt & Dumford, 2008; Higgins, 2002; Crowe & Higgins, 1997), take more risks. And powerful people are more creative (Galinsky et al., 2008), much like those with a promotion focus (Crowe & Higgins, 1997; Friedman & Forster, 2001). Powerful people attend to the global features of stimuli and use broad categorizations (Forster, 2009; Smith & Trope, 2006), as do those with a promotion focus (Forster, 2009; Forster & Higgins, 2005). And both powerful people (Fast et al., 2009) and people with a promotion focus (Langens, 2007) overestimate their control in situations. Power relates positively to optimism (Anderson & Galinsky, 2006; Fast et al., 2009), and so does promotion focus (Forster et al., 2001; Grant & Higgins, 2003). Power (relative to powerlessness) increases cognitive functioning (Guinote, 2007a; 2010; Smith, Jostmann, et al., 2008), and promotion focus has similar effects (Friedman & Forster, 2005). Power (Keltner et al., 2003; Lammers, Stoker, & Stapel, 2009; Maner et al., 2010; Smith & Bargh, 2008) and promotion focus (Higgins, Friedman, Harlow, Idson, Ayduk, & Taylor, 2001; Summerville & Roese, 2008) are both positively related to approach tendencies. Finally, powerful people experience strong positive emotions (Berdahl & Mortorana, 2006; Keltner et al., 2003; Langner & Keltner, 2008; Schmid Mast, Jonas, & Hall, 2009). Similarly, people with a promotion focus experience positive emotions more strongly than negative emotions (Idson et al., 2000).

What about powerlessness and prevention focus? Powerless people *should* attend more to threats in their environment (Fiske, 1993; Keltner et al., 2003; Smith & Bargh, 2008). So, following the same logic as above, this should cause a prevention focus (Higgins, 1997; Idson et al., 2000). However, previous research has not found a direct relationship between powerlessness and prevention (Willis, 2009; Willis & Rodríguez-Bailón, 2010). And there is much less indirect evidence for this relationship than there is for the relationship between powerfulness and

promotion (but see Friedman & Forster, 2005; Smith, Jostmann, et al., 2008). For these reasons, the relationship between powerlessness and prevention focus is less clear. Why might this be the case?

## **1.5 THE ASYMMETRICAL EFFECTS OF POWER ON PROMOTION AND PREVENTION FOCUS**

There is reason to think that power affects promotion focus to a greater extent than it affects prevention focus. Powerful people expect success in their endeavors. This is due to several factors. Power makes people feel optimistic, in control, and confident (Galinsky, Jordan, & Sivanathan, 2008; Fast et al., 2009; See, Morrison, Rothman, & Soll, 2011) and increases their self-efficacy (Anderson & Galinsky, 2006). For example, See, Morrison, Rothman, & Soll (2011) had participants write an essay about a time they felt powerful or powerless (i.e., Galinsky et al., 2006), and then measured their confidence in estimates of tuition costs that they had made for different colleges. Participants who felt powerful expected their estimates to be more accurate. People who feel dispositionally powerful also tend to have an internal locus of control (Keltner, Van Kleef, Chen, & Kraus, 2008). Framed in terms of regulatory focus theory, powerful people should anticipate success in attaining rewards in their environment. The outcomes that powerless people anticipate are less clear. When people feel less powerful, they expect their outcomes to be determined by others (Fiske, 1993), or by environmental factors. This does not necessarily imply failure; the forces that surround powerless people can be benevolent. It does, however, imply that powerless people cannot control their outcomes and that they often do not know what outcomes to expect. Indeed, research on the relationship between

power and confidence indicates that feeling powerful causes a large increase in confidence, but feeling powerless causes only a small (and statistically non-significant) decrease in confidence (See et al., 2011).

What does this mean for goal pursuit? As mentioned earlier, *promotion success* and *prevention failure* both increase motivation (Idson et al., 2000; 2004). Anticipated success increases motivation and amplifies emotions for those with a promotion focus and anticipated failure increases motivation and amplifies emotions for those with a prevention focus. However, success does not increase motivation and amplify emotions for those in a prevention focus and failure does not increase motivation and amplify emotions for those in a promotion focus (Idson et al., 2004; van-Dijk & Kluger, 2004).

These different reactions to success and failure, when taken together with the motivational changes that come along with feelings of power, could explain the superior goal focus of powerful individuals. If anticipating success is more motivating for people in a promotion focus, and powerful individuals (who are in a promotion focus) anticipate success, then powerful people should have stronger motivation than powerless people. This is because powerful people are placed in a state of *promotion success* by their expectations of successful goal pursuit. Compared to powerful people, powerless people should have weaker motivation because they do not enjoy a motivational boost from anticipating failure, which could create a state of *prevention failure* if it occurred. This is because the magnitude of the confidence suppression that comes with powerlessness is not as large as the magnitude of the confidence boost that comes with powerfulness (e.g., See et al, 2011).

Interestingly, some research on power finds stronger results for feelings of powerfulness than for feelings of powerlessness (Berdahl & Mortorana, 2006; Chen, Langer, Mendoza-



Denton, 2009; Smith & Bargh, 2008). This may be an artifact of the relationship between powerfulness and success expectations. Powerful individuals may naturally have a “magnified” promotion focus due to their expectations of success. This magnification may make the effects of powerfulness stronger than the effects of powerlessness.

## **1.6 DISPOSITIONAL AND SITUATIONAL POWER**

The existing research on the relationship between power and regulatory focus (i.e., Willis, 2009; Willis & Rodríguez-Bailón, 2010) manipulated power in order to examine the effects of power on regulatory focus. However, one topic that has been neglected is the distinction between power that is felt as a result of situation (e.g., the kind of power felt by a child who is made hall monitor for the day) and power that is experienced naturally as part of one’s idiosyncratic personality. Indeed, regulatory focus can also arise as a result of situational pressures or exist naturally as a dispositional tendency. The effects of situationally induced and dispositional power are typically the same (e.g., Anderson & Berdahl, 2002; Anderson & Galinsky, 2006; Cote, Kraus, Cheng, Oveis, van der Lowe, Lian, & Keltner, 2011; Rucker & Galinsky, 2009, but see Chen et al., 2009), as are the effects of situationally induced and dispositional regulatory focus (Forster, 2009; Forster et al., 1998; Higgins et al., 1997). And there is little reason to predict that the relationship between power and regulatory focus should be different depending on whether that power is situational or dispositional. Nonetheless, investigating the proposed relationships at both the dispositional and situational levels will increase the generality of these results and provide valuable information about boundary conditions on the power/regulatory focus relationship.

## 1.7 MY RESEARCH

Previous investigations into the relationship between power and regulatory focus have been few and far between, making replication desirable. Furthermore, the previous investigations manipulated power and then measured regulatory focus. Thus, this research will begin by investigating the relationship between power and regulatory focus when power is measured as a personality trait rather (rather than manipulated in an experimental context). After establishing that this relationship exists for dispositional power, the research will move on to investigate it in situational format.

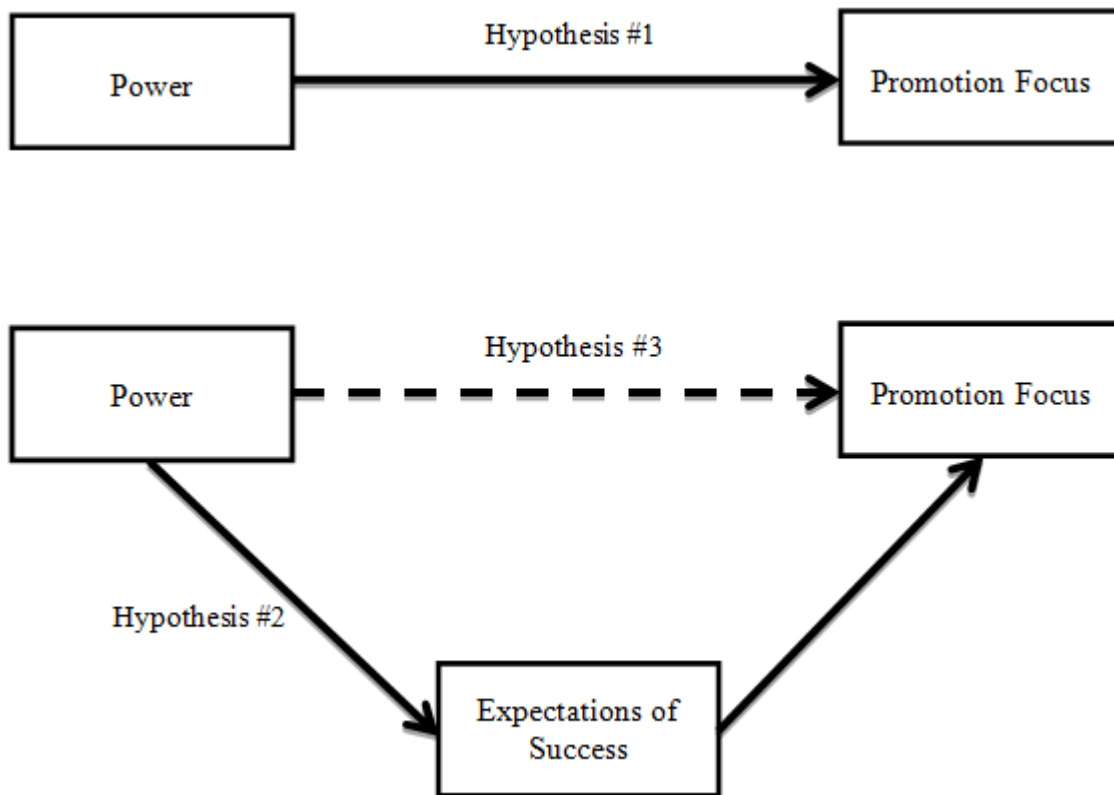
### 1.7.1 Hypothesis #1

Individuals who feel powerful will display a stronger promotion focus than individuals who feel powerless.

The expectation of success has never been examined for its catalytic effects on the relationship described in Hypothesis #1. Because *promotion success* increases motivation and strengthens a promotion focus, expectation of success should mediate the relationship between powerfulness and promotion focus (see Figure 1). Based on this analysis, I have generated two additional hypotheses:

### 1.7.2 Hypothesis #2

Individuals who feel powerful will be more likely than individuals who feel powerless to expect successful goal pursuit.



**Figure 1: Power predicts an increase in promotion focus and also an increase in expectations of success (H1 and H2). However, expectations of success should mediate the relationship between power and promotion (H3).**

### **1.7.3 Hypothesis #3**

The expectation of goal success will mediate the relationship between feelings of power and promotion focus.

These hypotheses were investigated over the course of five studies. Study 1 examined the previously uninvestigated relationship between dispositional power and dispositional regulatory focus. Studies 2 through 4 manipulated power and examined its effects on expectations of success and regulatory focus in an effort to uncover a mediational role for expectations of success. Study 5 measured power, expectations of success, and regulatory focus in an effort to uncover the mediating role of expectations of success when examining these variables at a dispositional level.

## **2.0 STUDY 1**

The purpose of the first study was to see if the relationship between manipulated power and situational regulatory focus generalizes to dispositional power and dispositional regulatory focus. This study employed several scales to test for this relationship: the Generalized Power Scale (Anderson & Galinsky, 2006), the Regulatory Focus Scale (Fellner, Holler, Kirchler, & Schabmann, 2007), and the Portrait Values Questionnaire (Schwartz, 2003).

### **2.1 DESIGN**

This study followed a correlational design.

### **2.2 PARTICIPANTS**

One hundred and ten students taking Introduction to Psychology participated in this study in exchange for course credit. Forty students were male and 70 were female. One participant provided data that was incomplete. Including this participant made no difference in the analyses except where noted. Gender made no difference in the analyses except where noted.

## 2.3 MEASURES AND PROCEDURE

Participants completed one questionnaire measuring dispositional power, the Generalized Power Scale (Anderson & Galinsky, 2006). Participants were asked to rate statements on a 1 to 7 scale with “*Disagree strongly*” and “*Agree strongly*” as the endpoint anchors and “*Neither agree nor disagree*” as the midpoint anchor (see Appendix A). This scale contains eight items and, after reverse-scoring four items, each participant’s score was determined by summing the item scores and dividing by eight. Participants also completed two questionnaires measuring dispositional regulatory focus, the Regulatory Focus Scale (RFS) (Fellner et al., 2007), found in Appendix B, and the Portrait Values Questionnaire (PVQ) (Schwartz, 2003), found in Appendix C. Each of these scales measures both prevention and promotion focus on a separate scale. The RFS asks participants to respond to statements such as “*Rules and regulations are helpful and necessary for me*” on a 1 to 7 scale with “*definitely untrue*” and “*definitely true*” as endpoint anchors and “*neither true nor untrue*” as a midpoint anchor. The RFS contains 10 items with five items for the RFS prevention and five items for the RFS promotion subscales. One item is reverse scored on each scale. Each participant’s RFS promotion and RFS prevention score was determined by summing the item scores for each subscale and dividing by five. The PVQ asks participants to read descriptions of different hypothetical individuals, such as “*Thinking up new ideas and being creative is important to this person. This person likes to do things in his/her own original way*” and then respond on a 1 to 6 scale whether the individual is “*not like me at all*” or “*very much like me.*” The PVQ contains 20 items with seven items for the PVS promotion subscale and 13 items for the PVQ prevention subscale. Each participant’s PVQ promotion score was determined by summing the item scores for each promotion subscale and dividing by seven. A PVQ prevention score for each participant was determined by summing the item scores for

each prevention subscale and dividing by 13. Additionally, participants completed the BAS/BIS scale (Carver & White, 1994) to measure both approach and inhibitory tendencies (see Appendix D). For this scale, again, participant read statements such as, “*If I think something unpleasant is going to happen I usually get pretty ‘worked up’*” and responded on a 1 to 4 scale with “*Disagree*” and “*Agree*” as anchors. The BAS/BIS Scale contains 20 items with seven items for the BIS subscale (two items are reverse coded) and 13 items for the BAS subscale. Each participant’s BIS score was determined by summing the item scores for each BIS subscale and dividing by seven. Similarly, a BAS score for each participant was determined by summing the item scores for each BAS subscale and dividing by 13. Participants were run in groups of up to 10 and the scales were counterbalanced (i.e., the order in which the participants received the scales was systematically varied to eliminate any effects created by completing the scales in any particular order). After completing the questionnaires, participants were debriefed and dismissed.

## **2.4 RESULTS**

### **2.4.1 Descriptive Statistics**

Descriptive statistics for these data can be found in Table 1. All scales achieved adequate reliability (Chronbach’s alphas of .70 or higher) except for the promotion PVQ and the prevention RFS, which each had lower reliability (Chronbach’s alphas of .63 and .61 respectively), and the promotion RFS, which had very low reliability (Chronbach’s alpha = .49). The fact that these scales were not developed specifically for use in an American sample (Fellner et al., 2007; Schwartz, 1994) may explain these low reliabilities. It is possible that linguistic

**Table 1: Study 1 Descriptive Statistics**

	<i>M/SD</i>	1	2	3	4	5	6	7
1. General Power	4.99/.85	.83						
2. Promotion PVQ	4.47/.64	.23*	.63					
3. Prevention PVQ	4.01/.75	-.05	-.29**	.82				
4. Promotion RFS	4.08/.76	.01	.47**	-.45**	.49			
5. Prevention RFS	5.84/.76	.18	.01	.36**	-.31**	.61		
6. BAS	3.14/.34	.23*	.40**	-.03	.09	.26**	.75	
7. BIS	3.17/.50	-.23*	-.29**	.20*	-.42**	.33**	.04	.76

*Note.* Chronbach's alpha are listed where rows and for each scale columns cross.

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



connotations in the language of origin may not be replicated in the English translation, and that these connotations are necessary for accurate measurement. The promotion PVQ and promotion RFS were significantly correlated ( $r = .47, p = .001$ ), as were the prevention PVQ and prevention RFS scores ( $r = .36, p = .001$ ). This demonstrates good criterion validity on the part of these scales. Consistent with previous research (Keltner et al., 2003; Lammers et al., 2009; Maner et al., 2010; Smith & Bargh, 2008), general power was positively correlated with behavioral approach ( $r = .23, p = .015$ ). Interestingly, general power was negatively correlated with behavioral inhibition ( $r = -.23, p = .016$ ), a finding that contradicts previous research (Smith & Bargh, 2008), but is consistent with previous theorizing on power (Keltner et al., 2003). The promotion PVQ scale was positively related to approach tendencies ( $r = .40, p = .003$ ), which is also consistent with previous research (Higgins et al., 2001; Summerville & Roese, 2008). However, the promotion RFS scale was not significantly related to approach tendencies. Both the prevention PVQ ( $r = .20, p = .039$ ) and RFS ( $r = .33, p = .001$ ) were significantly related to inhibitory tendencies.

#### **2.4.2 Analysis 1: Hypothesis #1**

To create a regulatory focus index, where higher scores would indicate more promotion focus, the prevention scores were subtracted from the promotion scores for both the PVQ and the RFS. This procedure has been used to determine regulatory focus in the past (Idson et al., 2000). The General Power Scale was marginally positively related to the regulatory focus PVQ index ( $r = .17, p = .08$ ), however, this relationship became non-significant when gender was taken into account ( $\beta = .16, p = .102$ ). The General Power Scale was also unrelated to the regulatory focus RFS index ( $r = -.11, p = .26$ ). Because of the inherent problems created by using difference

scores, such as low reliability and the conflation of variance contributed by the score components (Edwards, 1995), the component scales of each index were also examined. The General Power Scale was also significantly related to the promotion ( $r = .23, p = .014$ ), but not to the prevention ( $r = -.05, p = .598$ ) PVQ scale. The promotion RFS was not significantly related to power ( $r = .01, p = .916$ ). However, the prevention RFS was marginally positively related to general power ( $r = .18, p = .054$ ) and this relationship became significant when the participant who provided incomplete data was not included. These results partially supported Hypothesis #1.

## 2.5 DISCUSSION

The results of Study 1 were encouraging and offered partial support for the contention that dispositional power is related to dispositional regulatory focus in a way similar to that found for manipulated power. However, the lack of a relationship between the RFS index, and the positive correlation between the General Power Scale and the RFS prevention scale were unexpected. This strange result may be due in part to the low reliability of the RFS prevention scale, and also to the fact that the RFS was developed for use in a non-English speaking population (Fellner et al., 2007). Given the encouraging results of Study 1, Study 2 was done to replicate the previously found relationship between manipulated power and situational regulatory focus (Willis, 2009; Willis & Rodríguez-Bailón, 2010), and to test for the mediating role of success expectancies. Participants' feelings of power were manipulated and then, as part of a supposed second study, their regulatory focus and expectations about goal completion were measured.

## **3.0 STUDY 2**

### **3.1 DESIGN**

This experiment followed a 3-way (Power Level: Powerful vs. Control vs. Powerless) between-subjects design.

### **3.2 PARTICIPANTS**

One hundred and forty three students taking Introduction to Psychology participated in this study in exchange for course credit. Sixty students were male and 82 were female (and one chose not to report his or her gender). One participant arrived late and did not complete the power manipulation. So, this participant was excluded from all analyses. One participant provided information that was incomplete and two participants expressed suspicion during the debriefing. However, excluding these participants from analyses made no difference in the results. So, these participants were retained in the sample. Gender made no difference in the analyses, except where noted.

### 3.3 POWER MANIPULATION

As in previous investigations (Willis, 2009), power was manipulated by having participants recall a time they felt powerful or powerless, or (as a control condition) their latest trip to the grocery store (Galinsky et al, 2003). In the powerful condition, they were asked to “*Please recall a particular incident in which you had power over another individual or individuals. By power, we mean a situation in which you controlled the ability of another person or persons to get something they wanted, or were in a position to evaluate those individuals. Please describe this situation in which you had power – what happened, how you felt, etc.*” In the powerless condition, they were asked to “*Please recall a particular incident in which someone had power over you. By power, we mean a situation in which someone had control over your ability to get something you wanted, or was in a position to evaluate you. Please describe this situation in which you did not have power – what happened, how you felt, etc.*” Following each prompt, participants were provided with space to record their memories. This manipulation is very simple and has been used more than 100 times in the power literature (A. Galinsky, personal communication, September 9, 2010).

### 3.4 REGULATORY FOCUS AND GOAL EXPECTANCIES

I determined participants’ regulatory foci by examining the types of goals that they generated for themselves. This measure (or one quite similar) has been used successfully to assess regulatory focus in the past (Pennington & Roese, 2003; Willis, 2009; Willis & Rodríguez-Bailón, 2010). It allows participants flexibility in responding and directly taps the

most important aspect of regulatory focus, namely the nature of the goals that people generate for themselves. Furthermore, several methods exist for determining whether the listed goals are promotion or prevention goals (see *Analysis #2*). I also measured the extent to which participants thought they had the ability to accomplish those goals, their perceived likelihood of accomplishing those goals, and their confidence in these estimates.

### **3.5 PROCEDURE**

Participants were brought into the laboratory in groups of ten. They were greeted by a student who introduced himself or herself as an undergraduate who was collecting data for a directed research project. This undergraduate then told them that they would be taking part in two separate studies, one regarding their memory for past events and another regarding life goals. The participants were told that the studies had nothing to do with each other, but were being conducted together for the sake of convenience and efficiency<sup>2</sup>.

#### **3.5.1 Manipulation of Power**

Next, the student told participants that she or he would be conducting the first study and then gave out Galinsky et al.'s (2003) power manipulations. The power manipulations were in colored folders. After the participants finished these manipulations, the student asked them to look over their essays and make any changes they felt their essays needed. They were given ten minutes to write the essay.

### **3.5.2 Manipulation Check**

After that, participants were given a questionnaire assessing how powerful (powerless) they felt in the situation they had described. Specifically, they were asked if they felt “in control,” “free from constraints,” “weak,” and “able to do what they wanted” in that situation. All ratings were made on a 0 to 6 scale, with “not at all” and “completely” as anchors. After that, the student probed the participants for suspicion, asking them what they thought the research hypotheses were, and thanked them for participating in his or her study.

### **3.5.3 Measurement of Regulatory Focus**

Next, the student turned the session over to the main experimenter, who arrived after the study had begun, giving the appearance that he was not involved in it. He explained that this project involves “the life goals that college students set for themselves and the variables that are related to these goals.” Next, he distributed a “prevention” goal list sheet (titled “Goal sheet A” and found in Appendix E), a “promotion” goal list sheet (titled “Goal sheet B” and found in Appendix F), and 20 goal information sheets (found in Appendix G).

These materials (which were, in fact, the measures of regulatory focus and goal expectations) were prepared to look very different from the materials used earlier in the study, to create the illusion that a different person had prepared them (different fonts for the text, slightly differently colored paper, differently colored folders, and different handwriting on the folders). On the “prevention” goal list sheet, participants were asked to list up to 10 personal goals that they “feel responsible for accomplishing” in the coming two years. On the “promotion” goal list sheet, participants were asked to list up to 10 personal goals that they “would enjoy

accomplishing” in the coming two years. The order of these two questionnaires was counterbalanced. After listing their goals, the participants were asked a series of questions about each goal on their goal sheets. These questions were on the goal information sheets. Participants completed one goal information sheet for each goal listed on their “prevention” goal list sheet or their “promotion” goal list sheet.

Questions on the goal information sheet included how much each goal focused on “getting something you want” (Question #1) and how much each goal focused on “avoiding something you don’t want” (Question #2). These two questions are based on questions used by Pennington and Roese (2003) to measure regulatory focus. Furthermore, participants were asked how likely they thought it was that they would be able to accomplish each goal (Question #3), and the extent to which they had the ability to accomplish each goal (Question #5). They were also asked how confident they felt about their responses to each of those questions (Questions #4 and #6). Responses were always on 0 to 6 scales. No order effects were anticipated, but to control for such effects, participants received the questions in a Balanced Latin Square Design<sup>3</sup>. Participants were given up to 20 minutes to complete the questionnaires.

Next, they were given a questionnaire regarding how they currently felt with regard to several emotions that should be related to regulatory focus, namely happiness, satisfaction, anxiety, and dejection. All of the emotion ratings were made on 0 to 6 scales with “not at all” and “completely” as anchors. Finally, participants were probed for suspicions regarding the deception used in the study, asked what the research hypotheses were<sup>4</sup>, debriefed, thanked, and dismissed.

## 3.6 RESULTS

### 3.6.1 Descriptive Statistics

Descriptive statistics can be found in Table 2. Promotion and prevention focus were measured by the number of promotion and prevention goals that participants listed. The determination of whether a goal was a promotion or prevention goal was made in two different ways. First, it was made by counting the number of goals listed on the promotion and prevention goal list sheets. Second, it was made by whether participants rated each goal as getting something he or she wanted (promotion) or avoiding something she or he didn't want (prevention). If a goal was rated as being equally focused on getting something wanted and avoiding something unwanted, then it was coded as a promotion goal if it was written on the promotion goal list sheet or as a prevention goal if it was listed on the prevention goal list sheet. Measures of promotion and prevention focus were correlated across these different measures ( $r = .73, p = .001$  and  $r = .38, p = .001$ , respectively), which indicated good construct validity. The number of goals listed on participants' promotion goal list sheets was positively correlated with the number of goals listed on participants' prevention goal list sheets ( $r = .53, p = .001$ ), which corresponds to previous research (Cunningham, Raye, & Johnson, 2005). However, the number of goals that participants rated as promotion goals was negatively correlated with the number of goals that participants rated as prevention goals ( $r = -.24, p = .004$ ), probably because the more goals that participants rated as promotion goals, the fewer were left to be rated as prevention goals (and vice versa). Participants' ratings of how likely they were to accomplish each goal and their ratings of whether they had the ability to accomplish each goal were both negatively correlated to the number of goals participants listed on both their promotion ( $r = -.27, p = .001$



**Table 2: Study 2 Descriptive Statistics**

	<i>M/SD</i>	1	2	3	4	5	6	7	8	9
1. Manipulation check	3.47/1.55									
2. Promotion Focus (number of goals)	5.95/2.11	.09								
3. Prevention Focus (number of goals)	5.34/2.07	-.04	.53**							
4. Promotion Focus (ratings of goals)	8.78/3.37	.02	.73**	.66**						
5. Prevention Focus (ratings of goals)	2.45/2.24	.02	.28**	.38**	-.24**					
6. Likelihood of goal accomplishment	4.49/.61	-.01	-.27**	-.33**	-.15	-.29**				
7. Confidence about #6	4.67/.79	-.02	-.03	-.16	-.03	-.09	.55**			
8. Ability to accomplish goals	4.91/.60	-.03	-.25**	-.27**	-.16	-.20*	.70**	.46**		
9. Confidence about #8	4.90/.73	-.01	-.12	-.20*	-.09	-.09	.50**	.85**	.65**	

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

and  $r = -.25, p = .002$ , respectively) and prevention ( $r = -.33, p = .001$  and  $r = -.27, p = .001$ , respectively) goal list sheets. This is may be due to the fact that the more goals participants listed; the fewer resources they had to accomplish each goal (see discussion below). The number of goals that participants rated as prevention goals was also negatively correlated with their ratings of how likely they were to accomplish each goal ( $r = -.29, p = .001$ ) and their ratings of their ability to accomplish each goal ( $r = -.20, p = .02$ ), perhaps because thoughts about accomplishing prevention goals should not be very motivating (Idson et al., 2000). Participants' ratings of how likely they were to accomplish each goal were positively correlated with their ratings of their ability to accomplish each goal ( $r = .70, p = .001$ ), perhaps because these questions were conceptually similar. Additionally, participants' ratings of their confidence in response to the questions about both their likelihood of goal accomplishment and their ability to accomplish each goal were positively correlated with their responses to the questions about likelihood of goal accomplishment and ability to accomplish each goal ( $r = .85, p = .001$ ). Again, this may have occurred because these questions tap similar concepts.

### **3.6.2 Analysis 1: Manipulation Check**

A scale created from the composite of the four manipulation check questions achieved adequate reliability (Chronbach's Alpha = .86). A one-way ANOVA on this scale yielded a main effect of power ( $F(2, 139) = 67.51, p = .001$ ). Participants who wrote about a time they felt powerful ( $M = 4.28, SD = .93$ ) reported feeling more powerful in that situation than did participants who wrote about a time they felt powerless ( $M = 1.95, SD = 1.02$ ) and participants in the control condition ( $M = 4.20, SD = 1.34$ )<sup>5</sup>. A Tukey Test indicated that the powerless group

was significantly different from the control group, but that the powerful group was not. This constituted a partial failure of the manipulation check.

### **3.6.3 Analysis 2: Hypothesis #1**

In order to create a regulatory focus index, the number of prevention goals that participants listed was subtracted from the number of promotion goals that they listed. Higher scores on this index indicate a stronger promotion focus. A one-way ANOVA on this index yielded a main effect of power ( $F(2, 139) = 4.52, p = .013$ ). A Tukey Test indicated that participants in the control group ( $M = 1.32, SD = 1.96$ ) had a significantly stronger promotion focus than those in both the powerful ( $M = .34, SD = 1.62$ ) and powerless groups ( $M = .19, SD = 2.30$ ), which did not differ from each other. Again, due to the inherent problems with using difference scores as dependent measures (Edwards, 1995) and to further examine these relationships, a (2) (Regulatory Focus: Promotion vs. Prevention) x 3 (Power Level: Powerful vs. Powerless vs. Control) mixed ANOVA analyzed the number of promotion and prevention goals participants listed separately (instead of using the index). This analysis yielded several significant effects. The main effect of power on number of goals listed was significant ( $F(2, 139) = 3.55, p = .032$ ). A Tukey Test indicated that powerful participants ( $M = 12.38, SD = 4.11$ ) listed significantly more goals overall than did powerless participants ( $M = 10.48, SD = 3.27$ ). However, the difference between powerful and control participants ( $M = 11.02, SD = 3.65$ ) was not significant. A main effect of regulatory focus ( $F(1, 139) = 13.65, p = .001$ ) indicated that participants listed more promotion goals ( $M = 5.95, SD = 2.10$ ) than prevention goals ( $M = 5.34, SD = 2.07$ ). Finally, the ANOVA yielded a significant interaction between power and regulatory focus ( $F(2, 139) = 4.52, p = .013$ ), but simple effects testing indicated that the interaction was

driven only by the control condition, where participants listed more promotional goals ( $M = 6.17$ ,  $SD = 2.03$ ) than prevention goals ( $M = 5.34$ ,  $SD = 2.07$ ). Taken together, these results did not support Hypothesis #1.

An additional regulatory focus index was created by coding each goal as promotion or prevention based on the rating that participants gave these goals on their goal information sheets. Then, the number of prevention goals was again subtracted from the number of promotion goals. A one-way ANOVA on this index was not significant ( $F(2, 129) = .01$ ,  $p = .99$ ); powerful ( $M = 6.38$ ,  $SD = 4.37$ ), powerless ( $M = 6.35$ ,  $SD = 4.65$ ), and control ( $M = 6.26$ ,  $SD = 4.47$ ) participants all had about the same index scores. Again, to further explore the data, a (2) (Regulatory Focus: Promotion vs. Prevention) x 3 (Power Level: Powerful vs. Powerless vs. Control) mixed ANOVA analyzed the number of promotion and prevention goals participants listed separately (as determined by their own ratings). Again, the main effect of power was significant ( $F(2, 139) = 3.22$ ,  $p = .043$ ) and a Tukey Test indicated that powerful participants listed significantly more goals ( $M = 12.26$ ,  $SD = 3.96$ ) than did powerless participants ( $M = 10.48$ ,  $SD = 3.28$ ), but not more than the control participants did ( $M = 10.98$ ,  $SD = 3.26$ ). Again, the main effect of regulatory focus was significant ( $F(1, 139) = 281.20$ ,  $p = .001$ ), with participants rating many more goals as promotion goals ( $M = 8.78$ ,  $SD = 3.37$ ) than as prevention goals ( $M = 2.45$ ,  $SD = 2.24$ ). However, the interaction between power and regulatory focus was not significant ( $F(2, 139) = .01$ ,  $p = .99$ ). Again, these results did not support Hypothesis #1.

### **3.6.4 Analysis 3: Hypothesis #2**

In order to test Hypothesis #2, an index was created from participants' responses to the question on their goal information sheets about how likely they thought it was that they would

accomplish their goals. A one-way ANOVA examining the effects of power on this index was not significant ( $F(2, 139) = 2.22, p = .113$ ). Participants in the powerful ( $M = 4.35, SD = .60$ ), powerless ( $M = 4.61, SD = .51$ ), and control ( $M = 4.50, SD = .61$ ) conditions were equally confident about goal completion. A one-way ANOVA of an index composed only of responses to the question about goal accomplishment with regard to promotion goals ( $F(1, 139) = 1.42, p = .246$ ) yielded similar results. A one-way ANOVA of an index composed only of responses to the question about goal pursuit with regard to prevention goals yielded a marginal effect of power ( $F(1, 139) = 2.66, p = .074$ ); participants in the powerless ( $M = 4.67, SD = .61$ ) and control ( $M = 4.69, SD = .71$ ) conditions both felt more confident about goal accomplishment than did participants in the powerful condition ( $M = 4.41, SD = .70$ ). However, a Tukey Test indicated that these differences were not significant. Another index was created from participants' responses on the goal information sheet about whether or not they were capable of accomplishing each goal. Once again, participants who felt powerful ( $M = 4.85, SD = .61$ ) responded at a slightly lower level than did those in the control ( $M = 4.89, SD = .66$ ) and powerless ( $M = 4.97, SD = .51$ ) conditions. But a one-way ANOVA indicated that these differences were not significant ( $F(2, 139) = .56, p = .58$ ). Additional one-way ANOVAs examining the effects of power specifically on the ability to accomplish promotion and prevention goals were also not significant ( $F(2, 139) = .95, p = .391$  and  $F(1, 139) = .27, p = .762$ , respectively). Gender was significantly related to participants' judgments of their ability to accomplish their promotion goals ( $r = .17, p = .04$ ), however, including it as a covariate did not affect the analysis. These results failed to confirm Hypothesis #2.

### 3.6.5 Analysis 4: Hypothesis #2

To further test Hypothesis #2, an index was created from participants' responses to the question on their goal information sheet regarding how confident they felt about their responses to the question about the likelihood that they would accomplish each goal. Whereas the previous analysis focused on participants' perceived valence (i.e., whether or not participants thought they would be successful in their goal pursuit), this question focused on participants' perceived confidence in that response, which is another component of global confidence. Again, participants who felt powerful ( $M = 4.54$ ,  $SD = .78$ ) felt slightly less confident than did those in the powerless ( $M = 4.69$ ,  $SD = .72$ ) and control ( $M = 4.77$ ,  $SD = .85$ ) conditions, but these differences were not significant ( $F(2, 139) = 1.05$ ,  $p = .351$ ) when tested with a one-way ANOVA. Likewise, confidence in responses to questions that were specifically about either promotion or prevention goals did not vary significantly across conditions ( $F(1, 139) = .50$ ,  $p = .611$  and  $F(1, 139) = 1.34$ ,  $p = .264$ ). Another index was created from participants' responses to the question regarding how confident they felt about their response to the question about having the ability to accomplish each goal. Participants in the powerful condition were again slightly less confident ( $M = 4.83$ ,  $SD = .68$ ) than were those in the powerless ( $M = 4.87$ ,  $SD = .68$ ) and control ( $M = 5.00$ ,  $SD = .81$ ) conditions. But again, these differences were not significant, as tested by a one-way ANOVA ( $F(2, 139) = .77$ ,  $p = .47$ ). Similarly, ANOVAS specifically examining the effects of power on confidence in responses to questions about either promotion or prevention goals were not significant ( $F(2, 139) = .21$ ,  $p = .81$  and  $F(2, 139) = 1.55$ ,  $p = .22$ , respectively). These results did not support Hypothesis #2.

### **3.6.6 Analysis 5: Hypothesis #2**

As a final test of Hypothesis #2, a unitary index was created to represent the outcome measures from Analysis 3 and Analysis 4. To create this unitary index, first an index was created from participants' responses about how likely it was that they would accomplish their goals and whether or not they had the ability to accomplish their goals. Second, another index was created from participants' responses about how confident they were about each of these questions. Finally, these indices were multiplied together to create a single score that represented both aspects of participants' confidence about their responses -- whether or not they ultimately expected the goals to be completed and how confident they were about this response. Higher scores on this index reflected greater confidence that goals would be successfully completed. Following the trend observed in the previous two analyses, participants in the powerful condition scored slightly lower on this index ( $M = 21.70$ ,  $SD = 4.82$ ) than did participants in the powerless ( $M = 23.11$ ,  $SD = 5.01$ ) and control conditions ( $M = 23.28$ ,  $SD = 6.14$ ). However, these differences were not significant ( $F(2, 139) = 1.23$ ,  $p = .295$ ). Once again, ANOVAS specifically examining the effects of power on this index in responses to questions about either promotion or prevention goals were not significant ( $F(2, 139) = .73$ ,  $p = .486$  and  $F(2, 139) = 1.89$ ,  $p = .154$ , respectively). Once again, the results did not support Hypothesis #2.

### **3.6.7 Analysis 6: Hypothesis #3**

Because the predictor (power) was unrelated to the mediator (confidence) mediational analysis was not warranted.

### 3.6.8 Analysis 7: Related Emotions

One-way ANOVAs examining the effects of power on participants' responses to the questions about emotions that should be related to regulatory focus (anxious,  $F(2, 139) = .67, p = .511$ , happy,  $F(2, 139) = .75, p = .611$ , satisfied,  $F(2, 139) = .35, p = .709$ , and dejected,  $F(2, 138) = .429, p = .652$ ) did not yield any significant effects.

## 3.7 DISCUSSION

The results of Study 2 did not support the hypotheses. The manipulation check also failed. These problems probably arose from several methodological issues. For example, one manipulation check question asked how “able to do what you wanted” the participants felt in the situation they wrote about; and the anchor for the highest response on the scale (6) was “completely.” This anchor may have inadvertently restricted variance in the manipulation check scores. Although participants who wrote of a time they were powerful may have felt extremely able to do what they wanted in the situation they wrote about, “completely” was their highest response option. Participants who wrote about a time they went to the grocery store (for the control condition) may have also felt “completely” able to do what they wanted in that situation. Note that the powerful group did not differ from the control group on the manipulation check questions. To fix this problem, the manipulation check questions in Study 3 utilized responses and anchors designed to capture more variance.

Another problem was that powerless and control participants were non-significantly more confident about their goal pursuit than powerful participants, though the difference approached



marginal significance ( $p = .113$ ). This is puzzling given that past research has found that power increases confidence (Anderson & Galinsky, 2006; See et al., 2011). One reason for this strange finding in the present research may be that, as expected, powerful individuals listed significantly more goals overall than did powerless and control participants (see analysis 2 in Study 2 above). This is consistent with previous research (Guinote, 2008, Study 1). If powerful people list more goals, then they may feel less confident about accomplishing each *individual* goal because their attention and resources would be divided in multiple ways. This is problematic because confidence was measured by asking each participant questions about each *individual* goal. Indeed, the number of goals participants listed was negatively correlated with participants' own thoughts about both the likelihood of successful goal completion ( $r = -.34, p = .001$ ) and their ability to accomplish each goal ( $r = -.29, p = .001$ ). To rectify this situation, subsequent studies used methods for measuring confidence that should not be influenced by the number of goals participants listed.

Finally, and contrary to predictions, powerful participants listed significantly ( $F(2, 139) = 4.24, p = .016$ ) more prevention goals ( $M = 6.02, SD = 2.23$ ) than did both powerless ( $M = 5.15, SD = 2.01$ ) and control ( $M = 4.85, SD = 1.82$ ) participants. Post-hoc testing (Tukey Test) indicated that both the control and powerless conditions were different from the powerful condition, although the powerless condition was only marginally different. One explanation for this is that phrasing of the Galinsky essay prompt subtly elicited a prevention focus from participants by asking specifically about times they had power over *others*. Recent research (Lammers et al., 2009; Sassenberg, Ellemers, & Scheepers, 2011) has distinguished between two types of power; people with *personal power* can control their own outcomes and are unconstrained by others (e.g., the very wealthy), whereas those with *social power* can control

others' outcomes (e.g., managers and teachers). Type of power may be an important variable in this context because social power may make people feel responsible for others and such feelings may increase prevention focus (Lee, Aaker, & Gardner, 2000). Anecdotally, many participants wrote essays about situations in which they had social power (e.g., babysitting). It is possible that the mediational relationship I sought is stronger (or exists only) in cases of personal power. Perhaps social power increases both prevention focus and promotion focus, whereas personal power increases only promotion focus. So, in order to isolate personal power from social power and create a purer context in which to test for mediation, the Galinsky power manipulation was slightly altered in subsequent studies.

## **4.0 STUDY 3**

### **4.1 DESIGN**

This experiment followed a 3-way (Power Level: Powerful vs. Control vs. Powerless) between-subjects design.

### **4.2 PARTICIPANTS**

One hundred and seven students taking Introduction to Psychology participated in this study in exchange for course credit. Forty six students were male and 61 were female. Gender made no difference in the analyses, except where noted.

### **4.3 POWER MANIPULATION**

Power was again manipulated by having participants recall a time they felt powerful or powerless, or (as a control condition) their latest trip to the grocery store (see Galinsky et al., 2003). However, I used an adaptation of the prompt created by Lammers et al. (2009) to attempt to isolate personal power. In the powerful condition, participants were asked to “*Please recall a*

*particular incident in which you personally had power, where you were independent from the influence of others. This means that you could fully determine what you yourself would do or get. Please describe this situation in which you had power – what happened, how you felt, etc.”* In the powerless condition, participants were asked to *“Please recall a particular incident in which you personally lacked power, where you were dependent on someone or something else. This means that you could not determine at all what you yourself would do or get. Please describe this situation in which you did not have power – what happened, how you felt, etc.”* Following each prompt, participants were provided with space to record their memories.

#### **4.4 MANIPULATION CHECK**

After that, participants filled out a questionnaire assessing how powerful (powerless) they felt in the situation described by their essay. Specifically, they reported how *“in control,” “powerful,” “weak,” “influential”* and *“strong”* they felt in that situation. All ratings were made on a -6 to +6 bipolar scale. The anchors for the *“in control”* question were *“slightly more/less in control than I ordinarily feel,” “more/less in control than I ordinarily feel,”* and *“a great deal more/less in control than I ordinarily feel,”* with *“nor more nor any less in control than I ordinarily feel”* as the midpoint anchor. All other manipulation check questions were formatted the same way.

## 4.5 REGULATORY FOCUS AND CONFIDENCE

Participants generated three promotion goals and three prevention goals on two different goal list sheets. They then completed a goal information sheet for each goal (see Appendix H). Each goal information sheet asked them three questions, “*How important is this goal to you,*” “*How interested in this goal are you,*” and “*How motivated are you to achieve this goal.*” Responses were made on a 0 to 6 scale with “*not at all,*” “*slightly,*” “*quite a bit,*” and “*extremely*” as anchors. The mean of the ratings of these items across those three goals was the measure of promotion and prevention focus; stronger ratings for either type of goal indicated the corresponding focus. A similar measure was used by Roese, Hurr, and Pennington (1999) to measure promotion and prevention focus. A final question on this goal information sheet measured confidence by asking “*How confident are you that you will achieve this goal?*” No order effects were expected. Nonetheless, these questions were counterbalanced using a Balanced Latin Square Design. Aside from the manipulation of power and the measures of regulatory focus and confidence, all other aspects of Study 3 were the same as those in Study 2.

## 4.6 RESULTS

### 4.6.1 Descriptive Statistics

Descriptive statistics can be found in Table 3. As in both Study 2 and Cunningham et al.’s (2005) research, promotion and prevention scores were positively correlated ( $r = .23$ ,  $p = .022$ ). Confidence in goal achievement was also positively correlated to both promotion ( $r = .46$ ,

**Table 3: Study 3 Descriptive Statistics**

	<i>M/SD</i>	1	2	3	4
1. Manipulation Check	-.11 <sup>a</sup> /2.72	.84			
2. Promotion Focus	4.81/.77	-.03	.87		
3. Prevention Focus	4.79/.78	-.06	.23*	.84	
4. Confidence	4.01/.78	-.01	.46**	.45**	.61

*Note.* The Chronbach's alpha for each scale is listed where rows and columns for each scale cross.

<sup>a</sup>The manipulation check response scale was bi-polar. The mean is slightly below the midpoint of the scale (0).

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

$p = .001$ ) and prevention scores ( $r = .45$ ,  $p = .001$ ), perhaps because the question about confidence in goal accomplishment was asked in the same way as the questions measuring each regulatory focus.

#### **4.6.2 Analysis 1: Manipulation Check**

A scale created from the composite of the five manipulation check questions achieved adequate reliability (Cronbach's Alpha = .87). Participants who wrote about a time they felt powerful ( $M = 2.72$ ,  $SD = 1.36$ ) reported feeling more powerful than did those in the control condition ( $M = .18$ ,  $SD = 1.06$ ), who in turn reported feeling more powerful than did those who wrote about a time they felt powerless ( $M = -2.89$ ,  $SD = 1.69$ ). A one-way ANOVA on this scale yielded a main effect of power ( $F(2, 101) = 141.49$ ,  $p = .001$ ). A Tukey Test indicated that both the powerful and the powerless conditions were significantly different from the control condition.

#### **4.6.3 Analysis 2: Hypothesis #1**

To create measures of regulatory focus, scales were created from participants' responses to the three relevant questions on the goal information sheets. The score on participants' prevention scale (Cronbach's alpha = .84) was subsequently subtracted from the score on participants promotion scale (Cronbach's alpha = .87) to create a regulatory focus index, where higher scores indicated greater promotion focus. Although powerful individuals had a slightly stronger promotion focus ( $M = .12$ ,  $SD = 1.03$ ) than did powerless individuals ( $M = -0.08$ ,  $SD = 1.01$ ) and individuals in the control condition ( $M = -0.19$ ,  $SD = .84$ ), a one-way ANOVA on this

index was not significant ( $F(2, 101) = 1.03, p = .36$ ). As in the previous studies, the results were further explored with a (2) (Regulatory Focus: Promotion vs. Prevention) x 3 (Power Level: Powerful vs. Powerless vs. Control) mixed ANOVA. Neither the main effect of regulatory focus ( $F(1, 101) = .003, p = .954$ ), nor the main effect of power ( $F(2, 101) = 1.73, p = .182$ ), nor the interaction between regulatory focus and power ( $F(2, 101) = 1.03, p = .361$ ) was significant. Gender was significantly related to promotion focus ( $r = .20, p = .039$ ), but including it as a covariate did not affect the results of this analysis. These results did not support Hypothesis #1.

#### **4.6.4 Analysis 3: Hypothesis #2**

In order to test Hypothesis #2, a one-way ANOVA was performed on participants' responses to the question on the goal information sheets about their confidence in accomplishing each goal<sup>6</sup>. Participants who felt powerful were no more confident ( $M = 4.02, SD = .80$ ) than participants who felt powerless ( $M = 4.01, SD = .71$ ) or control participants ( $M = 3.98, SD = .86, F(2, 101) = .02, p = .985$ ). This result did not support Hypothesis #2.

#### **4.6.5 Analysis 4: Hypothesis #3**

Again, the predictor (power) was unrelated to the mediator (confidence), so a mediational analysis was not warranted.



## 4.7 DISCUSSION

Although the problems with the manipulation check were resolved in Study 3, the results were still disappointing. One explanation for the lack any relationship between power and confidence is that, although participants were asked to list only three goals, they may have generated more goals and simply not recorded them. If this is the case, then the problem of more goals equating to fewer resources for each goal and a depressed level of confidence about the attainment of each goal may not have been eliminated. So, in an effort to improve the measurement of confidence, I used a new measure in Study 4, one that focused on participants' feelings of confidence about a topic that was not specifically related to the goals they listed. In this way, I hoped to tap more global feelings of confidence. For regulatory focus, I returned to the measure used in Study 1, a measure based on the number of promotion and prevention goals that participants listed.

## **5.0 STUDY 4**

### **5.1 DESIGN**

This experiment followed a 3-way (Power Level: Powerful vs. Control vs. Powerless) between-subjects design.

### **5.2 PARTICIPANTS**

Ninety four students taking Introduction to Psychology participated in this study in exchange for course credit. Forty seven students were male and 47 were female. Gender made no difference in the analyses, except where noted.

### **5.3 CONFIDENCE**

The procedure for measuring confidence was adapted from previous research (see Gino & Moore, 2006; See et al., 2011). Participants were asked to estimate the tuition for seven universities and colleges (see Appendix I). Following that, they were asked several questions to assess how confident they were about their estimates. Specifically, they were asked, “*Overall,*

*how confident do you feel in your performance in the tuition estimation task” and “How accurate do you think you were in estimating the tuitions.” Ratings were made on a 0 to 6 scale, with “not at all” and “extremely” as anchors. Finally, they were asked, “Consider an estimate to be correct if it within \$2000 of the actual tuition. Out of the 7 total tuitions, how many do you think you got correct?” (see appendix J).*

## **5.4 REGULATORY FOCUS**

The measurement of regulatory focus was the same as in Study 2 (i.e., the number of promotion and prevention goals that participants listed). However, no goal information sheets were used for this study, because of the alternate confidence measure. Aside from the measures of regulatory focus and confidence, all other aspects of Study 4 were the same as in Study 3.

## **5.5 RESULTS**

### **5.5.1 Descriptive Statistics**

Descriptive statistics can be found in Table 4. As in Studies 2, 3, and Cunningham et al.’s (2005) research, promotion scores were significantly correlated with prevention scores ( $r = .33, p = .001$ ).

**Table 4: Study 4 Descriptive Statistics**

	<i>M/SD</i>	1	2	3	4
1. Manipulation Check	.39 <sup>a</sup> /3.02				
2. Promotion Focus	4.86/1.82	-.07			
3. Prevention Focus	4.34/2.20	.03	.33**		
4. Confidence	2.37/1.01	-.07	.09	.17	

<sup>a</sup>The manipulation check response scale was bi-polar. The mean is slightly below the midpoint of the scale (0).

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

### 5.5.2 Analysis 1: Manipulation Check

A scale created from the composite of the five manipulation check questions achieved adequate reliability (Chronbach's Alpha = .88). Participants who wrote about a time where they felt powerful ( $M = 3.25$ ,  $SD = 1.66$ ) reported feeling more powerful than did participants in the control condition ( $M = .69$ ,  $SD = 1.62$ ), who in turn reported feeling more powerful than did participants who wrote about a time where they felt powerless ( $M = -2.92$ ,  $SD = 1.53$ ). A one-way ANOVA on this scale yielded a main effect of power ( $F(2, 91) = 118.24$ ,  $p = .001$ ). A Tukey Test indicated that both the powerful group and the powerless group were significantly different from the control condition.

### 5.5.3 Analysis 2: Hypothesis #1

As in Study 1, the number of prevention goals participants listed was subtracted from the number of promotion goals that participants listed to create a regulatory focus index, one in which higher scores indicate a stronger promotion focus. Powerful individuals ( $M = .64$ ,  $SD = 2.51$ ), powerless individuals ( $M = .58$ ,  $SD = 2.05$ ), and individuals in the control condition ( $M = .33$ ,  $SD = 2.54$ ) all had similar levels of promotion focus, and so a one-way ANOVA on this index was not significant ( $F(2, 91) = .14$ ,  $p = .868$ ). Again, to further explore the data, a (2) (Regulatory Focus: Promotion vs. Prevention) x 3 (Power Level: Powerful vs. Control vs. Powerless) mixed ANOVA yielded only a main effect of regulatory focus ( $F(1, 91) = 4.44$ ,  $p = .038$ ). Participants listed more promotion goals ( $M = 4.86$ ,  $SD = 1.82$ ) than prevention goals ( $M =$

4.34,  $SD = 2.20$ ). However, gender was significantly related to the number of promotion goals participants listed ( $r = .28, p = .007$ ) and including it as a covariate eliminated the main effect of regulatory focus. Neither the main effect of power nor the interaction between power and regulatory focus achieved significance ( $F(2, 91) = 1.20, p = .307$  and  $F(2, 91) = .14, p = .868$ ). Again, these results did not support Hypothesis #1.

#### **5.5.4 Analysis 3: Hypothesis #2**

To test Hypothesis #2, the three questions regarding participants' confidence in their estimates of college tuitions were combined into a scale. This scale achieved good reliability (Chronbach's alpha = .83). Participants who felt powerful ( $M = 2.32, SD = 1.02$ ), participants who felt powerless ( $M = 2.46, SD = .89$ ), and participants in the control condition ( $M = 2.33, SD = 1.14$ ) all had similar levels of confidence. The differences were not statistically significant ( $F(1, 91) = .17, p = .841$ ). This result did not support Hypothesis #2.

#### **5.5.5 Analysis 4: Hypothesis #3**

Again, the predictor (power) was unrelated to the mediator (confidence), and so mediational analysis was not warranted.

## 5.6 DISCUSSION

Again, the results of Study 4 were disappointing. In light of this, I returned to examining relationships at the dispositional level. One benefit of testing for the relationship between power and regulatory focus using a scale is that this makes it easier to ask specific questions that should tap into feelings of personal power. It is possible that, even with the alterations, the Galinsky power manipulation prompt is simply not suited for priming participants to feel “personally” powerful. Directing them to write about a time they felt powerful may make salient to them times when they felt both personal and social power, because in reality both types of power are often experienced together. Anderson and Galinsky’s (2006) General Power Scale uses questions that are quite specific and relate more directly to “personal” power (e.g., “If I want to, I get to make the decisions” and “Even when I voice them, my views have little sway”). This scale should target dispositional feelings of personal power. To measure expectations about success, I used the Life Orientation Test – Revised (Scheier, Carver, & Bridges, 1994). I did not use the RFS to measure regulatory focus in Study 5, because it was not significantly related to the regulatory focus index in Study 1. Instead, I replaced it with another commonly used regulatory focus measure, the Regulatory Focus Questionnaire (Lockwood, Jordan, & Kunda, 2002).

## **6.0 STUDY 5**

### **6.1 DESIGN**

This study followed a correlational design.

### **6.2 PARTICIPANTS**

Ninety-five students taking Introduction to Psychology participated in this study in exchange for a piece of candy. Twenty-five students were male and 68 were female (two participants chose not to report their gender). Three participants provided data that were in some way incomplete. However, omitting these participants did not alter the results in a significant way. So, they were included in the following analyses. Gender made no difference in the analyses except where noted.

### **6.3 MEASURES AND PROCEDURE**

Participants again completed the General Power Scale (Anderson & Galinsky, 2006). In order to measure participants' beliefs about their general ability to accomplish their goals, they



were given a commonly used optimism measure, the Life Orientation Test - Revised (Scheier et al., 1994). On this measure, participants responded to statements such as *“I hardly ever expect things to go my way”* (reverse coded) on a -4 to 4 bipolar scale with *“Strongly disagree”* and *“Strongly agree”* as the anchors for the endpoints and *“Neutral”* as the anchor for the midpoint. This scale contains 10 items, three of which are reverse coded. Participants’ responses to the items on this scale were summed and then divided by 10 to obtain their Life Orientation Test – Revised scores. As in the previous study, regulatory focus was measured in two ways. First, the PVQ (Schwartz, 2003) was used. The second regulatory focus measure was the Regulatory Focus Questionnaire (RFQ) (Lockwood et al., 2002). When taking the RFQ, participants responded to statements such as *“In general, I am focused on preventing negative events in my life”* on a 0 to 8 scale with *“Not at all true of me”* and *“Extremely true of me”* as anchors for the end points. The anchor for the midpoint of the scale was *“True of me.”* Like the PVQ, this 18-item scale is composed of two subscales, one measuring promotion focus (with nine items) and another measuring prevention focus (with nine items). Participants’ scores on the promotion subscale items were summed and divided by nine to obtain their promotion scores. The same procedure was used with their scores on the prevention subscale items to obtain their prevention scores. The order of all the scales was counterbalanced. Additionally, participants were asked to provide some demographic information, such as their age and gender.

## 6.4 RESULTS

### 6.4.1 Descriptive Statistics

See Table 5 for descriptive statistics. All scales achieved adequate reliability (Chronbach's alphas greater than .70). The promotion RFQ correlated significantly with the promotion PVQ ( $r = .35, p = .001$ ) and the prevention RFQ correlated significantly with the prevention PVQ ( $r = .27, p = .009$ ). This demonstrates good criterion validity for these scales.

### 6.4.2 Analysis 1: Hypothesis #1

In order to create a regulatory focus index, participants' scores on the prevention RFQ subscale were subtracted from their scores on the promotion RFQ subscale. Higher scores on this index indicate a stronger promotion focus. The correlation between the General Power Scale and this regulatory focus index was examined to test Hypothesis #1. The General Power Scale significantly predicted RFQ scores ( $r = .30, p = .004$ ). However, the General power scale was only associated with a net gain in promotion focus; general power was not significantly related to the promotion subscale of the RFQ ( $r = .08, p = .431$ ). Instead, it was inversely related to the prevention subscale of the RFQ ( $r = -.24, p = .023$ ).

Another regulatory focus index was created by subtracting participants' scores on the prevention PVQ subscale from their promotion PVQ subscale scores. Again, to test Hypothesis #1, the correlation between the General Power Scale and this regulatory focus index was examined. Although general power was positively related to this index, the relationship was not significant ( $r = .15, p = .152$ ). General power was marginally positively related to the promotion

**Table 5: Study 5 Descriptive Statistics**

	<i>M/SD</i>	1	2	3	4	5	6
1. General Power	5.10/.96	.88					
2. LOT-R	.94 <sup>a</sup> /1.66	.46**	.85				
3. Promotion RFQ	5.97/1.26	.08	.23*	.87			
4. Prevention RFQ	4.21/1.49	-.24*	-.36**	.39**	.81		
5. Promotion PVQ	3.96/1.01	.20	.18	.36**	.15	.79	
6. Prevention PVQ	3.33/.91	-.03	.16	.34**	.27**	-.05	.81

*Note.* The Chronbach's alpha for each scale is listed where rows and columns for each scale cross.

<sup>a</sup>The LOT-R response scale was bi-polar. The mean is slightly above the midpoint of the scale (0).

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

PVQ subscale ( $r = .20, p = .059$ ) and this relationship became significant ( $\beta = .22, p = .035$ ) when controlling for the effects of gender. Power was negatively related to the prevention PVQ subscale ( $r = -.02, p = .84$ ), though the relationship was not significant. Overall, these results partially supported Hypothesis #1.

### **6.4.3 Analysis 2: Hypothesis #2**

To test Hypothesis #2, the correlation between the General Power Scale and the LOT-R was examined. That correlation was significant ( $r = .46, p = .001$ ), which supported Hypothesis #2.

### **6.4.4 Analysis 3: Hypothesis #3**

Because the General Power Scale was positively related to the LOT-R (the proposed mediator) mediational analysis was warranted. A Sobel test (Preacher & Hayes, 2004), indicated that the LOT-R was a significant mediator of the relationship between the General Power Scale and the RFQ regulatory focus index ( $z = 3.53, p = .001$ )<sup>7</sup>. Figure 2 illustrates this mediation. However, these results only held for the RFQ regulatory focus index; a Sobel test using the PVQ regulatory focus index was not significant.

Again, mediational analysis was carried out on the components of the regulatory focus indices to further explore these effects. A Sobel test indicated that the LOT-R was a significant mediator of the relationship between the General Power Scale and the RFQ prevention scale ( $z = -2.42, p = .015$ )<sup>8</sup>. The LOT-R was also a marginally significant mediator of the relationship between the General Power Scale and the PVQ prevention scale ( $z = 1.73, p = .0839$ ). The LOT-R

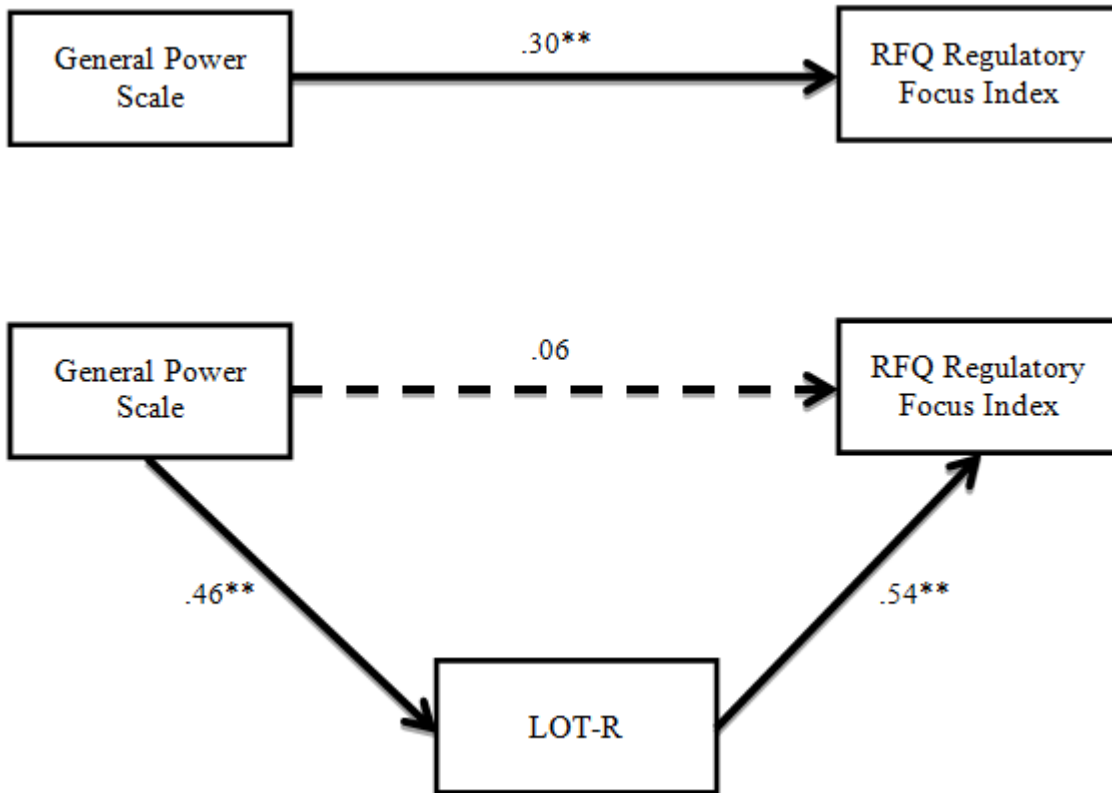


Figure 2: Mediation analysis from Study 5. Standardized beta values for the unmediated and mediated relationships between the General Power Scale and the RFQ Regulatory Focus Index in Study 5. \*  $p < .05$ , \*\*  $p < .01$

also marginally significantly mediated the relationship between the General Power Scale and the RFQ Promotion scale ( $z = 1.94, p = .053$ ). A Sobel test also indicated that the LOT-R did not mediate the relationship between the General Power scale and the PVQ Promotion scale ( $z = .90, p = .3687$ ). These results partially supported Hypothesis #3.

## **7.0 GENERAL DISCUSSION**

Ultimately, the results of these studies provided partial support for the mediating role of positive outcome expectancies in the relationship between power and regulatory focus. Evidence for these relationships was obtained when using dispositional measures of power, outcome expectancies, and regulatory focus. However, when power was manipulated, no evidence was obtained for outcome expectancies as a mediator, or for the relationship between power and regulatory focus. This is an odd finding, given that previous literature has independently documented each of these effects of manipulated power (e.g., See et al., 2011; Willis, 2009). However, there are several reasons that the present research may not have found similar results.

### **7.1 MANIPULATED POWER AND REGULATORY FOCUS**

Despite the copious evidence for the relationship between regulatory focus and power, that relationship may a) be weak, b) exist only in the case of dispositional power, or c) be weak and exist only in the case of dispositional power. Dispositional power and one of the regulatory focus indices were related to each other in both Studies 1 and 5. However, the amount of variance explained in each case was rather small ( $R^2 = .03$  and  $R^2 = .09$ , respectively). Also, in both Studies 1 and 5, only one measure of regulatory focus was significantly related to power, and the PVQ index was related in Study 1, but not in Study 5. This further suggests that the

relationship between power and regulatory focus is weak. The situational measures of regulatory focus used in the second, third, and fourth studies may not have been sufficiently sensitive to capture the motivational differences created by participants' altered feelings of power. Furthermore, despite the plentiful indirect evidence, little direct evidence has been obtained for the relationship between manipulated power and regulatory focus. Perhaps this relationship only exists for power and regulatory focus when they are measured as personality traits, because only life-long feelings of power are pervasive, rigid, and robust enough to influence an individual's regulatory focus. Much research finds similar effects for both dispositional and situational power (e.g., Anderson & Galinsky, 2006), but some does find more complex relationships between these variables (e.g., Chen et al., 2009). It is possible that unreported investigations have manipulated power and sought this relationship, but found non-significant results, and that the few existing significant results (see Willis, 2009; Willis & Rodríguez-Bailón, 2010) represent Type 1 errors (i.e., the file drawer problem). Alternately, this relationship may only exist when dispositional and situational power match each other. Unfortunately, power was never manipulated and measured at the same time in this research, so the effects of dispositional power could not be controlled. However, there are other reasons that the previous research on this topic may not be directly comparable to the current investigation.

Much of the foundational research for this project was conducted in populations that speak a different language than the population I studied. Both Willis (2009) and Willis and Rodríguez-Bailón (2010) conducted their studies at the University of Granada, where students are likely to speak Spanish. Also, in Study 1, the RFS index (Fellner et al., 2007) was not significantly related to the General Power Scale (though the prevention subscale was related to power). As previously mentioned, this scale was developed for use at the University of Vienna,



where the population is primarily German-speaking. Of course, an English translation was used for the primarily English speaking population in the present research. Differences between the results of this research and previous research may reflect linguistic differences in the samples. The items on the RFS may not tap regulatory focus in English-speaking individuals due to linguistic connotations in the language of origin that are not replicated in the English translation. Furthermore, cultural differences in regulatory focus have been found in the past (e.g., Lee et al., 2000; Uskul, Sherman, & Fitzgibbon, 2009). For example, parents in some European countries place particular emphasis on their children's obligations (Grossman, Grossmann, Huber, & Wartner, 1981). This could affect regulatory focus and its relationship with other variables, particularly because dispositional regulatory focus is thought to develop, in part, from parent-child interactions (Higgins, 1989). Perhaps the relationship between manipulated power and regulatory focus exists in some cultures but not in others. Alternately, this relationship may vary in strength by culture.

Finally, the attempts at disentangling social and personal power made in the third and fourth studies (i.e., the alterations to the Galinsky power manipulation) may have been unsuccessful. Perhaps their entanglement obfuscated the relationship between power and regulatory focus. Social and personal power are separate concepts with different outcomes (see Lammers et al., 2009; Sassenberg et al., 2011). However, the revised essay prompt developed for this project may have evoked thoughts of social power in individuals, despite its lack of explicit reference to power over others. As mentioned before, thoughts about others may evoke a prevention focus (Lee et al., 2000), so thoughts about having power over others may also evoke a prevention focus. The more focused and specific questions on Anderson and Galinsky's (2006)

generalized power scale, which was related to regulatory focus in Studies 1 and 5, may have avoided this problem.

## **7.2 MANIPULATED POWER AND SUCCESS EXPECTANCIES**

The lack of relationship between manipulated power and success expectancies was also perplexing, given that a positive relationship would have replicated previous findings (Anderson & Galinsky, 2006; See et al., 2011). Especially vexing is that See and colleagues used a task to measure expectations of success that is quite similar to the task that I used in Study 4. One methodological difference between the current research and See et al. is the time lapse between the power manipulation and the measurement of expectations about success. In See et al.'s research, the transition from the power manipulation to the measurement of success expectancies was instantaneous. In my Studies 2, 3, and 4, great pains were taken to move participants quickly through the experimental tasks, but the “two study paradigm” that was used to uphold the cover story prevented participants from transitioning instantly into the success expectancy measure after writing the power essay. Thus, participants' feelings of power may have decayed by the time they did the confidence task. An effect of power on outcome expectancies might have been found with a shorter time lapse between manipulation and measurement.

Alternately, it is possible that manipulating power does not actually increase expectations of success. Perhaps artificially elevating an individual's feelings of power makes that power seem illegitimate. This may elicit feelings of immunity that resemble confidence, depending on the situation and questions asked (see Lammers et al. (2008), Smith, Jost, et al. (2008), and Willis & Rodríguez-Bailón (2010) for more effects on the of illegitimate power). If this is the

case, then people made to feel powerful may not be confident, but simply care less about failure. This would be consistent with the proclivity for risk-taking displayed by powerful individuals (see Anderson & Galinsky, 2003). The finding from Study 5, that people who felt dispositionally powerful scored higher on the LOT-R, may seem to contradict this reasoning. However, measuring these variables dispositionally (instead of artificially manipulating them) may avoid these illegitimacy problems. Natural feelings of power probably seem legitimate to the individuals who have them. Alternately, the effects of feeling powerful throughout one's life may be qualitatively (not quantitatively) different than the effects of feeling powerful over the course of a few minutes. Again, power's relationships with some variables, such as confidence, may vary depending on whether power is situational or dispositional or the match between situational and dispositional power.

### **7.3 DISPOSITIONAL POWER AND REGULATORY FOCUS**

In support of Hypothesis #1, Studies 1 and 5 did find evidence for the relationship between power and regulatory focus when measuring dispositional tendencies. Although previous investigations have found a relationship between manipulated power and regulatory focus, this is the first test of this relationship in dispositional format. Of note is that the results were much stronger for the RFQ regulatory focus index than for the PVQ regulatory focus index. In fact, power was unrelated to the PVQ regulatory focus index in both Study 1 (when including gender as a covariate) and Study 5. The relationships between general power and the component scales of the PVQ index were more encouraging; in Studies 1 and 5, power was positively related to the PVQ promotion scale and unrelated to the PVQ prevention scale. But this pattern

of correlations was opposite to the pattern found with the component scales of the RFQ index; power was unrelated to the promotion RFQ scale but negatively related to the prevention RFQ scale. The relationships between power and the component RFQ scales are inconsistent with the prediction that power should specifically increase promotion focus. The different pattern of relationships that power has with the components of each index were also odd, given the strong positive correlations between the promotion PVQ and RFQ scales and between the prevention PVQ and RFQ scales in Study 5. However, the regulatory focus indices created by subtracting prevention scores from promotion scores in each case were not significantly correlated ( $r = .09, p = .402$ ). Why might this discrepancy exist?

This may be due to the specific aspect of regulatory focus that is tapped by the RFQ. That scale conceptualizes promotion focus specifically as motivation to attain gains and prevention focus specifically as motivation to avoid losses, as opposed to conceptualizing promotion focus as a drive to achieve personal, internal standards and prevention focus as a drive to achieve external standards instilled by society (Summerville & Roese, 2008). Both conceptualizations focus on different aspects of regulatory focus (Higgins, 1997). The PVQ seems to reflect the latter component of regulatory focus. The procedure of subtracting one component scale from another may exaggerate this difference (hence the correlations among the component scales, but not between the indices). The fact that power seems to be more strongly related to one index than to the other suggests that power may be related to these different aspects of regulatory focus in different ways. Power may be associated with an increased reliance on internal standards for goal setting (one specific aspect of promotion focus that may be measured by the PVQ) and also a decrease in motivation to avoid losses (one specific aspect of prevention focus measured by the RFQ). Indeed, different relationships between power and these different aspects of regulatory

focus may account for the tendency for the global relationship between power and regulatory focus to manifest itself weakly; any particular regulatory focus measure may be more or less sensitive to changes in only one aspect of regulatory focus. More research is needed on this topic before firm conclusions can be drawn about the specific aspects of regulatory focus that power affects. However, that research would be relevant to the finding that power increases risk taking (Anderson & Galinsky, 2006) and may help clarify whether powerful people make riskier decisions due to a true increase in preference for risk or a weakened preference for caution.

#### **7.4 THE MEDIATING ROLE OF SUCCESS EXPECTANCIES**

Study 5 uncovered a positive relationship between power and the expectation of success and also evidence for the mediating role of the expectation of success in the relationship between power and regulatory focus. This supported Hypotheses #2 and #3. However, expectations of success were only significantly related to the RFQ index (not the PVQ index). Consequently, mediation occurred only for the relationship between power and the RFQ index. As mentioned earlier, this may be a result of the different aspect of regulatory focus measured by the RFQ (Summerville & Roese, 2008). The increase in expectations of success related to dispositional power may only act upon the particular aspects of regulatory focus measured by the RFQ (i.e., the motivation to attain gains and avoid losses). If so, then that may explain why the relationship between dispositional power and regulatory focus was weaker when measuring regulatory focus with the PVQ; the mediating mechanism may not have acted upon the aspects of regulatory focus measured by the PVQ. Again, more research is needed on the relationship between

expectations of success and the specific aspects of regulatory focus that are measured by these different scales.

## 7.5 POWER AND PREVENTION

Further complicating the findings of Study 5 was the fact that the positive relationship between power and promotion (as measured by the RFQ index, which was created by subtracting prevention scores from promotion scores) appeared to only be a net gain in promotion. An examination of the correlations between dispositional power and the RFQ promotion also between the dispositional power and RFQ prevention scales revealed that the gain in promotion focus (as measured by the RFQ index) was driven by a reduction in prevention focus rather than by an increase in promotion focus. This contradicts previous research (Willis, 2009). These findings imply that power-associated changes in global regulatory focus may be due specifically to changes in prevention focus. This, along with the negative relationship between power and expectations of success, makes it appear that powerless individuals are placed in a motivation-increasing state of *prevention failure*. But research does not indicate an increase in motivation for powerless people (e.g., Willis et al., 2010). How can these results be reconciled with the claim that powerful individuals should be in a motivation-increasing state of *promotion success*, whereas motivation should not increase for the powerless?

The results from Studies 2 and 4 indicate that promotion seems to be the more prevalent of the two regulatory foci (see also Higgins, Roney, Crowe, & Hymes 1994). Additionally, only 10 individuals in Study 5 had a negative RFQ index score (i.e., a stronger predominant prevention focus). Given that, and the results of Study 5, consider what happens from a global

regulatory focus perspective as power increases: prevention focus decreases and this exaggerates the natural inclination towards promotion and allows a more clear expression of that focus. Thus, the co-occurring expectations of success intensify motivation, resulting in a state of *promotion success*. Now consider what happens from a global regulatory focus perspective as power decreases: prevention focus increases, but given individuals' natural inclination towards promotion, levels of promotion and prevention merely become more equal. This means that powerless individuals lack a predominant regulatory focus (i.e., their levels of promotion and prevention in global regulatory focus are more equal). The increase in prevention just serves to muddy the motivational waters. This also means that the decrease in expectations of success that powerless people experience may not result in a motivation-enhancing state of *prevention failure*; there is no clearly expressed focus for expectations of success to act upon. Such an explanation is consistent with the motivational differences observed between powerful and powerless individuals. However, these results were found with only one regulatory focus index. Power seemed to have less impact on the PVQ prevention scale, and more impact on the PVQ promotion scale. So, again, the specific aspects of regulatory focus measured by these scales may play a role in these findings.

Research showing that success expectancies affect motivation through global (i.e., predominant) regulatory focus, rather than through individual regulatory foci (i.e., promotion or prevention), would lend credence to the above explanation. This research did not specifically address the question of which is more important for motivation, global or specific regulatory focus. However, an inference can be made using these results and the results of previous research. Contrary to predictions, in Study 5 expectations of success were negatively related to the RFQ prevention scale and also mediated the negative relationship between the RFQ

prevention scale and power. If expectations of success were to affect specific (not global) regulatory focus, then this result would imply that powerless individuals enjoy the motivational boost associated with *prevention failure*. However, much previous research on this topic has failed to identify any motivational boost among the powerless; such a boost is usually found only among the powerful (e.g., Willis et al., 2010). Taken together, previous research and the results of Study 5 suggest that success expectancies affect motivation through global (not specific) regulatory focus. Such a state of affairs would explain how the results of Study 5 can co-exist with previous research. Although this reasoning suggests that global regulatory focus is more important, research directly addressing this question will again be needed before firm conclusions can be drawn.

## **7.6 STRENGTHS AND WEAKNESSES**

This research has some distinct strengths. Over the course of the five studies, power was operationalized three different ways, regulatory focus was operationalized five different ways, and the expectation of success was operationalized eight different ways. This variety of operationizations yielded information about the generality of the relationships under investigation. For example, significant relationships were obtained only when measuring variables dispositionally. This indicates an important boundary condition of the findings.

An issue related to the different operationalizations of power is the use of power manipulations designed to target specific types of power (i.e., personal vs. social power). This typology of power has not received the attention that it deserves in the literature. The distinction between these different types of power seems important, particularly for research concerning the



relationship between power and regulatory focus. This research contributes to the small subsection of the power literature that has begun to examine and compare the effects of these different types of power.

Additionally, little research has examined the reasons for the greater motivation of powerful individuals (but see Guinote, 2010). Rather than simply accepting this greater motivation as canonical, my research took a step towards the development of an explanatory framework and suggested ways to control and increase that motivation. This fills a gap in the literature on power and implies useful analyses of situations where hierarchical relationships are common, such as in the military or the corporate world. Understanding the type of motivation that powerful individuals have and where this motivation comes from can help to predict and control the behavior of those individuals. This understanding also can help organizational planners to comprehend and improve the motivation of powerless individuals, who are often ignored by researchers.

As has often been done in previous research on regulatory focus (e.g., Idson et al., 2000), I measured regulatory focus as a unitary difference score. Difference scores used as dependent measures have some inherent weaknesses; they have lower reliability than their component scores, obfuscate the variance added by component scores, and can yield misleading results (Edwards, 1995). Nonetheless, they are a convenient means of representing the direction of an individual's motivational tendencies. In light of these issues, this research examined the component scales (i.e., prevention and promotion) of each difference score, in addition to the difference score itself. These extra analyses painted a clearer picture of the different contributions that power made to both prevention and promotion focus, instead of conflating its unique effects on these two independent constructs<sup>9</sup>.

However, this research also had some weaknesses. One explanation for the disappointing results of Studies 2, 3, and 4 is that the power manipulation did not effectively manipulate participants' feelings of power. Although the Galinsky power manipulation has often been used successfully to manipulate power in the past, and despite the successful manipulation check in Studies 3 and 4, powerful participants did not report feeling tremendously powerful in an absolute sense ( $M = 2.72$  and  $M = 3.25$  on a bipolar scale, where the highest response was 6 and the lowest was -6 for Studies 3 and 4, respectively). It is possible that this manipulation was simply not strong or meaningful enough to elicit changes in a variable as pervasive as type of motivation. Stronger effects might be found if participants were placed in simulated power-asymmetrical relationships (i.e., made to be either a manager or a subordinate in a dyad). Such a situation might be more psychologically meaningful to participants and could thus elicit stronger effects on motivation.

Another problem in my research was the low Chronbach's alphas obtained for several regulatory focus measures in Study 1. As mentioned previously, some of these measures were originally designed for use in non-American samples. This may explain these low reliabilities. Regulatory focus is a difficult variable to define with scalar measures (see Summerville & Roese, 2008 for a discussion of some of these problems) and these difficulties may have contributed to both the low Chronbach's alphas and also to the weak and sometimes non-converging results that I obtained. Future researchers should develop scales that better assess regulatory focus and then replicate my own and other research with these new measures.

Additionally, the correlational design used in Studies 1 and 5 to test for these relationships did not reveal the direction of causation or the elimination of third variables that could be driving the relationships. Indeed, the constellation of results from these studies is

consistent with causation moving in the reverse direction from that which I hypothesized. It is possible that increased promotion focus led to increased expectations of success (see Gino & Margolis, 2011; Haslett, Molden, & Sackett, 2011) and, eventually, to increased feelings of power. The many common outcomes of power and regulatory focus suggest this is a possibility. Likewise, it is possible that individuals who expect to be successful are also more likely to feel powerful and have a promotion focus. A related problem is that the concurrent measurement of these variables makes it impossible to demonstrate that the change in the mediator *preceded* a change in the dependent variable. Unfortunately, these questions cannot be fully addressed until more experimental work is completed.

Finally, one criticism that is often levied against power research is that students in an experimental situation may inherently feel powerless. For example, consider that students in a research participation pool a) typically feel that participating in psychology experiments is not worthwhile, b) are repeatedly informed that their participation is voluntary and that they can leave whenever they want without loss of credit, and c) almost never get up and walk out. Collectively, these three facts could indicate that participants were either afraid to leave or felt that they lacked the authority to make that decision. Indeed, Study 5, one of the two studies in which the proposed relationships were uncovered, did not make use of the University of Pittsburgh's participant pool. In this study, students in psychology classes received a small piece of candy, not course credit, for their participation. It is unlikely that students in Study 5 felt compelled to participate or unable to exit. This could explain the more positive results of this study; perhaps those participants felt more comfortable and in control. Though it is possible that participating in research makes students feel weak and helpless, it stands to reason that differences in motivation should still be observed if power, expectations of success, and

regulatory focus are, in fact, related. Furthermore, much research on power makes use of students participating for course credit and does find significant effects. Nonetheless, when interpreting the results of this or any research, it is important to consider the context in which the data were collected and the way that context could have affected the relationships under investigation.

## **7.7 IMPLICATIONS AND FUTURE RESEARCH DIRECTIONS**

The implications of this research are far-reaching. First, this investigation provided a fuller picture of the relationship between power and regulatory focus, and indeed power and motivation more generally. Previous research has hypothesized and found a relationship between power and regulatory focus, but little attention has been given to the reasons for that relationship. Identifying the causal mechanisms behind relationships is an important step in theory building and making causal inferences. Furthermore, one of the most pervasive findings in the flurry of recent research on power is the increased goal persistence of powerful individuals. Like the more specific body of research just mentioned, much of the research on power and general motivation is atheoretical, in that little attention has been given to the mechanisms through which this increased motivation occurs. This research helps to fill these gaps by investigating a mechanism, increased expectations of success, through which the increase in promotion focus takes place.

The previously mentioned lack of theoretical explanations for the motivational differences between the powerful and powerless does have one notable exception. Guinote (2010) attributed this difference to cognitive deficits in powerless individuals (e.g., Smith et al., 2008). Interestingly, my research converges with Guinote's analysis. As previously mentioned,

regulatory fit is a state where regulatory focus and means of goal pursuit map onto each other (Higgins, 2000). For example, someone with a promotion focus who eagerly pursues rewards (instead of vigilantly avoiding threats) would be in a state of regulatory fit. This state enhances both cognitive processing and motivation (Evans & Petty, 2003; Foster et al., 1998; Higgins, 2000; Lee & Aaker, 2004). If powerlessness makes levels of prevention focus and promotion focus more equivalent, then it should be difficult for powerless individuals to pick means of goal pursuit that match their global regulatory focus. Having more equivalent promotion and prevention foci should make regulatory fit more difficult to attain. This may be the source of the cognitive and motivational deficits mentioned by Guinote.

Additionally, some of my research showed a mediational role for expectations of success, I only examined the direction of motivation (i.e., promotion or prevention focus), and not its intensity (i.e., persistence in goal pursuit). Future research should determine if expectations of success mediate the relationship between power and increased persistence in goal pursuit in the same way that they mediate the relationship between power and promotion focus. The current analysis suggests that this would be the case, due to powerful individuals being in a state of *promotion success* and the intense emotions that come along with it.

In my research, a mediational role for expectations of success was found when power, success expectations, and regulatory focus were measured, but not when those variables were manipulated. Most research finds similar effects of power whether it is measured or manipulated (e.g., Cote et al., 2011), but some research does find that measured power moderates the effects of manipulated power (e.g., Chen et al., 2009). Future research should both manipulate and measure power in the same participants in the hopes of determining whether these types of power both affect motivation in the same way (and perhaps strengthen each other's influence) or

have different effects on motivation. The applications of such research are far reaching; in hierarchical organizations, individuals could be given positions that best map onto their dispositions.

Future research should also consider situations that evoke feelings of power of varying pervasiveness. For example, babysitting your neighbor's children for one night may make you feel somewhat powerful for brief time, but spending 25 years as the CEO of a Fortune 500 company would make you feel much more powerful for a much longer time. The latter situation probably has a more profound impact on motivation. Information about temporary (vs. permanent) situational power would also be useful to organizational planners.

Additionally, future research should examine the different aspects of regulatory focus (measured by the RFQ and PVQ) and how they are related to the variables in my research. I found that these different aspects were quite important; mediational results were different depending on whether the RFQ or the PVQ was used. Our understanding of these motivational tendencies can be increased by paying greater attention to the way that slightly different operationalizations tap specific aspects of global regulatory focus. In light of this, replicating previously obtained results with new measures of regulatory focus may provide valuable insight into the true nature of that construct.

Another issue that deserves deeper inquiry is the distinction between personal and social power. Since French and Raven's (1959) research, little attention has been given to different types of power and most modern research on power considers it to be a unitary concept (see Guinote, 2010; Keltner et al., 2003). However, in recent years the difference between personal and social power has started to receive more attention (see Lammers et al., 2009; Sassenberg et al., 2011). It is possible that personal power (being unconstrained) has the strongest effect on

promotion focus whereas social power (being in charge of others) has the strongest effect on prevention focus. Unfortunately, these types of power often co-occur, which makes disentangling their unique effects difficult. Nonetheless, previous research has examined them separately and future research should continue to document both their separate and combined effects on motivation. In particular, developing manipulations that access these different types of power would be helpful in isolating their unique effects.

On a more practical level, my research suggests a way to increase motivation. If success expectancies do mediate the relationship between power and regulatory focus, then altering success expectancies (even more than power) would increase motivation. In other words, making powerful people expect *more* success should lead them to pursue their goals even more fervently. Utilizing success expectancies in this way can help us better predict and control the motivation of individuals in power hierarchies. Future research, perhaps in real world settings, should attempt to manipulate feelings of confidence to see if these predictions are born out.

Furthermore, the results of Study 5 indicate that power specifically reduces the motivation to avoid losses while leaving the motivation to attain gains intact. This may offer some insight into the lapses of judgment sometimes displayed by powerful individuals (e.g., Bernie Madoff, the Penn State scandal). Much research has also examined the potential for powerful individuals to act and think in unbecoming ways (Fiske, 1993; Goodwin et al., 2000; Inesi, Gruenfeld, & Galinsky, 2012; Kipnis, 1972; Richeson & Ambady, 2003). My research indicates that this may be due, in part, to a tendency for the powerful to ignore potential negative consequences of their actions. Perhaps by reminding powerful individuals of these consequences, some of the pernicious effects of power can be eliminated. However, one goal of such research should be to preserve power's many beneficial effects (Galinsky, Magee, et al., 2008; Gruenfeld

et al., 2008; Rodin & Langer, 1977). Instead of simply eliminating feelings of power, tempering them with reminders of consequences may prevent us from throwing the baby out with the bathwater.



## 8.0 APPENDIX A

Please use the following scale to rate the items below:

1	2	3	4	5	6	7
<i>Disagree strongly</i>	<i>Disagree</i>	<i>Disagree a little</i>	<i>Neither agree nor disagree</i>	<i>Agree a little</i>	<i>Agree</i>	<i>Agree strongly</i>

In my relationships with others...

\_\_\_\_\_ I can get people to listen to what I say.

\_\_\_\_\_ My wishes do not carry much weight.

\_\_\_\_\_ I can get others to do what I want.

\_\_\_\_\_ Even if I voice them, my views have little sway.

\_\_\_\_\_ I think I have a great deal of power.

\_\_\_\_\_ My ideas and opinions are often ignored.

\_\_\_\_\_ Even when I try, I am not able to get my way.

\_\_\_\_\_ If I want to, I get to make the decisions.

## 9.0 APPENDIX B

*Please answer the following questions as honestly as possible.*

1. I prefer to work without instructions from others.

1	2	3	4	5	6	7
definitely untrue	not true	probably not true	neither true nor untrue	probably true	true	definitely true

2. Rules and regulations are helpful and necessary for me.

1	2	3	4	5	6	7
definitely untrue	not true	probably not true	neither true nor untrue	probably true	true	definitely true

3. For me, it is very important to carry out the obligations placed on me.

1	2	3	4	5	6	7
definitely untrue	not true	probably not true	neither true nor untrue	probably true	true	definitely true

4. I generally solve problems creatively.

1	2	3	4	5	6	7
definitely untrue	not true	probably not true	neither true nor untrue	probably true	true	definitely true

(please turn page)

5. I'm not bothered about reviewing or checking things really closely.

1	2	3	4	5	6	7
definitely untrue	not true	probably not true	neither true nor untrue	probably true	true	definitely true

6. I like to do things in a new way.

1	2	3	4	5	6	7
definitely untrue	not true	probably not true	neither true nor untrue	probably true	true	definitely true

7. I always try to make my work as accurate and error-free as possible.

1	2	3	4	5	6	7
definitely untrue	not true	probably not true	neither true nor untrue	probably true	true	definitely true

8. I like trying out lots of different things, and am often successful in doing so.

1	2	3	4	5	6	7
definitely untrue	not true	probably not true	neither true nor untrue	probably true	true	definitely true

(please turn page)

9. It is important to me that my achievements are recognized and valued by other people.

1	2	3	4	5	6	7
definitely untrue	not true	probably not true	neither true nor untrue	probably true	true	definitely true

10. I often think about what other people expect of me.

1	2	3	4	5	6	7
definitely untrue	not true	probably not true	neither true nor untrue	probably true	true	definitely true

## 10.0 APPENDIX C

*Here are some descriptions of different people. Please read each description and think about how much each person is like you or is not like you. Please circle the response that shows how much the person in the description is like you.*

1. Thinking up new ideas and being creative is important to this person. This person likes to do things in his/her own original way.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

2. It is important to this person to live in secure surroundings. This person avoids anything that might endanger her/his safety.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

3. This person thinks it is important to do lots of different things in life. This person always looks for new things to try.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

(please turn page)

4. This person believes that people should do what they're told. This person thinks people should follow rules at all times, even when no one is watching.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

5. This person thinks it's important **not** to ask for more than what you have. This person believes that people should be satisfied with what they have.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

6. It is important to this person to make his own decisions about what he/she does. This person likes to be free and to plan and choose activities for himself/herself.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

7. It is very important to this person that her/his country be safe from threats from within and without. This person is concerned that social order be protected.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

8. This person likes to take risks. This person is always looking for adventures.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

(please turn page)

9. It is important to this person to always behave properly. This person wants to avoid doing anything people would say is wrong.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

10. Religious belief is important to this person. This person tries hard to do what his religion requires.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

11. It is important to this person that things be organized and clean. This person doesn't want things to be a mess.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

12. This person thinks it's important to be interested in things. This person likes to be curious and to try to understand all sorts of things.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

(please turn page)

13. This person believes it is best to do things in traditional ways. It is important to this person to follow the customs he/she has learned.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

14. It is important to this person to be obedient. This person believes he/she should always show respect to her/his parents and to older people.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

15. This person likes surprises. It is important to this person to have an exciting life.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

16. This person tries hard to avoid getting sick. Staying healthy is very important to this person.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

(please turn page)



17. It is important to this person to be independent. This person likes to rely on himself/herself.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

18. Having a stable government is important to this person. This person is concerned that the social order be protected.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

19. It is important to this person to be polite to other people all the time. This person tries to never disturb or irritate others.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all

20. It is important to this person to be humble and modest. This person tries not to draw attention to herself/himself.

1	2	3	4	5	6
Very much like me	Like me	Somewhat like me	A little like me	Not like me	Not like me at all



7. When good things happen to me, it affects me strongly.
- |                 |                          |                       |              |
|-----------------|--------------------------|-----------------------|--------------|
| 1               | 2                        | 3                     | 4            |
| <i>Disagree</i> | <i>Slightly disagree</i> | <i>Slightly agree</i> | <i>Agree</i> |
8. Criticism or scolding hurts me quite a bit.
- |                 |                          |                       |              |
|-----------------|--------------------------|-----------------------|--------------|
| 1               | 2                        | 3                     | 4            |
| <i>Disagree</i> | <i>Slightly disagree</i> | <i>Slightly agree</i> | <i>Agree</i> |
9. I crave excitement and new sensations.
- |                 |                          |                       |              |
|-----------------|--------------------------|-----------------------|--------------|
| 1               | 2                        | 3                     | 4            |
| <i>Disagree</i> | <i>Slightly disagree</i> | <i>Slightly agree</i> | <i>Agree</i> |
10. I go out of my way to get things I want.
- |                 |                          |                       |              |
|-----------------|--------------------------|-----------------------|--------------|
| 1               | 2                        | 3                     | 4            |
| <i>Disagree</i> | <i>Slightly disagree</i> | <i>Slightly agree</i> | <i>Agree</i> |
11. I feel pretty worried or upset when I think or know somebody is angry at me.
- |                 |                          |                       |              |
|-----------------|--------------------------|-----------------------|--------------|
| 1               | 2                        | 3                     | 4            |
| <i>Disagree</i> | <i>Slightly disagree</i> | <i>Slightly agree</i> | <i>Agree</i> |
12. If I see a chance to get something I want, I move on it right away.
- |                 |                          |                       |              |
|-----------------|--------------------------|-----------------------|--------------|
| 1               | 2                        | 3                     | 4            |
| <i>Disagree</i> | <i>Slightly disagree</i> | <i>Slightly agree</i> | <i>Agree</i> |
13. I'm always willing to try something new if I think it will be fun.
- |                 |                          |                       |              |
|-----------------|--------------------------|-----------------------|--------------|
| 1               | 2                        | 3                     | 4            |
| <i>Disagree</i> | <i>Slightly disagree</i> | <i>Slightly agree</i> | <i>Agree</i> |
14. It would excite me to win a contest.
- |                 |                          |                       |              |
|-----------------|--------------------------|-----------------------|--------------|
| 1               | 2                        | 3                     | 4            |
| <i>Disagree</i> | <i>Slightly disagree</i> | <i>Slightly agree</i> | <i>Agree</i> |

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

1	2	3	4
<i>Disagree</i>	<i>Slightly disagree</i>	<i>Slightly agree</i>	<i>Agree</i>

16. When I go after something I use a “no holds barred” approach.

1	2	3	4
<i>Disagree</i>	<i>Slightly disagree</i>	<i>Slightly agree</i>	<i>Agree</i>

17. I often act on the spur of the moment.

1	2	3	4
<i>Disagree</i>	<i>Slightly disagree</i>	<i>Slightly agree</i>	<i>Agree</i>

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

1	2	3	4
<i>Disagree</i>	<i>Slightly disagree</i>	<i>Slightly agree</i>	<i>Agree</i>

19. I feel worried when I think I have done poorly at something.

1	2	3	4
<i>Disagree</i>	<i>Slightly disagree</i>	<i>Slightly agree</i>	<i>Agree</i>

20. I have very few fears compared to my friends.

1	2	3	4
<i>Disagree</i>	<i>Slightly disagree</i>	<i>Slightly agree</i>	<i>Agree</i>

**12.0 APPENDIX E**

Goal list sheet A

*Please list any goals that you feel responsible for accomplishing over the course of the next two years. Please list as many goals as you can. These can be any kind of goal and can relate to any aspect of your life (for example, school, occupation, or social).*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

## 13.0 APPENDIX F

### Goal list sheet B

*Please list any goals that you would enjoy accomplishing over the course of the next two years. Please list as many goals as you can. These can be any kind of goal and can relate to any aspect of your life (for example, school, occupation, or social).*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

## 14.0 APPENDIX G

### Goal information sheet

*Keep in mind the corresponding goal from the goal list sheet A/B when you answer each question.*

Goal #\_\_\_\_\_ from goal list sheet A/B

Please record the goal here: \_\_\_\_\_

1. How much does this goal focus on getting something that you want?

0	1	2	3	4	5	6
Not at all		Slightly		Quite a bit		Completely

2. How much does this goal focus on avoiding something that you don't want?

0	1	2	3	4	5	6
Not at all		Slightly		Quite a bit		Completely

3. How likely do you think it is that you will be able to accomplish this goal?

0	1	2	3	4	5	6
Not at all		Slightly		Quite a bit		Completely

4. How confident are you about your response to the previous question (about your likelihood of accomplishing the goal)?

0	1	2	3	4	5	6
Not at all		Slightly		Quite a bit		Completely

5. Do you feel you have the ability to accomplish this goal?

0	1	2	3	4	5	6
Not at all		Slightly		Quite a bit		Completely

6. How confident are you about your response to the previous question (about the extent to which you have the ability to accomplish this goal)?

0	1	2	3	4	5	6
Not at all		Slightly		Quite a bit		Completely



## 15.0 APPENDIX H

### Goal information sheet

*Please keep in mind the corresponding goal from the goal list sheet A/B when you answer each question.*

Goal #\_\_\_\_\_ from goal list sheet A/B

Please record the goal here: \_\_\_\_\_

1. How important is this goal to you?

0	1	2	3	4	5	6
Not at all		Slightly		Quite a bit		Extremely

2. How interested in this goal are you?

0	1	2	3	4	5	6
Not at all		Slightly		Quite a bit		Extremely

3. How motivated are you to achieve this goal?

0	1	2	3	4	5	6
Not at all		Slightly		Quite a bit		Extremely

4. How confident are you that you will achieve this goal?

0	1	2	3	4	5	6
Not at all		Slightly		Quite a bit		Extremely

## 16.0 APPENDIX I

### Perceptions of college tuition

For this study, I'm interested in your perceptions about the cost of attending college. For each of the following colleges or universities, please provide your best estimate about what 1 year of "out-of-state" tuition would be at each institution in US dollars as reported by a recent edition of *US News and World Repots*. Please do not include room and board.

Coastal Carolina Community College, Jacksonville, NC: \$\_\_\_\_\_

University of California, Berkeley, CA: \$\_\_\_\_\_

Vassar College, Hudson Valley, NY: \$\_\_\_\_\_

Florida State University, Tallahassee, FL: \$\_\_\_\_\_

Colorado College, Colorado Springs, CO: \$\_\_\_\_\_

Kansas State University, Manhattan, KS: \$\_\_\_\_\_

Purdue University, West Lafayette, IN: \$\_\_\_\_\_

## 17.0 APPENDIX J

Please answer the following questions.

1. Overall, how confident do you feel in your performance in the tuition estimation task?

0	1	2	3	4	5	6
Not at all confident			Somewhat confident			Completely confident

2. How accurate do you think you were in estimating the tuitions?

0	1	2	3	4	5	6
Not at all accurate			Somewhat accurate			Completely accurate

3. Consider an estimate to be correct if it is within \$2000 of the actual tuition. Out of the 7 total tuitions, how many do you think you got correct?

\_\_\_\_\_

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## 19.0 FOOTNOTES

<sup>1</sup> Informational power is sometimes omitted in discussions of this theory (Raven, Schwarzwald, Koslowsky, 1998).

<sup>2</sup> Participants believed this deception except where noted.

<sup>3</sup> However, Question #4 always directly followed Question #3 and Question #6 always directly followed Question #5, because it seemed logical to consider confidence in an estimate only after making that estimate.

<sup>4</sup> No participants were able to correctly guess the experimental hypotheses.

<sup>5</sup> Data violated the assumption normality several times throughout the results reported in this paper. However, ANOVA is typically resistant to violations of assumptions (see discussion in Kenny & Judd (1986)). Additionally, when this occurred, a Kruskal-Wallis test (which does not rely on the same assumptions as parametric tests like ANOVA) was run and each time indicated the same pattern of results as the corresponding ANOVA.

<sup>6</sup> Because participants only listed three goals of each type, their level of confidence about accomplishing each goal should not be affected by listing different numbers of goals, as appeared to be the case in Study 1.

<sup>7</sup> When testing this relationship with Preacher and Hayes's (2008) bootstrapping methodology similar results were obtained.



<sup>8</sup> Again, similar results were obtained when using a bootstrapping methodology (Preacher & Hayes, 2008).

<sup>9</sup> Edwards (1995) described analyses designed to eliminate the problems inherent in the analysis of difference scores as dependent measures. However, these procedures involve creating and analyzing subsections of data. In the case of the current data sets, some subsections contained too few cases for a reasonable analysis. Consequently, this procedure was not carried out.