THE RELATIONSHIP BETWEEN PERSONALITY, GRATITUDE, AND

PSYCHOLOGICAL WELL-BEING

by

ANGELA S. ZISKIS

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ABSTRACT OF THE DISSERTATION

The Relationship Between Personality, Gratitude, and Psychological Well-Being

by ANGELA S. ZISKIS

Dissertation Director:
Brenna H. Bry, Ph.D.

Separate studies have shown relationships between personality and well-being as well as between gratitude and well-being. More recently, a few studies have examined personality, gratitude, and well-being in concert. One question that has been overlooked, however, is if gratitude might serve as a mediator between personality and psychological well-being. The purpose of this study was to explore if the relationship between personality and psychological well-being might be mediated by gratitude. Two hundred twenty-four college students enrolled in an introductory psychology course in a large, mid-Atlantic public university participated in our study. A shortened version of the Big Five Inventory (BFI-10; Rammstedt & John, 2007) was used to measure five personality characteristics: Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. The Gratitude Questionnaire-6 (GQ-6; McCullough, Emmons, & Tsang, 2002) was used to measure gratitude. Lastly, Ryff's (1989) 84-item inventory was used to measure overall Psychological Well-Being (PWB) and its six dimensions: Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance. Multiple regression analyses indicated that

gratitude fully mediated the relationship between gender and overall PWB as well as the relationship between the personality characteristic Agreeableness and overall PWB. Multiple regression analyses also indicated that gratitude partially mediated the relationship between the personality characteristic Extraversion and overall PWB. Gratitude was also found to fully or partially mediate the relationships between Extraversion and Agreeableness and some of the dimensions of PWB. Implications for further research are discussed.

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The Relationship Between Personality, Gratitude, and Psychological Well-Being

"Don't worry, be happy." For centuries, humans have struggled to find and maintain happiness in life. The question remains, however, what makes for a happy individual and how do we obtain happiness? While many laypersons may feel that money can buy happiness, research does not support this notion (Myers, 2008). Although we are getting richer as a society, people do not appear to be reporting higher levels of happiness (Watkins, 2004).

Historically, the focus of clinical psychology research has been on human suffering rather than potential causes and consequences of positive functioning. More recently, however, with the rise in popularity of positive psychology (Seligman, 1990), researchers have attempted to examine what defines a content individual and what factors may predict happiness. Given that daily living consists of numerous stressors that could potentially lower well-being, it is important to examine individual characteristics that may protect well-being from the negative impact of everyday stressors.

Review of the Literature

Well-Being

Currently, the two major conceptualizations of well-being are subjective well-being (SWB) and psychological well-being (PWB). As pointed out by Keyes, Shmotkin, and Ryff (2002), "although both approaches assess well-being, they address different features of what it means to be well: SWB involves more global evaluations of affect and life quality, whereas PWB examines perceived thriving vis-à-vis the existential challenges of life" (p. 1007). A brief history of SWB and PWB and elaboration of the constructs are discussed below.

<u>Subjective Well-Being (SWB).</u> The concept of SWB was initially developed in the 1950s as part of a scientific trend seeking to measure quality of life in a climate increasingly concerned with how people viewed themselves (Keyes, Shmotkin, & Ryff, 2002). SWB includes people's cognitive and affective evaluations of their lives, and is essentially one's level of happiness (Diener, 2000). The major components of SWB in the field are levels of positive and negative affect, domain satisfactions (e.g. work, family, finances), and general life satisfaction (Diener, Suh, Lucas, & Smith, 1999). It is thought that people experience abundant SWB when they feel many pleasant and few unpleasant emotions, when they are engaged in interesting activities, and when they are satisfied with their lives (Diener, 2000). SWB is often measured using scales that were developed for purposes other than defining the basic structure of well-being (e.g., Life Satisfaction Index, or LSI; Neugarten, Havighurst, & Tobin; Positive and Negative Affectivity Scales, or PANAS; Watson, Clark, & Tellegen, 1988). The most frequently used scale to measure SWB is the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985).

Personality is one of the strongest and most consistent predictors of SWB (Diener, Suh, Lucas, & Smith, 1999). In particular, two personality characteristics have received the most attention in this area: neuroticism and extraversion. Neuroticism includes characteristics such as anxiety, hostility, depression, and vulnerability while extraversion includes characteristics such as gregariousness, assertiveness, positive emotions, and openness. It is thought that neurotics and extraverts have a temperamental susceptibility to experience negative and positive affect respectively. For example, extraverts are characterized by a greater sensitivity to rewards and this sensitivity may manifest itself in

the form of greater pleasant affect when exposed to rewarding stimuli. Higher positive affect potentially motivates individuals to approach rewarding stimuli, which in turn, may reinforce the extraverted personality (Diener, Suh, Lucas, & Smith, 1999). It is thought that our society is more accepting of extraverted personalities and situations that are pleasurable to extraverts are more easily found in Western cultures. Thus, it appears that in Western cultures, an extraverted personality may interact with the environment to increase well-being. In contrast to extraversion, neuroticism has been shown to be associated with decreased psychological functioning, greater health problems, and a lowered sense of well-being (Emery, Huppert, & Schein, 1996).

Currently, how many personality characteristics are needed to provide a complete picture of the happy individual is still an open question (Diener, Suh, Lucas, & Smith, 1999). Much attention has focused on the personality characteristics of neuroticism and extraversion, but the relationship between well-being and other personality characteristics such as openness, agreeableness, and conscientiousness is less researched. Identifying which personality characteristics are related to well-being, the direction of causality, and the mechanisms responsible for these relations are important goals in personality and well-being research (Diener, Suh, Lucas, & Smith, 1999).

A major limitation of the construct of SWB is that the research was not, at its inception, strongly theory guided (Ryff, 1989). Critics of the SWB construct argue that this limited theoretical grounding has led to neglect of important facets of psychological health (Ryff, 1989). It is also argued that there appears to be more to well-being than feeling happy and satisfied with life and that measures of SWB do not answer the question of what it means to be well psychologically.

Psychological Well-Being (PWB). In response to the weaknesses of measures of SWB, the concept of PWB emerged in the 1980s. In contrast to the development of SWB, the conceptualization of PWB was theoretically grounded and stemmed from earlier theories in clinical and adult developmental psychology. These theories emphasized an individual's potential for a meaningful life and self-realization in the face of challenge (Keyes, Shmotkin, & Ryff, 2002). More specifically, PWB consists of six dimensions that are derived from theoretical accounts such as Maslow's (1968) conception of self-actualization, Allport's (1961) formulation of maturity, Rogers's (1961) depiction of the fully functioning person, and Jung's (1933) account of individuation. These theories emphasized concepts that are incorporated into the construct of PWB, such as self-fulfillment, open-mindedness, and freedom of choice.

The six distinct dimensions of PWB are: (a) autonomy—a sense of self-determination, independence, and regulation of behavior from within; (b) environmental mastery—a capacity to effectively manage one's life and surrounding world; (c) personal growth—a sense of continued growth and development as a person; (d) positive relations with others—the possession of quality relations with others; (e) purpose in life—the belief that one's life is purposeful and meaningful; (f) self-acceptance—positive evaluations of oneself and one's past life (Ryff & Keyes, 1995). This six-factor model of PWB has been supported by confirmatory factor analysis with data from a nationally representative sample of 1,108 adults (Ryff & Keyes, 1995). PWB is often measured via Ryff's (1989) PWB scales. Taken together, these six measures of well-being may be more comprehensive than SWB measures in painting the picture of what constitutes a fulfilled and happy individual.

To further expand the definition of PWB, research suggests that PWB cannot be equated with the absence of distress. To examine the relationship between symptoms of distress, signs of wellness, and PWB, Ruini, Ottolini, Rafanelli, Tossani, Ryff, & Fava (2003) administered Kellner's Symptom Questionnaire (1987) to assess signs of wellness (relaxation, contentment, physical well-being, and friendliness) and symptoms of distress (anxiety, depression, somatization, hostility) among 450 participants in the general population. PWB was measured using Ryff's (1989) six PWB scales.

Ruini et al. (2003) found that higher levels of PWB (on the dimensions of autonomy, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance) were related to lower levels of distress (anxiety, depression, somatization, and hostility) and to the increased presence of indicators of wellness such as contentment, relaxation, and physical well-being. Of note, however, is that most of these correlations were relatively weak, ranging from .08 to .65, with an average of .27. According to Ruini et al. (2003), this suggests that "it is not conceptually or methodologically correct to assume the presence of well-being simply by the lack of distress" (p. 273).

Personality characteristics may also influence PWB in similar ways to their influence on SWB. It has been found that individuals who are low on both SWB and PWB have the highest means of neuroticism and lowest means of extraversion; whereas those who are high on both SWB and PWB present the opposite pattern (Keyes, Shmotkin, & Ryff, 2002). Aspects of PWB have also been shown to be related to other characteristics of personality, such as novelty seeking, harm avoidance, and reward dependence. The latter three dimensions of personality were coined by Cloninger (1987)

as part of his biosocial theory of personality. Cloninger (1987) argued that these three personality traits were genetically independent and have predictable patterns of interaction with environmental stimuli.   For example, the novelty seeking personality is characterized by "intense exhilaration or excitement in response to novel stimuli or cues for potential rewards or potential relief of punishment, which leads to frequent exploratory activity in pursuit of potential rewards as well an active avoidance of monotony and potential punishment" (Cloninger, 1987, p. 575). The harm avoidance personality is described as "a tendency to respond intensely to signals of aversive stimuli, thereby learning to inhibit behavior and avoid punishment, novelty, and frustrative nonreward" (Clonginger, 1987, p.575). Lastly, reward dependence is argued to be "a tendency to respond intensely to signals of reward, and to maintain or resist extinction of behavior that has previously been associated with rewards or relief from punishment" (Cloninger, 1987, p.575).

These three personality dimensions of novelty seeking, harm avoidance, and reward dependence have been shown to be related to dimensions of PWB in a study conducted by Ruini et al. (2003). In this particular study, a sample of 450 adults in the general population completed self-report assessments of PWB (Ryff, 1989) and personality characteristics (Cloninger's Tridimensional Personality Questionnaire, 1987). Bivariate correlations between all study variables were computed to examine the relationships between PWB and personality.

Ruini et al. (2003) found that the personality characteristic of novelty seeking was positively related to the PWB dimensions of personal growth and positive relations. Thus, participants who reported that they like to seek out new experiences in search of

potential rewards were also likely to report a sense of continued growth as a person as well as having positive relations with others. It was also found that the personality characteristic of reward dependence, or a greater sensitivity to rewards, was positively related to the PWB dimensions of positive relations and autonomy. In other words, participants that reported themselves to be particularly responsive to reward reported more positive relations and feelings of autonomy. Lastly, it was found that the personality characteristic of harm avoidance, which is similar to neuroticism, showed negative correlations with all six dimensions of PWB (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance). Therefore, participants who reported behavioral inhibition as a means to avoid punishment or negative feelings also tended to report lower levels of PWB. Taken together, the results of this study regarding the relationships between personality and well-being provide further evidence in support of the relationship between these two variables.

There has been some concern, however, that the relationship between personality and well-being may be the result of measurement overlap rather than representative of a true relationship between these two variables. More specifically, many studies that have examined the relationship between personality and well-being have used similar or the same items to measure each variable (Costa & McCrae, 1980). To examine whether personality and PWB were still related after controlling for measurement overlap, Schmutte and Ryff (1997) collected personality (NEO Five-Factor Inventory; Costa & McCrae, 1992) and PWB (Ryff, 1989) data from 2 samples of midlife adults (N=215 and N=139). The researchers ensured that measures of personality and PWB were maximally

distinct, both conceptually and methodologically, by controlling for shared source variance and shared item content. Shared source variance, caused by self-report by the same person, was controlled for by collecting data from each target respondent and their respective spouse. Shared item content was controlled for by removing empirical redundancies through face validity while being careful to preserve the theoretical integrity of each construct. Thus, after inspection of the six, 14-item PWB scales, items that were identified in terms of face validity as being redundant with the five-factor personality measures were omitted. This process resulted in the omission of four personal growth items, four positive relations items, and six environmental mastery items.

Schmutte and Ryff (1997) replicated previous findings regarding the relationships between personality and PWB, but many of these relationships were weaker or nonsignificant after controlling for "noise" variance. For example, the personality characteristics of neuroticism and extraversion were significantly related to all six dimensions of PWB before controlling for measurement overlap. When the emotional underpinnings of the well-being dimensions were removed by partialing out current affect, however, the authors found that some relationships remained significant while others ceased to be significant. For instance, correlations between the personality characteristic neuroticism and the PWB dimensions of self-acceptance and environmental mastery remained significant, while the relationships between neuroticism and other aspects of PWB became nonsignificant. The relationship between the personality characteristic of extraversion and the PWB dimensions of personal growth and positive

relations with others also remained significant while the relationships between extraversion and the other four dimensions of PWB became nonsignificant.

Other results from the analyses that removed the emotional underpinnings from the PWB measures indicated that the personality characteristic of openness was significantly related to the PWB dimension of personal growth while the personality characteristic of agreeableness was significantly related to the PWB dimension of positive relations with others. Lastly, it was found that the personality characteristic of conscientiousness was significantly related to the PWB dimensions of environmental mastery and purpose in life.

Schmutte and Ryff (1997) argued that taken together, these results suggest that "personality provides instrumental avenues through which different aspects of well-being are achieved" (p. 557). It is important to note that some PWB outcomes such as personal growth and positive relations with others significantly correlated with more than one personality characteristic. This may provide some evidence to suggest that the relationships between personality and PWB may not be straightforward in the sense of one personality characteristic corresponding to one PWB outcome. Perhaps a personality profile, consisting of more than one personality characteristic, may help determine certain predispositions that may interact with other environmental factors to contribute to PWB.

The results from the study conducted by Schmutte and Ryff (1997) strongly suggest that PWB is distinct from, but meaningfully influenced by, personality. This interpretation of the relationship between PWB and personality is further supported by Ruini et al. (2003), who used exploratory factor analyses to show that well-being, distress, and personality tended to be separate, but related constructs. Thus, PWB does

not seem to be simply a report of one's personality characteristics. Rather, PWB appears to represent a subjective evaluative assessment of oneself and one's life in particular domains (e.g. autonomy, environmental mastery, personal growth, purpose in life, positive relations with others, and self-acceptance) that encompass areas of functioning that are neglected by SWB measures of happiness and life satisfaction (Ryff & Keyes, 1995).

Similarities and differences between SWB and PWB. Given that measures of SWB and PWB dominate the well-being research literature, researchers have examined the similarities and differences between these two constructs. It has been shown that PWB and the overall constructs of SWB, as measured by single item indicators of happiness and life satisfaction (Ryff & Keyes, 1995), the Affect Balance Scale (Bradburn, 1969), the Life Satisfaction Index (Neugarten et al., 1961), and the Zung Depression Scale (Zung, 1965) are correlated with each other (Ryff & Keyes, 1995). Thus, an individual high on SWB is also likely to be high on PWB and vice versa.

While the overall constructs of PWB and SWB appear to be related to each other, Ryff and Keyes (1995) also explored the relationships between the individual facets of PWB (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance) and SWB (happiness, life satisfaction, depression). It was found that the PWB scales of environmental mastery and self acceptance were moderately to strongly associated with SWB scales of happiness, life satisfaction, and depression. However, the other four dimensions of PWB (e.g. autonomy, personal growth, positive relations with others, and purpose in life) showed mixed or weak relationships with SWB scales of happiness, life satisfaction, and depression. Thus, the

evidence suggests that the three indicators of SWB neglect key aspects of positive

functioning (Ryff & Keyes, 1995), such as the extents to which individuals feel

independent, have capacity to love and be loved, and lead a productive and meaningful

life. In other words, it appears that while the overall constructs of PWB and SWB are

related to each other, they each may consist of unique facets of overall well-being

(Keyes, Shmotkin, & Ryff, 2002; Ryff & Keyes, 1995).

Given that some dimensions of PWB (e.g. autonomy, personal growth, positive

relations with others, and purpose in life) are not strongly correlated with SWB measures

of happiness, depression, and life satisfaction, representing positive functioning is more

complicated than merely examining aspects of affect and life satisfaction. Thus, one may

still be able to demonstrate positive well-being and simultaneously report negative affect

and relatively low life satisfaction. One possible reason for this is that certain aspects of

positive functioning, such as the realization of one's goals and purposes require effort and

discipline that may well be at odds with short-term happiness (Ryff, 1989; Ryff & Keyes,

1995). Thus, simply because individuals do not report being happy or satisfied in the

moment does not necessarily imply that they are not positively functioning people.

Merely examining affect and subjective life satisfaction (SWB) as measures of well-

being seems to discount instances where positive functioning is evident in other domains

of life, such as in one's relationships with others or in feelings of self-efficacy in

controlling one's environment.

Another reason SWB scales may not be the most robust indicator of well-being is

that it appears that people adapt to most conditions very quickly. For example, Suh,

Diener, and Fujita (1996) examined the relationship between SWB [Satisfaction With

Life Scale (SWLS); Diener et al., 1985] and life events among 115 participants. Life events were measured via an 88-item life events checklist that included 35 positive events, 46 negative events, and 7 neutral events. Items were selected from widely used life events measures including the List of Recent Events (Henderson, Byrne, & Duncan-Jones, 1981), the Social Readjustment Rating Scales (Holmes & Rahe, 1967), and the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978). They found that in less than three months, the effects of many major life events lost their impact on SWB. Even though people may react strongly in the short run to good and bad events, evidence suggests that they tend to adapt over time and return to their original level of happiness (Diener, 2000). The finding that most people (including the disabled, abused, and unemployed) report themselves to be happy (Suh, Diener, & Fujita, 1996), or have high levels of SWB, also raises questions about the scientific attention given to happiness and positive affect, particularly at the expense of other aspects of positive functioning.

One potential reason for the relative dearth of studies examining PWB is the sheer number of questions comprising the measure. Ryff's measure of PWB is comprised of six 14-item scales, which totals 84 items compared to the five items that comprise the Satisfaction With Life Scale (Diener et al., 1985). Given that many researchers are faced with limited assessment time, the Satisfaction With Life Scale is more appealing in this important aspect. For large-scale studies, Ryff's (1989) six PWB scales have been reduced from 14- to 3-item scales, totaling 18 items, but these scales have low internal consistency and are not recommended for a high quality assessment of well-being. Thus, researchers who are interested in well-being, but not necessarily the nuances between PWB and SWB, are more likely to use a shorter measure of SWB rather than a more

cumbersome measure of PWB. Lack of interest in the distinction between SWB and

PWB is evident when one conducts a literature search of well-being; many authors report

that they measured PWB, when they in fact measured SWB (Emmons, 1992; Karademas,

2007). In sum, possible reasons why there are fewer studies examining PWB in

comparison to SWB are that PWB assessment instruments are longer and that researchers

may not value the extra dimensions that PWB includes.

The Relationship Between Gratitude and Well-Being

        Definition of gratitude and its historical context. One variable that may help to

explain the variance in well-being is gratitude. The word gratitude is derived from the

Latin root gratia, meaning grace, graciousness, or gratefulness. All derivatives of this

root "have to do with kindness, generousness, gifts, the beauty of giving and receiving, or

getting something for nothing" (Pruyser, 1976, p. 69). It is thought that gratitude results

from a two-step cognitive process: First, recognizing that one has obtained a positive

outcome, and second, recognizing that there is an external source for this positive

outcome (Weiner, 1985). The object of gratitude is usually other-directed—to persons,

as well as to impersonal (nature) or nonhuman sources (e.g., God, animals, the cosmos;

Teigen, 1997). The fact that gratitude is often directed toward other persons suggests the

possibility of implications for personal and relational well-being.

        The notion of gratitude has existed for centuries and can be traced back to the

historical texts, prayers, and teachings of the world's major religions such as Judaism,

Christianity, Islam, and Buddhism (Emmons & Crumpler, 2000; Emmons & Shelton,

2002). In these texts, gratitude is often referred to as a virtue, or a good habit that

connotes excellence in personal character (Emmons & Shelton, 2002), while ingratitude

is considered a vice. Worship with gratitude to God for His many gifts and mercies is a common theme among monotheistic religions, and followers are encouraged to develop this trait. Thus, according to Emmons and Shelton (2002), "gratitude is one of the most common emotions that the world's major religions seek to provoke and sustain in believers" (p. 460).

Aside from its presence in religion, gratitude has also been discussed as one of the core characteristics of self-actualizing individuals (Maslow, 1970). According to Maslow, self-actualizers possessed the ability to "appreciate again and again, freshly and naively, the basic goods of life with awe, pleasure, wonder, and even ecstasy, however stale these experiences may have become to others" (p. 136). It is thought that gratitude may help people remind themselves of how good their life is and bring happiness (SWB) by counteracting the law of habituation (Watkins, 2004). Since it appears that humans are highly adaptable beings that can habituate, in terms of SWB, to positive and negative events relatively quickly (Suh, Diener, & Fujita, 1996), a sense of gratitude may counteract the potential monotony of life.

Gratitude could also function to enhance one's life by increasing a person's feelings of self-worth and social benefits. Given that the definition of gratitude involves receiving a benefit from an external source, which is often another person, it is logical to conclude that one who is grateful would feel loved and cared for by others. Genuine expressions of gratitude have been shown to increase the likelihood of receiving future benefits and increase the quality of one's social contacts (Rind & Bordia, 1995). Thus, evidence suggests that being genuinely grateful to others is likely to engender more kind acts and the development of deeper, more meaningful social relationships.

According to Watkins (2004), gratitude and happiness are likely to operate in a cycle of virtue, such that people who respond to life situations with gratitude should be happier because of enhanced enjoyment of life benefits. Thus, people who are able to "appreciate the basic goods in life," as Maslow (1970) once wrote, are likely to live subjectively happier lives. In turn, positive affect may enhance the likelihood that one will recognize and interpret life situations as good, thus being grateful. As summarized by Watkins, (2004), gratitude promotes happiness (SWB), which in turn, should promote more gratitude.

Personality and gratitude. Research has suggested that personality, as measured using the Big Five taxonomy (John & Srivastava, 1999), is also related to gratitude. McCullough, Emmons, and Tsang (2002) found that gratitude was negatively related to the personality characteristic neuroticism and positively related to the personality characteristics of agreeableness, extraversion, conscientiousness, and openness. These findings regarding the relationship between gratitude and personality characteristics have also been replicated in other studies (Wood, Joseph, & Maltby 2008, 2009). It was also found, however, that though the correlations between the Big Five and gratitude were robust, the Big Five only accounted for approximately 30% of the variance in gratitude, suggesting that the grateful disposition is not reducible to a linear combination of the Big Five (McCullough, Emmons, and Tsang, 2002).

Gratitude and subjective well-being. Gratitude has been shown to be a reliable predictor of SWB and appears to be more strongly related to positive affect (in the positive direction) compared to negative affect (Watkins, Woodward, Stone, & Kolts, 2003). Among negative affective states (e.g., anxiety, irritability, depression), however,

depression has been found to have the strongest and most reliable inverse association with gratitude (Watkins et al., 2003).

Additionally, grateful individuals tend to express more satisfaction with their lives (Adler & Fagley, 2005; McCullough, Emmons, & Tsang, 2002; Peterson et al., 2007) and report higher levels of happiness (McCullough, Emmons, & Tsang, 2002; Watkins, 2004). Moreover, the positive relationships between gratitude and life satisfaction/happiness remain significant, albeit smaller in magnitude (i.e., accounting for about 3-12% less of the variance), after controlling for the effects of personality characteristics (McCullough, Emmons, & Tsang, 2002). To further test the unique relationship between gratitude and life satisfaction after controlling for the Big Five domains, Wood, Joseph, and Maltby (2008) surveyed 389 college students and examined the relationships between personality, gratitude, and SWB. Gratitude was measured using the Gratitude Questionnaire-6 (McCullough, Emmons, & Tsang, 2002). Participants rated statements on a 1 (strongly disagree) to 7 (strongly agree) scale. Example items include "I am grateful to a wide variety of people", and "I feel thankful for what I have received in life". The Big Five personality characteristics were measured using the 240-item Revised NEO Personality Inventory (Costa & McCrae, 1992), and Satisfaction With Life was measured using the Satisfaction With Life Scale (Diener et al., 1985), which assesses the participants' global assessments of how satisfied they are with their lives. Using two-step hierarchical multiple regression analyses, Wood, Joseph, and Maltby (2008) found that gratitude explained an additional 9% of the variance in Satisfaction With Life after controlling for the Big Five personality characteristics. Thus, by adding gratitude into the model, the researchers were able to account for 34% of the

variance in Satisfaction With Life, compared to 25% when only the Big Five personality characteristics were entered into the model. These results support the notion that gratitude is uniquely important to well-being, above and beyond the effects of personality characteristics alone.

Although many research studies examining the relationship between gratitude and SWB have been correlational, a few experimental longitudinal studies have examined whether being grateful can actually cause an improvement in mood (Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2008; Watkins et al., 2003). Watkins et al. (2003) conducted an experiment in which 157 undergraduate students completed measures of gratitude and positive/negative affect. Gratitude was measured using the Gratitude, Resentment, and Appreciation Test (Watkins, Woodward, Stone, & Kolts, 2003). Positive/negative affect was measured using the Positive and Negative Affectivity Scales (Watson, Clark, & Tellegen, 1988) and eight bipolar affect scales during an initial mass-testing session. Between two weeks to two months after the initial mass-testing session, participants were selected and randomly assigned to a control condition or one of three gratitude conditions. In the gratitude conditions, participants were asked to think about someone living for whom they were grateful, write about someone for whom they were grateful, or write a letter to a living person for whom they were grateful. In the control condition, participants were asked to write about the lay-out of their living room.

Watkins et al. (2003) found a main effect for time such that all participants reported being happier at posttreatment compared to pretreatment. There was a time by condition interaction, however, such that the participants in the gratitude conditions reported larger increases in positive affect over time compared to participants in the

control condition. Thus, this experiment provides evidence that gratitude may increase happiness.

Emmons and McCullough (2003) also conducted two studies to examine whether gratitude can cause an increase in SWB. In the first study, 201 undergraduates were randomly assigned to a gratitude, hassles, or life events (control) condition. Participants were instructed to record diary entries once a week for a period of ten weeks. In the gratitude condition, participants were told to record up to five things per week that they were grateful for. In the hassles conditions, participants were instructed to record up to five hassles per week that occurred in their life. In the life events condition, participants were told to write down five events that occurred in the past week that had an impact on them. Coding of the events listed in the control condition revealed that 40% of the events were rated as pleasant, 30% as unpleasant, and 30% as neutral, creating a reasonably neutral control condition. The researchers were interested in outcome measures of affect, physical symptoms, reactions to aid, and global appraisals of their lives.

Emmons and McCullough (2003) found that relative to the hassles and life events groups, participants in the gratitude condition felt better about their lives as a whole and were more optimistic regarding their expectations for the upcoming week. They also reported fewer physical complaints and reported spending significantly more time exercising. The gratitude condition, however, did not appear to influence global positive or negative affect. It was also found that across conditions, participants who felt grateful in response to aid reported significantly higher ratings of joy and happiness over the experimental period. Individuals who felt grateful in response to aid also reported more favorable life appraisals as well as more optimism regarding the upcoming week.

Negative feelings in response to aid such as feeling annoyed, embarrassed, surprised, or frustrated bore no significant relationship to the outcome measures of global well-being appraisals and overall health (Emmons & McCullough, 2003).

To follow up on this study, Emmons and McCullough (2003) conducted a second study with 157 undergrads who were instructed to record diary entries everyday for 16 days. The three conditions included in this study were gratitude, hassles, and downward social comparison, in which participants wrote about the ways they were better off than others. The first two days of data collection were considered practice days and were not counted in the observation period. Additionally, the first report from the observation period was also eliminated, though the reason for this was not noted. Thus, 13 days of data collection were used for analysis.

From this study, the researchers found that people in the gratitude condition experienced higher levels of positive affect during the 13-day period. They were more likely to report having helped someone with a personal problem, suggesting prosocial motivation as a consequence of the gratitude induction. There was no difference in physical symptomatology or health behaviors, however, which may have been due to the relatively short time frame of the study. On average, the evidence suggests that having participants record daily diary entries rather than weekly was more powerful in facilitating gratitude.

While the aforementioned studies provide evidence to support the causal role of gratitude on SWB, Froh, Sefick, and Emmons (2008) examined whether this finding would generalize to younger populations, such as early adolescents. Froh, Sefick, and Emmons (2008) randomly assigned 221 6th and 7th graders to one of three conditions:

gratitude, hassles, or control. The procedure was similar to the aforementioned experiments in that the participants were instructed to complete diary entries everyday for two weeks. Results indicated that counting blessings, compared to the other conditions, was associated with enhanced self-reported gratitude, optimism, life satisfaction, greater satisfaction with their school experience, and decreased negative affect.

Another longitudinal study conducted by Wood, Maltby, Gillett, Linley, and Joseph (2008) examined the direction of the relationships between gratitude, social support, stress and depression. Participants were college students who were tested at the start and end of their first semester of college. Using structural equation modeling, the researchers found that gratitude led to higher levels of perceived social support and lower levels of stress and depression. Moreover, results indicated that gratitude leads to the other variables independently of the Big Five factors of personality. Unlike the previously discussed intervention studies, Wood et al. (2008) did not examine the effects of an intervention. Their results, however, complement experimental findings regarding gratitude interventions in supporting the directionality of change, such that gratitude appears to affect changes in mood and not vice versa.

Rationale and Overview Current Study

While the findings concerning the relationship between gratitude and well-being are interesting, a major limitation of the literature is that prior to beginning the current research, no published study had examined the relationship, correlational or causative, between gratitude and PWB. Given the analysis suggested earlier, that well-being is more multi-faceted than SWB and includes more than subjective affect and life satisfaction, it is important to examine the relationship between gratitude and PWB. A

potential benefit of examining this relationship includes exploring how gratitude may relate to other important aspects of well-being, some of which are neglected in SWB analyses, such as autonomy, personal growth, positive relations with others, and purpose in life. Additionally, personality appears to be a predictor of both well-being and the disposition toward gratitude, though research has indicated that well-being and gratitude are not reducible to a linear combination of personality characteristics (McCullough et al., 2002; Schmutte & Ryff, 1997). Thus, a study that does not include personality as an independent variable would be overlooking an important variable that has been shown to explain a portion of the variance in both gratitude and well-being. In the current study, I will examine whether gratitude accounts for some of the variance in PWB, beyond that accounted for by the five-factor model of personality.

Given the link between personality and gratitude, and the relationships between gratitude and well-being, research needs to determine the relationships among the three concepts. In the current study, I replicate recently published research examining the relationship between gratitude and PWB, and extend it by examining whether gratitude partially mediates the relationship between personality and PWB. My hypotheses are: a) personality measures of openness, conscientiousness, extraversion, and agreeableness will be positively related to gratitude, while neuroticism will be negatively related to gratitude (McCullough et al., 2002; Peterson & Seligman, 2004), b) given that gratitude is positively related to SWB, it will be positively related to the overall PWB, c) given the social nature of gratitude, it will be positively related to the PWB dimension of positive relations with others d) given that separate studies have shown relationships both between personality and well-being and between gratitude and well-being, I hypothesize that

gratitude will mediate the relationship between personality and PWB. Due to lack of

research in the following areas, it is difficult to hypothesize about the relationships

between gratitude and other PWB measures of autonomy, environmental mastery,

personal growth, purpose in life, and self-acceptance.

Method

Participants

Participants in this sample were enrolled in an introductory psychology course in a large, mid-Atlantic public university. Initially, 242 undergraduate students participated in the study. Seventeen participants were missing 50% or more of the items for one or more scales and were excluded from all further analyses. Additionally, one participant was excluded because her reported age of 34 years was considered an outlier. After exclusions were made, the sample consisted of 224 college students (164 women and 60 men), aged 17-26 years (M = 18.3 years, SD = 1.0); 73.2% were female. Compensation was given in the form of one research credit needed to fulfill the required credits for introductory psychology classes. Alternate options for course credit were also available for students who did not wish to participate in research.

Measures

Demographic variables. The questionnaire began with demographic items. Participants were asked to report their gender and age. Gender was coded as 1 to indicate male and 2 to indicate female. Age information was used to describe the participants and to exclude outliers.

Personality. To measure personality, I used a shortened version of the 44-item Big Five Inventory (BFI-44; John, Donahue, & Kentle, 1991). This inventory measures five characteristics of personality that are commonly referred to as the Big Five: Extraversion, Neuroticism, Agreeableness, Conscientiousness, and Openness (Rammstedt & John, 2007). The shortened version of the BFI (BFI-10) that we used consists of a self-rating, 10-item inventory (BFI-10) including 2 items (one true-scored item and one

reverse-scored item) measuring each of the 5 characteristics of personality. Participants

were instructed as follows: "Using the scale below as a guide, how well do the following

statements describe your personality?" The BFI-10 was rated on a scale ranging from 1

(disagree strongly) to 5 (agree strongly). Example items that respectively measured

Extraversion, Neuroticism, and Agreeableness were "I see myself as someone who is

outgoing and sociable", "I see myself as someone who gets nervous easily", and "I see

myself as someone who tends to find fault with others" (reverse-scored). Example items

that respectively measured Conscientiousness and Openness were "I see myself as

someone who does a thorough job", and "I see myself as someone who has few artistic

interests" (reverse-scored). High scores represented high self-rating on the characteristic

assessed.

Good internal consistency for the BFI-10 has been previously shown (coefficient

alpha = .72) with the internal consistencies of individual scales ranging from .65 to .79

(Rammstedt & John, 2007). In the current study, internal consistencies for the measures

of Extraversion and Neuroticism were .66 and .62 respectively. Internal consistencies for

the measures of Agreeableness and Conscientiousness were .23 and .40 respectively.

Lastly, the internal consistency for the measure of Openness was .36.

Gratitude. I used the Gratitude Questionnaire-6 (GQ-6; McCullough, Emmons, &

Tsang, 2002) as a measure of gratitude. The GQ-6 is a six-item self-report inventory

rated on a scale ranging from 1 (strongly disagree) to 7 (strongly agree). Participants

were instructed to "select a response to each statement indicating how much you agree

with it." Items measured how frequently people feel gratitude, the intensity of the

gratitude felt, and the range of events or people that elicit gratitude. Example items

include "I have so much in life to be thankful for" and "long amounts of time can go by before I feel grateful to something or someone" (reverse-scored). Responses to negatively formulated items were reversed in the final scoring procedure, so that high scores indicated higher levels of gratitude. Good internal consistency has been previously shown (coefficient alpha = .82) and the GQ-6 consists of a robust one-factor solution (McCullough, Emmons, & Tsang, 2002). In the current study, the internal consistency of the GQ-6 was .80.

Psychological Well-Being. I used a self-rating, 84-item inventory that yields an overall psychological well-being score and 6 subscale scores of well-being: Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance (Ryff, 1989). To answer these questions, participants were given the following instructions: "The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers. Check the response that best describes your present agreement or disagreement with each statement." Participants responded on a 6-point scale ranging from strongly disagree (1) to strongly agree (6). Example items that were used to measure Autonomy, Environmental Mastery, and Personal Growth, respectively, were: "I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people"; "In general, I feel I am in charge of the situation in which I live"; and I am not interested in activities that will expand my horizons" (reverse-scored). Example items that were used to measure Positive Relations with Others, Purpose in Life, and Self Acceptance, respectively, were: "I enjoy personal and mutual conversations with family members and friends"; "I have a sense of direction and purpose in life"; and "I envy many people for

the lives they lead" (reverse-scored). Responses to negatively formulated items were reversed in the final scoring procedure, so that high scores indicated high self-rating on the dimension assessed.

Scores were calculated to obtain a mean scale score (overall PWB) and six subscale scores corresponding to each of the six dimensions of PWB. Good internal consistency, ranging from .83 to .91, has been previously shown for the six PWB subscales. In the current study, internal consistency for overall PWB was .97 and internal consistencies for the six subscale scores ranged from .85 to .93.

Procedure

Participants were surveyed during the first two months of the fall semester of school. Participants were enrolled in introductory psychology classes and had the option of participating in research to receive partial course credit. If interested, students were instructed to visit a designated website to view all the studies available for participation and then choose to participate in a select few. Thus, participants in the current study chose to participate by selecting my study from a list of available studies. As part of the informed consent procedure, participants were informed that the purpose of the study was to "measure your beliefs about yourself and different areas of your life." Participants were notified that the data collected will be anonymous, and of their right to withdraw from the study at any time and still receive partial course credit. The Rutgers University Institutional Review Board approved the procedures. After giving informed consent, participants were asked to complete a battery of questionnaires administered via the Internet. Specifically, questionnaires were administered through the use of Survey Monkey. Participants were instructed to report their demographics and to complete the

three measures described above in the following order: BFI-10, PWB, and GQ-6.

Following completion of the surveys, participants were debriefed as to the purpose of the

current study.

Power Analyses

Statistical power analyses were conducted to determine the sample size needed to

achieve .80 power with a significance level of .01. For regression analyses with 7

independent variables, 147 participants are needed to detect a medium effect of $R^2 = .15$

with power = .80 and a significance level of .01 (Cohen, 1992). Thus, the 224

participants provided enough power to detect medium effects.

Data Analytic Procedure

The mean scores for individual scales were calculated for each participant. To

obtain a mean score for individuals who did not respond to particular items, we

calculated the sum of the scores of the answered items and divided it by the total number

of items on the scale minus the number of items that were missing. Mean scale scores

were computed using this method for 62 participants who had one or more items missing.

The data were analyzed in two phases to test for relationships among study

variables. In the first phase, bivariate correlations between all study variables were

examined. In the second phase of the data analysis, multiple regression analyses were

used to test whether gratitude mediates the relationship between a personality

characteristic and a measure of PWB. Baron and Kenny's (1986) causal steps approach

was used to examine evidence for mediation. According to Baron and Kenny (1986),

four tests are necessary to establish mediation. First, a significant relationship between

the independent and the dependent variables must be found. Second, the independent

variable must affect the potential mediator. Third, the potential mediator must affect the dependent variable. Lastly, when the effects of the potential mediator are controlled, a previously significant relationship between the independent and dependent variables is no longer significant. According to Baron and Kenny (1986), "perfect mediation holds if the independent variable has no effect when the mediator is controlled" (p. 1177). If, however, the independent variable has a smaller, but still significant, relation to the dependent variable when the effects of the candidate mediator are controlled, then partial mediation is indicated.

Based on Baron and Kenny's (1986) tests for mediation, I conducted four sets of regression analyses, which corresponded to the four tests previously mentioned. First, I tested for significant relationships between the independent variables (entered together) and each dependent variable (analyzed individually). More specifically, in Block 1 of these regressions, I tested for main effects of the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) on each individual measure of PWB (Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Self-acceptance, Purpose in Life, and Overall PWB), for a total of 7 regressions (one for each dependent variable). Block 2 examined the effects of all of the variables in Block 1 plus the interaction effects of gender by each of the personality characteristics on the seven measures of PWB, one dependent variable at a time.

To test for relationships between the independent variables and the potential mediator, I conducted a second set of regression analyses. Block 1 of each regression tested for the main effects of all of the independent variables (gender, Neuroticism,

Extraversion, Openness, Conscientiousness, and Agreeableness) on the potential

mediator (gratitude). Block 2 examined the effects of all of the variables in Block 1 plus

the interaction effects of gender by each of the personality characteristics on gratitude.

To test for relationships between the potential mediator and each dependent

variable, I conducted a third set of regression analyses. Block 1 of each regression tested

for the main effects of the potential mediator (gratitude) on the seven measures of PWB,

one at a time. Block 2 examined the effects of gratitude plus the interaction effects of

gender by gratitude on the seven measures of PWB, one at a time.

Lastly, to determine if a previously significant relationship between the

independent and dependent variables is no longer significant when the effects of the

potential mediator are controlled, a fourth set of regression analyses were conducted.

Each of the seven measures of PWB was regressed onto the independent variables

(gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness)

and the potential mediator (gratitude). In recognition of the number of tests we

conducted, a more stringent alpha level of .01 was used to reduce the chance of Type I

errors.

Results

Descriptive Statistics

Table 1 provides a summary of descriptive statistics for measures of personality, gratitude, and psychological well-being. The mean scale scores reported for the personality characteristics of Neuroticism, Extraversion and Agreeableness were 3.22 (SD = 1.03), 3.19 (SD = .96) and 3.48 (SD = .87) respectively, with a range from 1 to 5. The mean scale scores reported for the personality characteristics of Conscientiousness and Openness were 3.57 (SD = .77) and 3.67 (SD = .88) respectively, with a range from 1.5 to 5. The mean scale score reported for gratitude was 5.87 (SD = .97), with a range from 2 to 7. The mean scale score for overall PWB was 4.42 (SD = .65). Scale scores for the PWB dimensions ranged from 1.1 to 6. The mean scale scores for the PWB dimensions of autonomy, environmental mastery, personal growth, and were 4.15 (SD = .80), 4.16 (SD = .78), and 4.75 (SD = .66) respectively. The mean scale scores for the PWB dimensions of positive relations, purpose in life, and self-acceptance were 4.49 (SD = .88), 4.66 (SD = .76), and 4.30 (SD = .97) respectively. Specific breakdown of scale ranges for each of the PWB dimensions is noted in Table 1. I confirmed that none of the scale distributions was skewed (skewness values were all less than 1.0) and thus, we assumed that the scales were normally distributed.

Correlational Analyses

Bivariate correlations were computed between each study variable and every other. Table 2 reports the Pearson correlations between the variables used in my analyses. Overall PWB was significantly positively correlated with gender (r = .21, $p<.01$), indicating that women had significantly higher Overall PWB scores. Overall

PWB was also significantly positively correlated with Extraversion ($r = .44, p <.001$),

Agreeableness ($r = .23, p <.001$), Conscientiousness ($r = .39, p <.001$), and gratitude ($r =$

.70, $p <.001$). Overall PWB was also significantly negatively correlated with

Neuroticism ($r = -.41, p <.001$). Gratitude was significantly positively correlated with

Extraversion ($r = .32, p <.001$), Agreeableness ($r = .25, p <.001$), and Conscientiousness

($r = .23, p <.001$).

I also found that all dimensions of PWB were significantly positively correlated

with Overall PWB. More specifically, Overall PWB was significantly positively

correlated with Autonomy ($r = .86, p <.001$), Environmental Mastery ($r = .87, p <.001$),

Personal Growth ($r = .78, p <.001$), Positive Relations with Others ($r = .76,$ $p <.001$),

Purpose in Life ($r = .86, p <.001$), and Self-Acceptance ($r = .91, p <.001$).

Regarding each dimension of PWB, Autonomy was significantly positively

correlated with Extraversion ($r = .36, p <.001$), Agreeableness ($r = .21, p <.01$),

Conscientiousness ($r = .44, p <.001$), and gratitude ($r = .55, p <.001$). Autonomy was

also significantly negatively correlated with Neuroticism ($r = -.46, p <.001$).

Environmental Mastery was significantly and positively correlated with Extraversion ($r =$

.36, $p <.001$), Agreeableness ($r = .19, p <.01$), Conscientiousness ($r = .44, p <.001$), and

gratitude ($r = .56, p <.001$). Environmental Mastery was also significantly negatively

correlated with Neuroticism ($r = -.47, p <.001$). Personal Growth was significantly

positively correlated with gender ($r = .20, p <.01$), Extraversion ($r = .40, p <.001$),

Conscientiousness ($r = .24, p <.001$), and gratitude ($r = .56, p <.001$). Personal Growth

was also significantly negatively correlated with Neuroticism ($r = -.30, p <.001$).

Positive Relations with Others was significantly positively correlated with gender ($r =$

.22, *p* <.01), Extraversion (*r* = .48, *p* <.001), Agreeableness (*r* = .35, *p* <.001),

Conscientiousness (*r* = .20, *p* <.01), and gratitude (*r* = .65, *p* <.001). Positive Relations

with Others was also significantly negatively correlated with Neuroticism (*r* = -.22, *p*

<.01). Purpose in Life was significantly positively correlated with gender (*r* = .21, *p*

<.01), Extraversion (*r* = .29, *p* <.001), Conscientiousness (*r* = .40, *p* <.001), and gratitude

(*r* = .67, *p* <.001). Purpose in Life was also significantly negatively correlated with

Neuroticism (*r* = -.22, *p* <.01). Self-Acceptance was significantly positively correlated

with Extraversion (*r* = .33, *p* <.001), Agreeableness (*r* = .18, *p* <.01), Conscientiousness

(*r* = .32, *p* <.001), and gratitude (*r* = .62, *p* <.001). Self-Acceptance was also

significantly negatively correlated with Neuroticism (*r* = -.38, *p* <.001).

Multiple Regression Analyses

Overall Psychological Well-Being. For Overall PWB, four regressions were

conducted to examine evidence that the influence of the Big Five personality

characteristics was mediated by gratitude, according to Baron and Kenny's (1986) causal

steps approach. These regressions consisted of: a) regressing Overall PWB on the

independent variables (gender, Neuroticism, Extraversion, Openness, Agreeableness, and

Conscientiousness), b) regressing the potential mediator (gratitude) on the independent

variables, c) regressing overall PWB on the potential mediator, and d) regressing overall

PWB on both the independent variables and on the potential mediator. For all regression

analyses, continuous predictors were centered at their overall mean to eliminate

multicollinearity. In addition, Cook's distances were examined and revealed no

influential outliers.

In the first set of regression analyses, Block 1 examined the main effects of the

independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) on Overall PWB. In Block 1, the model as a whole accounted for 40.6% of the variance, adjusted $R^2 = .406$, $F(6, 217) = 26.43$, $p<.001$. The personality characteristic of Neuroticism made a significant unique contribution to Overall PWB ($\beta = -.29$, $p<.001$). Extraversion also made a significant unique contribution to Overall PWB ($\beta = .28$, $p<.001$). The personality characteristic of Agreeableness made a significant unique contribution to Overall PWB ($\beta = .14$, $p<.01$). The personality characteristic of Conscientiousness also made a significant unique contribution to Overall PWB ($\beta = .25$, $p<.001$). Lastly, gender made a significant unique contribution to Overall PWB ($\beta = .15$, $p<.01$). As males were coded as 1 and females were coded as 2, this indicates that women reported higher Overall PWB. This indicates that women reported higher Overall PWB. Block 2 of the regression examined the effects of all of the variables in Block 1 plus the interaction effects of gender by each of the personality characteristics on PWB. Since the ΔR^2 for Block 2 was not significant, only the results of Block 1 are reported in Table 3.

In the second set of analyses, Block 1 tested the effects of all of the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) on the potential mediator (gratitude). In Block 1, the model as a whole accounted for 19.6% of the variance; adjusted $R^2 = .196$, $F(6, 217) = 10.06$, $p<.001$. Gender made a significant unique contribution to gratitude when the effects of the other variables were controlled statistically ($\beta = .19$, $p<.01$), indicating that women scored significantly higher than men on gratitude. The personality characteristic of Extraversion also made a significant unique contribution to gratitude ($\beta = .24$, $p<.001$). Lastly, the

personality characteristic of Agreeableness made a significant unique contribution to gratitude ($\beta = .20$, $p<.01$). Block 2 examined the effects of all of the variables in Block 1 plus the interaction effects of gender by each of the personality characteristics on gratitude. Since the ΔR^2 for Block 2 was not significant, only the results of Block 1 are reported in Table 4.

In the third set of analyses, Block 1 of the regression tested for the main effects of the potential mediator (gratitude) on Overall PWB. In Block 1, the model as a whole accounted for 48.6% of the variance; adjusted $R^2 = .486$, $F(1, 222) = 211.98$, $p<.001$. Gratitude made a significant unique contribution to Overall PWB ($\beta = .70$, $p<.001$). Block 2 examined the effects of gratitude plus the interaction effects of gender by gratitude on the Overall PWB. Since the ΔR^2 for Block 2 was not significant, only the results of Block 1 are reported in Table 3.

In the fourth set of analyses, Block 1 of the regression tested for the main effects of the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) and the potential mediator (gratitude) on Overall PWB. The model as a whole accounted for 64.7% of the variance; adjusted $R^2 = .647$, $F(7, 216) = 59.49$, $p<.001$. Table 3 summarizes the results of this regression analysis. Most importantly, the previously established relationship between gender and Overall PWB and Agreeableness and Overall PWB became nonsignificant when the effects of the gratitude were controlled. According to Baron and Kenny's (1986) test for mediation, the results suggest that gratitude fully mediates the relationship between gender and Overall PWB as well as the relationship between Agreeableness and Overall PWB, as is evident in Figure 1. Lastly, the relationship between Extraversion and Overall PWB was

less strong (β = .15 versus .28, p<.01) after controlling for the effects of gratitude. Thus, the results suggest that gratitude partially mediates the relationship between Extraversion and Overall PWB, as is evident in Figure 1. Table 11 summarizes the results of the regression analyses for gender and personality characteristics predicting Overall PWB with and without gratitude as a mediator.

Secondary regression analyses were conducted to examine evidence for gratitude as a mediator between the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) and each dimension of PWB (Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Self-acceptance, and Purpose in Life). As with Overall PWB, for each dimension of PWB, four regressions were conducted to examine evidence for mediation according to Baron and Kenny's (1986) causal steps approach.

Autonomy. In the first set of regression analyses, we examined potential direct effects between the independent variables and Autonomy. Block 1 examined the main effects of the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) on the PWB dimension of Autonomy. In Block 1, the model as a whole accounted for 39.0% of the variance, adjusted R^2 = .390, F(6, 217) = 24.71, p<.001. The personality characteristic of Neuroticism made a significant unique contribution to Autonomy when the effects of the other variables were controlled statistically (β = -.34, p<.001). The personality characteristics of Extraversion (β = .20, p<.001) and Conscientiousness (β = .31, p<.001) also made a significant unique contribution to Autonomy. Block 2 of the regression examined the effects of all of the variables in Block 1 plus the interaction effects of gender by each of the personality

characteristics on Autonomy. Since the ΔR^2 for Block 2 was not significant, only the results of Block 1 are reported in Table 5.

In the second set of regression analyses, we examined potential indirect effects between the independent variables and the potential mediator. The results of this analysis are noted above and are reported in Table 4.

In the third set of analyses, we examined potential indirect effects between the potential mediator and Autonomy. Block 1 of the regression tested for the main effects of the potential mediator (gratitude) on Autonomy. In Block 1, the model as a whole accounted for 29.9% of the variance; adjusted $R^2 = .299$, $F(1, 222) = 96.32$, $p<.001$. Gratitude made a significant unique contribution to Autonomy ($\beta = .55$, $p<.001$). Block 2 examined the effects gratitude plus the interaction effects of gender by gratitude on Autonomy. Since the ΔR^2 for Block 2 was not significant, only the results of Block 1 are reported in Table 5.

In the fourth set of analyses, we examined whether direct relationships identified in the first set of regression analyses were reduced or became nonsignificant when the effect of the potential mediator was controlled. Block 1 of the regression tested for the main effects of the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) and the potential mediator (gratitude) on Autonomy. The model as a whole accounted for 51.5% of the variance; adjusted $R^2 = .515$, $F(7, 216) = 34.81$, $p<.001$. Most importantly, the previously established relationship between Extraversion and Autonomy became nonsignificant when the effects of gratitude were controlled. According to Baron and Kenny's (1986) test for mediation, the results suggest that gratitude fully mediates the relationship between Extraversion and

Autonomy, as is evident in Figure 2. Table 11 summarizes the results of the regression

analyses for gender and personality characteristics predicting Autonomy with and without

gratitude as a mediator.

Environmental Mastery. In the first set of regression analyses, Block 1 examined

the main effects of the independent variables (gender, Neuroticism, Extraversion,

Openness, Conscientiousness, and Agreeableness) on the PWB dimension of

Environmental Mastery. In Block 1, the model as a whole accounted for 39.1% of the

variance, adjusted R^2 = .391, $F(6, 217)$ = 24.85, $p<.001$. The personality characteristic of

Neuroticism made a significant unique contribution to Environmental Mastery when the

effects of the other variables were controlled statistically (β = -.35, $p<.001$). The

personality characteristic of Extraversion also made a significant unique contribution to

Environmental Mastery (β = .20, $p<.01$). Lastly, the personality characteristic of

Conscientiousness made a significant unique contribution to Environmental Mastery (β =

.32, $p<.001$). Block 2 of the regression examined the effects of all of the variables in

Block 1 plus the interaction effects of gender by each of the personality characteristics on

Environmental Mastery. Since the ΔR^2 for Block 2 was not significant, only the results

of Block 1 are reported in Table 6.

In the second set of analyses, Block 1 of each regression tested for the main

effects of all of the independent variables (gender, Neuroticism, Extraversion, Openness,

Conscientiousness, and Agreeableness) on the potential mediator (gratitude). The results

of this analysis are noted above and are reported in Table 4.

In the third set of analyses, Block 1 of the regression tested for the main effects of

the potential mediator (gratitude) on Environmental Mastery. In Block 1, the model as a

whole accounted for 31.3% of the variance; adjusted R^2 = .313, $F(1, 222)$ = 102.37,

$p<.001$. Gratitude made a significant unique contribution to Environmental Mastery (β =

.56, $p<.001$). Block 2 examined the effects gratitude plus the interaction effects of gender

by gratitude on the Environmental Mastery. Since the ΔR^2 for Block 2 was not

significant, only the results of Block 1 are reported in Table 6.

In the fourth set of analyses, Block 1 of the regression tested for the main effects

of the independent variables (gender, Neuroticism, Extraversion, Openness,

Conscientiousness, and Agreeableness) and the potential mediator (gratitude) on

Environmental Mastery. The model as a whole accounted for 53.3% of the variance;

adjusted R^2 = .533, $F(7, 216)$ = 37.30, $p<.001$. Most importantly, the previously

established relationship between Extraversion and Environmental Mastery became

nonsignificant when the effects of gratitude were controlled. According to Baron and

Kenny's (1986) test for mediation, the results suggest that gratitude fully mediates the

relationship between Extraversion and Environmental Mastery, as is evident in Figure 2.

Table 11 summarizes the results of the regression analyses for gender and personality

characteristics predicting Environmental Mastery with and without gratitude as a

mediator.

Personal Growth. In the first set of regression analyses, Block 1 examined the

main effects of the independent variables (gender, Neuroticism, Extraversion, Openness,

Conscientiousness, and Agreeableness) on the PWB dimension of Personal Growth. In

Block 1, the model as a whole accounted for 26.0% of the variance, adjusted R^2 = .260,

$F(6, 217)$ = 14.04, $p<.001$. The personality characteristic of Neuroticism made a

significant unique contribution to Personal Growth when the effects of the other variables

were controlled statistically (β = -.21, p<.01). The personality characteristic of Extraversion also made a significant unique contribution to Personal Growth (β = .27, p<.001). Lastly, the personality characteristic of Openness made a significant unique contribution to Personal Growth (β = .18, p<.01). Block 2 of the regression examined the effects of all of the variables in Block 1 plus the interaction effects of gender by each of the personality characteristics on Personal Growth. Since the ΔR^2 for Block 2 was not significant, only the results of Block 1 are reported in Table 7.

In the second set of analyses, Block 1 of each regression tested for the main effects of all of the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) on the potential mediator (gratitude). The results of this analysis are noted above and are reported in Table 4.

In the third set of analyses, Block 1 of the regression tested for the main effects of the potential mediator (gratitude) on Personal Growth. In Block 1, the model as a whole accounted for 31.0% of the variance; adjusted R^2 = .310, $F(1, 222)$ = 101.12, p<.001. Gratitude made a significant unique contribution to Personal Growth (β = .56, p<.001). Block 2 examined the effects gratitude plus the interaction effects of gender by gratitude on the Personal Growth. Since the ΔR^2 for Block 2 was not significant, only the results of Block 1 are reported in Table 7.

In the fourth set of analyses, Block 1 of the regression tested for the main effects of the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) and the potential mediator (gratitude) on Personal Growth. The model as a whole accounted for 41.3% of the variance; adjusted R^2 = .413, $F(7, 216)$ = 23.43, p<.001. Most importantly, the previously established relationship

between Extraversion and Personal Growth was less strong ($\beta = .17$ versus .27, $p<.01$)

when the effects of the gratitude were controlled. Table 11 summarizes the results of the

regression analyses for gender and personality characteristics predicting Personal Growth

with and without gratitude as a mediator. According to Baron and Kenny's test for

mediation, the results suggest that gratitude partially mediates the relationship between

Extraversion and Personal Growth, as is evident in Figure 2.

Positive Relations with Others. In the first set of regression analyses, Block 1

examined the main effects of the independent variables (gender, Neuroticism,

Extraversion, Openness, Conscientiousness, and Agreeableness) on the PWB dimension

of Positive Relations with Others. In Block 1, the model as a whole accounted for 33.9%

of the variance, adjusted $R^2 = .339$, $F(6, 217) = 20.06$, $p<.001$. The personality

characteristic of Extraversion made a significant unique contribution to Positive Relations

with Others ($\beta = .39$, $p<.001$). The personality characteristic of Agreeableness also made

a significant unique contribution to Positive Relations with Others ($\beta = .29$, $p<.001$).

Block 2 of the regression examined the effects of all of the variables in Block 1 plus the

interaction effects of gender by each of the personality characteristics on Positive

Relations with Others. Since the ΔR^2 for Block 2 was not significant, only the results of

Block 1 are reported in Table 8.

In the second set of analyses, Block 1 of each regression tested for the main

effects of all of the independent variables (gender, Neuroticism, Extraversion, Openness,

Conscientiousness, and Agreeableness) on the potential mediator (gratitude). The results

of this analysis are noted above and are reported in Table 4.

In the third set of analyses, Block 1 of the regression tested for the main effects of the potential mediator (gratitude) on Positive Relations with Others. In Block 1, the model as a whole accounted for 42.4% of the variance; adjusted $R^2 = .424$, $F(1, 222) = 164.94$, $p<.001$. Gratitude made a significant unique contribution to Positive Relations with Others ($\beta = .65$, $p<.001$). Block 2 examined the effects gratitude plus the interaction effects of gender by gratitude on the Positive Relations with Others. Since the ΔR^2 for Block 2 was not significant, only the results of Block 1 are reported in Table 8.

In the fourth set of analyses, Block 1 of the regression tested for the main effects of the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) and the potential mediator (gratitude) on Positive Relations with Others. The model as a whole accounted for 53.4% of the variance; adjusted $R^2 = .534$, $F(7, 216) = 37.53$, $p<.001$. Most importantly, the previously established relationship between Extraversion and Positive Relations with Others was less strong ($\beta = .27$ versus .39, $p<.001$) when the effects of gratitude were controlled. Additionally, the previously established relationship between Agreeableness and Positive Relations with Others was also less strong ($\beta = .19$ versus .29, $p<.001$) when the effects of gratitude were controlled. Table 11 summarizes the results of the regression analyses for gender and personality characteristics predicting Positive Relations with Others with and without gratitude as a mediator. According to Baron and Kenny's test for mediation, the results suggest that gratitude partially mediates the relationship between Extraversion and Positive Relations with Others as well as the relationship between Agreeableness and Positive Relations with Others, as is evident in Figure 2.

Purpose in life. In the first set of regression analyses, Block 1 examined the main

effects of the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) on the PWB dimension of Purpose in Life. In Block 1, the model as a whole accounted for 23.8% of the variance, adjusted $R^2 = .238$, $F(6, 217) = 12.64$, $p<.001$. The personality characteristic of Extraversion made a significant unique contribution to Purpose in Life ($\beta = .18$, $p<.01$). The personality characteristic of Conscientiousness also made a significant unique contribution to Purpose in Life ($\beta = .32$, $p<.001$). Block 2 of the regression examined the effects of all of the variables in Block 1 plus the interaction effects of gender by each of the personality characteristics on Purpose in Life. Since the ΔR^2 for Block 2 was not significant, only the results of Block 1 are reported in Table 9.

In the second set of analyses, Block 1 of each regression tested for the main effects of all of the independent variables (gender, Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness) on the potential mediator (gratitude). The results of this analysis are noted above and are reported in Table 4.

In the third set of analyses, Block 1 of the regression tested for the main effects of the potential mediator (gratitude) on Purpose in Life. In Block 1, the model as a whole accounted for 44.8% of the variance; adjusted $R^2 = .448$, $F(1, 222) = 181.96$, $p<.001$. Gratitude made a significant unique contribution to Purpose in Life ($\beta = .67$, $p<.001$). Block 2 examined the effects gratitude plus the interaction effects of gender by gratitude on the Purpose in Life. Since the ΔR^2 for Block 2 was not significant, only the results of Block 1 are reported in Table 9.

In the fourth set of analyses, Block 1 of the regression tested for the main effects of the independent variables (gender, Neuroticism, Extraversion, Openness,

Conscientiousness, and Agreeableness) and the potential mediator (gratitude) on Purpose

in Life. The model as a whole accounted for 51.3% of the variance; adjusted $R^2 = .513$,

$F(7, 216) = 34.52$, $p<.001$. Most importantly, the previously established relationship

between Extraversion and Purpose in Life became nonsignificant when the effects of the

gratitude were controlled. Table 11 summarizes the results of the regression analyses for

gender and personality characteristics predicting Purpose in Life with and without

gratitude as a mediator. According to Baron and Kenny's (1986) test for mediation, the

results suggest that gratitude fully mediates the relationship between Extraversion and

Purpose in Life, as is evident in Figure 2.

Self-acceptance. In the first set of regression analyses, Block 1 examined the

main effects of the independent variables (gender, Neuroticism, Extraversion, Openness,

Conscientiousness, and Agreeableness) on the PWB dimension of Self-acceptance. In

Block 1, the model as a whole accounted for 25.8% of the variance, adjusted $R^2 = .258$,

$F(6, 217) = 13.94$, $p<.001$. The personality characteristic of Neuroticism made a

significant unique contribution to Self-acceptance ($\beta = -.29$, $p<.001$). Extraversion also

made a significant unique contribution to Self-acceptance ($\beta = .19$, $p<.01$). The

personality characteristic of Conscientiousness also made a significant unique

contribution to Self-acceptance ($\beta = .20$, $p<.01$). Block 2 of the regression examined the

effects of all of the variables in Block 1 plus the interaction effects of gender by each of

the personality characteristics on Self-acceptance. Since the ΔR^2 for Block 2 was not

significant, only the results of Block 1 are reported in Table 10.

In the second set of analyses, Block 1 of each regression tested for the main

effects of all of the independent variables (gender, Neuroticism, Extraversion, Openness,

Conscientiousness, and Agreeableness) on the potential mediator (gratitude). The results

of this analysis are noted above and are reported in Table 4.

In the third set of analyses, Block 1 of the regression tested for the main effects of

the potential mediator (gratitude) on Self-acceptance. In Block 1, the model as a whole

accounted for 38.6% of the variance; adjusted R^2 = .386, $F(1, 222) = 141.27$, $p<.001$.

Gratitude made a significant unique contribution to Self-acceptance ($\beta = .62$, $p<.001$).

Block 2 examined the effects gratitude plus the interaction effects of gender by gratitude

on the Purpose in Life. Since the ΔR^2 for Block 2 was not significant, only the results of

Block 1 are reported in Table 10.

In the fourth set of analyses, Block 1 of the regression tested for the main effects

of the independent variables (gender, Neuroticism, Extraversion, Openness,

Conscientiousness, and Agreeableness) and the potential mediator (gratitude) on Self-

acceptance. The model as a whole accounted for 48.5% of the variance; adjusted R^2 =

.485, $F(7, 216) = 30.96$, $p<.001$. Most importantly, the previously established

relationship between Extraversion and Self-acceptance became nonsignificant when the

effects of the gratitude were controlled. Table 11 summarizes the results of the

regression analyses for gender and personality characteristics predicting Self-Acceptance

with and without gratitude as a mediator. According to Baron and Kenny's (1986) test

for mediation, the results suggest that gratitude fully mediates the relationship between

Extraversion and Self-acceptance, as is evident in Figure 2.

Discussion

In this study, I aimed to explore if gratitude might partially mediate the relationship between personality and Psychological Well-Being. To my knowledge, this is the first study to date that has examined the relationships between gender, personality, gratitude, and PWB. To summarize my results, I found that gratitude fully mediated the relationship between gender and overall PWB as well as the relationship between the personality characteristic Agreeableness and overall PWB. Multiple regression analyses also indicated that gratitude partially mediated the relationship between the personality characteristic Extraversion and overall PWB. Gratitude was also found to fully or partially mediate the relationships between the personality characteristics of Extraversion and Agreeableness and some of the dimensions of PWB. Together, personality and gratitude accounted for up to 64.7% of the variance in PWB.

Evidence was found for gratitude as a mediator between the personality characteristic of Extraversion and Overall PWB. Extraversion, which includes characterstics of gregariousness, assertiveness, positive emotions, and openness, was associated with higher levels of gratitude, which in turn, was associated with enhanced Overall PWB. I found evidence that a pathway between Extraversion and Overall PWB is partially mediated by an increase in gratitude. Therefore, a mechanism through which Extraversion increases the likelihood of Overall PWB is through increasing gratitude.

Results of the multiple regression models also provide evidence to support gratitude as a mediator between the personality characteristic of Agreeableness and Overall PWB. Agreeableness, which includes characteristics such as being good-natured, cooperative, and trustful of others, was associated with higher levels of gratitude, which

in turn, was associated with enhanced Overall PWB. I found evidence that a pathway between Agreeableness and Overall PWB is fully mediated by an increase in gratitude. Therefore, a mechanism through which Agreeableness increases the likelihood of Overall PWB is through increasing gratitude. Results of the multiple regression models also provide evidence to support gratitude as a mediator between gender and Overall PWB. Females reported being more grateful, and in turn, reported higher levels of Overall PWB. Thus, differences in gratitude between males and females explain the gender effects on Overall PWB.

Regarding the dimensions of PWB, I found that gratitude mediates the relationship between Extraversion and all six components of PWB: Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance. Gratitude fully mediated the relationship between Extraversion and four PWB dimensions of Autonomy, Environmental Mastery, Purpose in Life, and Self-Acceptance. Thus, Extraversion was associated with higher levels of Autonomy, Environmental Mastery, Purpose in Life, and Self-Acceptance, and this relationship was fully explained by degree of gratitude. Gratitude partially mediated the relationship between Extraversion and the two remaining PWB dimensions of Personal Growth and Positive Relations with Others. Thus, the associations between Extraversion, Personal Growth, and Positive Relations with Others were partially explained by gratitude. I also found that gratitude partially mediated the relationship between Agreeableness and Positive Relations with Others. Agreeableness was associated with higher levels of gratitude, which in turn, were associated with higher levels of Positive Relations with Others.

Lastly, I failed to find evidence to support the notion that gratitude mediated the relationship between the personality characteristics of Openness and Conscientiousness and PWB. Thus, we may be able to rule out gratitude as a mediator between these personality characteristics and Overall PWB and its dimensions.

Although it has been shown that personality is related to PWB (Keyes, Shmotkin, & Ryff, 2002; Schmutte and Ryff, 1997), I wanted to examine whether adding gratitude would increase the variance accounted for in PWB. I found that adding gratitude to the Big Five personality predictors greatly increased the variance accounted for in PWB. More specifically, gratitude explained an additional 24.1% of the variance in PWB after controlling for personality characteristics. The results of the current study further support the notion that gratitude is uniquely important to well-being, beyond the effects of personality characteristics alone (Wood et al., 2008, 2009). I was able to account for more of the variance in well-being by including gratitude in the model in addition to personality.

Since our findings replicate and extend the recent research conducted by Wood et al. (2008, 2009), it is important to discuss some similarities and differences between the studies. First, to summarize the findings of Wood et al. (2008), they found that gratitude explained an additional 9% of the variance in satisfaction with life after controlling for the Big Five domains and an additional 8% after controlling for the facets of the Big Five. Facets of the Big Five are personality traits that are conceptualized to exist underneath each of the Big Five personality domains in a hierarchically organized model of personality (Costa & McCrae, 1992). For example, the personality domain of agreeableness has the six facets of trust, straightforwardness, altruism, compliance,

modesty, and tender-mindedness. In 2009, the same researchers examined the

relationship between the Big Five facets, gratitude, and each dimension of psychological

well-being and found that gratitude correlated with all six dimensions of PWB.

Additionally, after controlling for the 30 facets of the Big Five domains, the researchers

found that gratitude still explained a significant amount of the variance (ranging from 2%

to 8%) in the PWB dimensions of personal growth, positive relationships, purpose in life,

and self-acceptance.

One large difference between my study and the recent studies conducted by Wood

et al. (2008, 2009) is the amount of variance in well-being that gratitude accounted for

after controlling for the effects of personality. In my study, the incremental validity of

gratitude ranged from 12.5% to 27.5%, which appears to be much larger than Wood et

al.'s (2008, 2009) 2% to 8%. One possible reason for this is that we used different

measures of personality. It is likely that the measure of personality (NEO-PI-R) used by

Wood et al. (2008, 2009) is more reliable and has better construct validity. To the extent

that gratitude and personality have shared variance, a better measure of personality may

leave less variance remaining that could be accounted for by gratitude.

Another important difference is that Wood et al. (2009) found much weaker

correlations between gratitude and the dimensions of PWB compared to the current

study. It is important to note though, that Wood et al. (2009) used only a total of 18 items

to measure the six dimensions of PWB. Ryff, the developer of the PWB scales, strongly

advises against using the short version of the PWB scale (three items per scale) due to

psychometric problems and inadequate coverage of the six well-being constructs

(personal communication, April 17, 2008). According to Ryff and Keyes (1995), the

alpha coefficients for the 3-item scales ranged from .33 (Purpose in Life) to .56 (Positive Relations with Others). Thus, one potential reason why my results differ from that of Wood et al. (2008, 2009) may be because different measures of personality and well-being were used in each respective study.

Even though the recently published study conducted by Wood et al. (2009) is related to my study in that we both examined, and found evidence for, relationships between personality, gratitude, and PWB, I also extended their research by examining gender and its relationship to the previously mentioned variables. I also extended their research by testing whether gratitude may mediate the relationship between personality and PWB and found evidence to support this hypothesis.

In summary, this study sheds light on individual differences in PWB. I found that people with certain personality characteristics, such as Extraversion or Agreeableness, are more likely to report higher levels of well-being, which supports previous findings regarding the relationships between personality characteristics and PWB as well as SWB (Diener, Suh, Lucas, & Smith, 1999; Keyes, Shmotkin, & Ryff, 2002; Schmutte and Ryff, 1997). Most importantly, I found that people who reported higher levels of PWB are more grateful than their counterparts who reported lower levels of PWB, which parallels previous research findings regarding the relationship between gratitude and SWB (Adler & Fagley, 2005; McCullough, Emmons, & Tsang, 2002; Peterson et al., 2007; Watkins et al., 2003). It appears gratitude explains why people with different personality characteristics experience different levels of well-being.

Since personality has been seen as relatively immutable, attempting to enhance PWB by modifying personality is unlikely to be successful. There is research, however,

that suggests that gratitude can be enhanced through relatively simple interventions such as writing down things one is grateful for on a daily or weekly basis. This enhancement in gratitude has been shown to have a positive effect on subjective well-being measures such as positive affect and life satisfaction. To my knowledge, no study to date has examined whether enhancing gratitude can increase PWB, but preliminary experimental longitudinal research (Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2008; Watkins et al., 2003) showing that gratitude can be enhanced and positively affect subjective well-being is promising.

Limitations and Future Directions

Though my findings in the current study were notable, some study limitations must be discussed. A limitation of the current study is the low alphas on the personality scales of Conscientiousness and Openness. I may not have been able to detect relationships between these personality characteristics and some dependent variables due to low internal consistencies for these personality scales. Using only two items to measure each personality characteristic may not have fully represented each personality characteristic, which is a problem of construct validity. Future researchers may want to employ the 44 item Big Five Inventory (John, Donahue, & Kentle, 1991) rather than the shortened 10 item version (Rammstedt & John, 2007).

Because of the cross-sectional research design, I am unable to make conclusions regarding the direction of relations among the study variables. Based on my study alone, I am unable to conclude whether personality characteristics and gratitude influence one's level of well-being or whether one's level of well-being lends itself to the development of certain personality characteristics and gratitude. Replication using longitudinal or

prospective designs is necessary in order to further understand the relationship between personality characteristics and well-being.

Despite these limitations, the present results add to understanding the role of gratitude in well-being. This is the first study to examine gratitude as a mediator between the Big Five personality characteristics and PWB. The current data suggest that gratitude partially mediates the relationship between Extraversion and Overall PWB. Furthermore, gratitude was shown to fully mediate the relationship between the personality characteristic of Agreeableness and Overall PWB as well as the relationship between gender and Overall PWB. Gratitude was also shown to mediate the relationship between Extraversion and all six components of PWB. Lastly, the current data suggest that gratitude partially mediates the relationship between Agreeableness and the PWB dimension of Positive Relations with Others. Together, these results emphasize the importance of gratitude in explaining well-being. These results would need to be replicated across several studies in order to confirm this clear path from personality to gratitude and well-being. One avenue for future research would be to examine whether these findings can be replicated cross-culturally. Also, because we found gender differences in gratitude and well-being, future studies could examine the relationships between personality, gratitude, and well-being separately for men and women. Results of the current study, however, suggest that gratitude mediates many of the previously observed relationships between personality and PWB. If these results are replicated, targeting gratitude may be further examined as a potential intervention to enhance well-being.

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Table 1

Descriptive Statistics for Personality Characteristics (Neuroticism, Extraversion, Openness, Agreeableness, Conscientiousness), Gratitude, and Psychological Well-Being (Overall Psychological Well-Being, Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, Self-Acceptance) (N = 224)

Variable	Minimum	Maximum	Mean (SD)	Coefficient Alpha
Neuroticism	1.0	5.0	3.22 (1.03)	.62
Extraversion	1.0	5.0	3.19 (.96)	.66
Openness	1.5	5.0	3.67 (.88)	.36
Agreeableness	1.0	5.0	3.48 (.87)	.23
Conscientiousness	1.5	5.0	3.57 (.77)	.40
Gratitude	2.0	7.0	5.87 (.97)	.80
Overall PWB	2.4	5.7	4.42 (.65)	.97
Autonomy	1.4	5.8	4.15 (.80)	.87
Environmental mastery	1.4	5.8	4.16 (.78)	.88
Personal growth	2.7	6.0	4.75 (.66)	.85
Positive relations with others	2.0	6.0	4.49 (.88)	.89
Purpose in life	1.7	5.9	4.66 (.76)	.89
Self-acceptance	1.1	5.9	4.30 (.97)	.93

Table 2

Pearson Product-Moment Correlations Between Personality Characteristics, Gratitude, and Dimensions of Psychological Well-Being (N = 224)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	-													
2. Neuroticism	.12	-												
3. Extraversion	.18*	-.26**	-											
4. Openness	.02	.09	.10	-										
5. Agreeableness	.06	-.16	.10	-.09	-									
6. Conscientiousness	.13	-.22*	.13	.04	.08	-								
7. Gratitude	.26**	-.15	.32**	.02	.25**	.23**	-							
8. Autonomy	.12	-.46**	.36**	.07	.21*	.44**	.55**	-						
9. Environmental Mastery	.11	-.47**	.36**	.07	.19*	.44**	.56**	.99**	-					
10. Personal Growth	.20*	-.30**	.40**	.19*	.16	.24**	.56**	.54**	.57**	-				
11. Positive Relations with Others	.22*	-.22*	.48**	.09	.35**	.20*	.65**	.61**	.60**	.51**	-			
12. Purpose in Life	.21*	-.22*	.29**	.10	.16	.40**	.67**	.73**	.75**	.66**	.58**	-		
13. Self Acceptance	.14	-.38**	.33**	.09	.18*	.32**	.62**	.77**	.78**	.65**	.66**	.77**	-	
14. Overall PWB	.21*	-.41**	.44**	.13	.24**	.39**	.70**	.86**	.87**	.78**	.76**	.86**	.91**	-

Note. *p<.01, **p<.001

Table 3

Results for Regression Analyses Examining the Contributions of Gender, Personality, and Gratitude to Overall PWB (N = 224)

Variable	β	B	SEB	t	Adjusted R^2	F
Overall PWB					.406	26.43**
Gender	.15	.22	.08	2.80*		
Neuroticism	-.29	-.18	.04	-5.06**		
Extraversion	.28	.19	.04	5.06**		
Openness	.13	.10	.04	2.50		
Agreeableness	.14	.11	.04	2.71*		
Conscientiousness	.25	.21	.05	4.71**		
Overall PWB					.486	211.98**
Gratitude	.70	.47	.03	14.56**		
Overall PWB					.647	59.49**
Gender	.05	.07	.06	1.13		
Neuroticism	-.26	-.17	.03	-6.06**		
Extraversion	.15	.10	.03	3.42*		
Openness	.12	.09	.03	3.08*		
Agreeableness	.03	.02	.03	.78		
Conscientiousness	.17	.14	.04	4.02**		
Gratitude	.55	.37	.03	12.23**		

Note. * $p < .01$, ** $p < .001$

Table 4

Results for Regression Analyses Examining the Contributions of Gender and Personality to Gratitude (N=224)

Variable	β	B	SEB	t	Adjusted R^2	F
Gratitude					.196	10.06**
Gender	.19	.41	.14	3.00*		
Neuroticism	-.04	-.04	.06	-.60		
Extraversion	.24	.24	.07	3.68**		
Openness	.01	.01	.07	.20		
Agreeableness	.20	.22	.07	3.28*		
Conscientiousness	.15	.19	.08	2.46		

Note.   * $p < .01$, ** $p < .001$

Table 5

Results for Regression Analyses Examining the Contributions of Gender, Personality, and Gratitude to Autonomy (N = 224)

Variable	β	B	SEB	t	Adjusted R^2	F
Autonomy					.390	24.71**
Gender	.08	.14	.10	1.42		
Neuroticism	-.34	-.26	.04	-5.86**		
Extraversion	.20	.17	.05	3.58**		
Openness	.08	.07	.05	1.42		
Agreeableness	.12	.11	.05	2.18		
Conscientiousness	.31	.32	.06	5.79**		
Autonomy					.299	96.32**
Gratitude	.55	.45	.05	9.81**		
Autonomy					.515	34.81**
Gender	.00	.00	.09	.05		
Neuroticism	-.32	-.250	.04	-6.26**		
Extraversion	.11	.10	.04	2.07		
Openness	.07	.06	.04	1.49		
Agreeableness	.04	.03	.04	.74		
Conscientiousness	.25	.26	.05	5.16**		
Gratitude	.40	.33	.04	7.56**		

Note. * $p <.01$, ** $p <.001$

Table 6

Results for Regression Analyses Examining the Contributions of Gender, Personality, and Gratitude to Environmental Mastery (N = 224)

Variable	β	B	SEB	t	Adjusted R^2	F
Environmental Mastery					.391	24.85**
Gender	.07	.12	.10	1.24		
Neuroticism	-.35	-.27	.04	-6.16**		
Extraversion	.20	.16	.05	3.50*		
Openness	.07	.07	.05	1.41		
Agreeableness	.09	.05	.08	1.72		
Conscientiousness	.32	.32	.05	5.82**		
Environmental Mastery					.313	102.37**
Gratitude	.56	.45	.04	10.12**		
Environmental Mastery					.533	37.30**
Gender	-.01	-.02	.09	-.24		
Neuroticism	-.34	-.26	.04	-6.70**		
Extraversion	.10	.08	.04	1.90		
Openness	.07	.06	.04	1.50		
Agreeableness	.01	.01	.04	.15		
Conscientiousness	.25	.26	.05	5.21**		
Gratitude	.42	.34	.04	8.17**		

Note. * $p < .01$, ** $p < .001$

Table 7

Results for Regression Analyses Examining the Contributions of Gender, Personality, and Gratitude to Personal Growth (N = 224)

Variable	β	B	SEB	t	Adjusted R^2	F
Personal Growth					.260	14.04**
Gender	.15	.22	.09	2.45		
Neuroticism	-.21	-.14	.04	-3.36*		
Extraversion	.27	.19	.04	4.38**		
Openness	.18	.13	.04	3.07*		
Agreeableness	.10	.07	.04	1.63		
Conscientiousness	.13	.11	.05	2.16		
Personal Growth					.310	101.12**
Gratitude	.56	.38	.04	10.06**		
Personal Growth					.413	23.43**
Gender	.06	.10	.08	1.18		
Neuroticism	-.19	-.12	.04	-3.46*		
Extraversion	.17	.11	.04	2.94*		
Openness	.17	.13	.04	3.34*		
Agreeableness	.01	.01	.04	.14		
Conscientiousness	.06	.05	.05	1.14		
Gratitude	.44	.03	.04	7.60**		

Note. * $p < .01$, ** $p < .001$

Table 8

Results for Regression Analyses Examining the Contributions of Gender, Personality, and Gratitude to Positive Relations with Others (N = 224)

Variable	β	B	SE B	t	Adjusted R^2	F
Positive Relations with Others					.339	20.06**
Gender	.13	.25	.11	2.24		
Neuroticism	-.07	-.06	.05	-1.23		
Extraversion	.39	.35	.05	6.61**		
Openness	.08	.08	.05	4.50		
Agreeableness	.29	.29	.06	5.24**		
Conscientiousness	.09	.11	.06	4.65		
Positive Relations with Others					.424	164.94**
Gratitude	.65	.59	.05	12.84**		
Positive Relations with Others					.534	37.53**
Gender	.03	.07	.10	.70		
Neuroticism	-.05	-.05	.04	-1.07		
Extraversion	.27	.25	.05	5.31**		
Openness	.08	.08	.05	1.66		
Agreeableness	.19	.19	.05	4.01**		
Conscientiousness	.02	.02	.05	.36		
Gratitude	.49	.45	.05	9.59**		

Note. * *p* <.01, ** *p* <.001

Table 9

Results for Regression Analyses Examining the Contributions of Gender, Personality, and Gratitude to Purpose in Life (N = 224)

Variable	β	B	SEB	t	Adjusted R^2	F
Purpose in Life					.238	12.64**
Gender	.15	.25	.10	2.39		
Neuroticism	-.11	-.08	.05	-1.67		
Extraversion	.18	.14	.05	2.85*		
Openness	.09	.08	.05	1.5		
Agreeableness	.10	.08	.05	1.62		
Conscientiousness	.32	.32	.06	5.28**		
Purpose in Life					.448	181.96**
Gratitude	.67	.53	.04	13.49**		
Purpose in Life					.513	34.52**
Gender	.04	.06	.09	.71		
Neuroticism	-.08	-.06	.04	-1.63		
Extraversion	.04	.03	.04	.78		
Openness	.08	.07	.04	1.73		
Agreeableness	-.02	-.02	.04	-.43		
Conscientiousness	.23	.23	.05	4.68**		
Gratitude	.59	.46	.04	11.01**		

Note. * $p < .01$, ** $p < .001$

Table 10

Results for Regression Analyses Examining the Contributions of Gender, Personality, and Gratitude to Self-Acceptance (N = 224)

Variable	β	B	SEB	t	Adjusted R^2	F
Self-Acceptance					.258	13.94**
Gender	.11	.24	.13	1.83		
Neuroticism	-.29	-.27	.06	-4.56**		
Extraversion	.19	.19	.06	3.07*		
Openness	.09	.10	.06	1.61		
Agreeableness	.10	.11	.07	1.71		
Conscientiousness	.20	.25	.07	3.37*		
Self-Acceptance					.386	141.27**
Gratitude	.62	.62	.05	11.89**		
Self-Acceptance					.485	30.96**
Gender	.01	.02	.11	.19		
Neuroticism	-.27	-.25	.05	-5.07**		
Extraversion	.06	.06	.05	1.19		
Openness	.09	.10	.05	1.80		
Agreeableness	-.01	-.01	.06	-.13		
Conscientiousness	.12	.15	.06	2.37		
Gratitude	.53	.53	.05	9.81**		

Note. * $p < .01$, ** $p < .001$

Table 11

Summary of Multiple Regression Analyses for Gender and Personality Predicting Overall PWB and Dimensions of PWB with and without Gratitude as a Mediator (N = 224)

	Overall PWB				Autonomy				Environmental Mastery			
Variable	Adj. R^2	(Adj. R^2)	β	(β)	Adj. R^2	(Adj. R^2)	β	(β)	Adj. R^2	(Adj. R^2)	β	(β)
	.406**	.647**			.390**	.515**			.391**	.533**		
Gender			.15*	.05			.08	.00			.07	-.01
Neuroticism			-.29**	-.26**			-.34**	-.32**			-.35**	-.34**
Extraversion			.28**	.15*			.20**	.11			.20*	.10
Openness			.13	.12*			.08	.07			.07	.07
Agreeableness			.14*	.03			.12	.04			.09	.01
Conscientiousness			.25**	.17**			.31**	.25**			.32**	.25**

	Personal Growth				Positive Relations with Others				Purpose in Life			
Variable	Adj. R^2	(Adj. R^2)	β	(β)	Adj. R^2	(Adj. R^2)	β	(β)	Adj. R^2	(Adj. R^2)	β	(β)
	.260**	.413**			.339**	.534**			.238**	.513**		
Gender			.15	.06			.13	.03			.15	.04
Neuroticism			-.21*	-.19*			-.07	-.05			-.11	-.08
Extraversion			.27**	.17*			.39**	.27**			.18*	.04
Openness			.18*	.17*			.08	.08			.09	.08
Agreeableness			.10	.01			.29**	.32**			.10	-.02
Conscientiousness			.13	.06			.09	.02			.32**	.23**

		Self-Acceptance		
Variable	Adj. R^2	(Adj. R^2)	β	(β)
	.258**	.485**		
Gender			.11	.01
Neuroticism			-.29**	-.27**
Extraversion			.19*	.06
Openness			.09	.09
Agreeableness			.10	-.01
Conscientiousness			.20*	.12

Note. The numbers outside parentheses are the adjusted R^2 and standardized Beta coefficients indicating the relationship between the independent and dependent variables when the variance associated with the other independent variables is controlled. The numbers in parentheses are the adjusted R^2 and standardized Beta coefficients in the model with Overall PWB and dimensions of PWB as the dependent variables, and gratitude added to personality and gender as the independent variables.
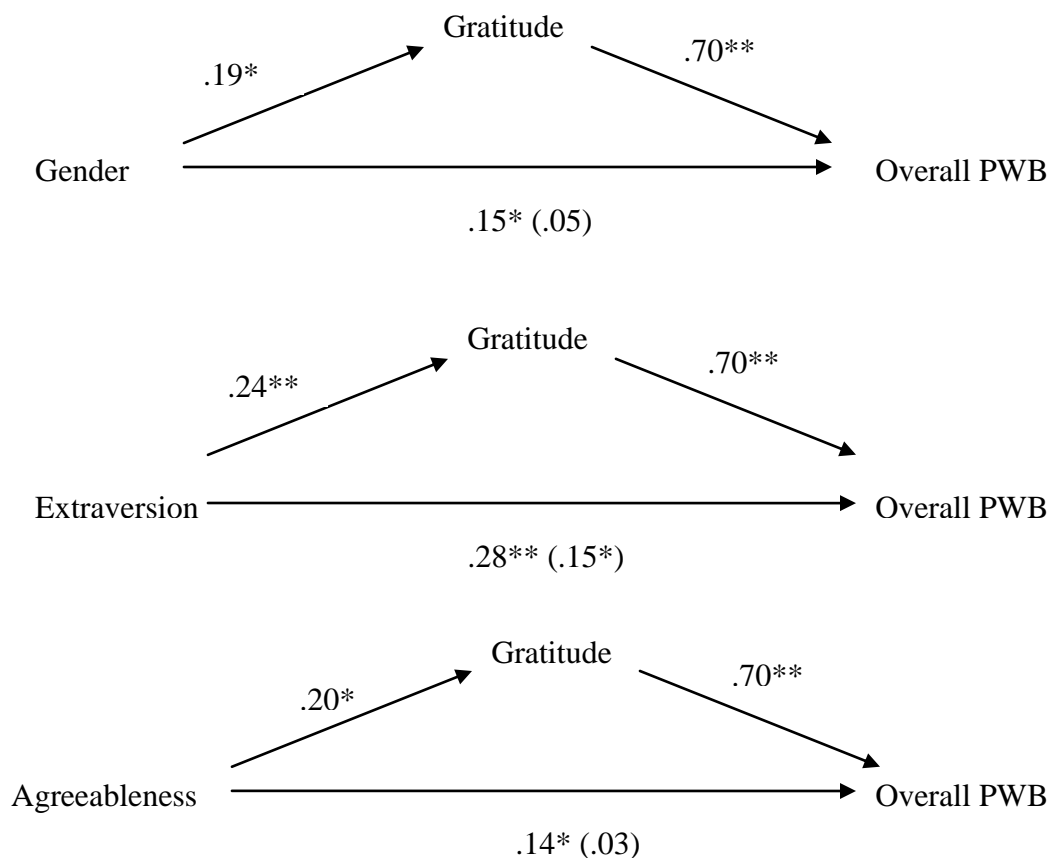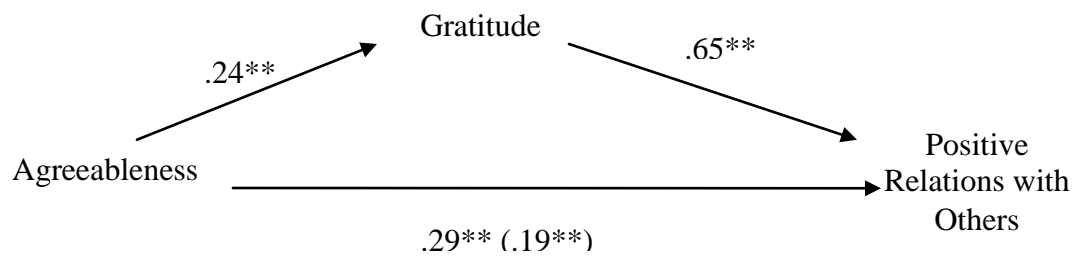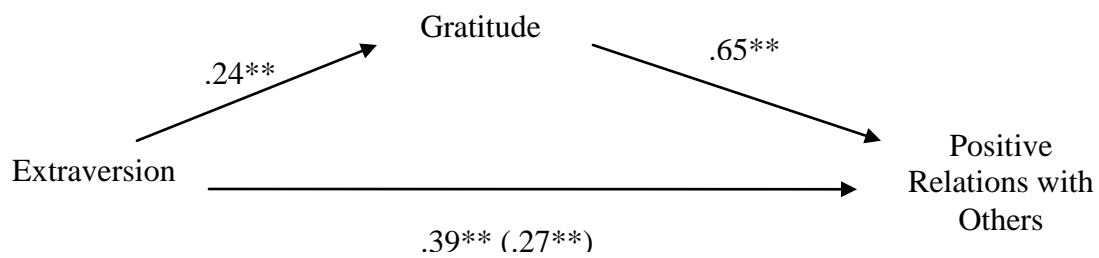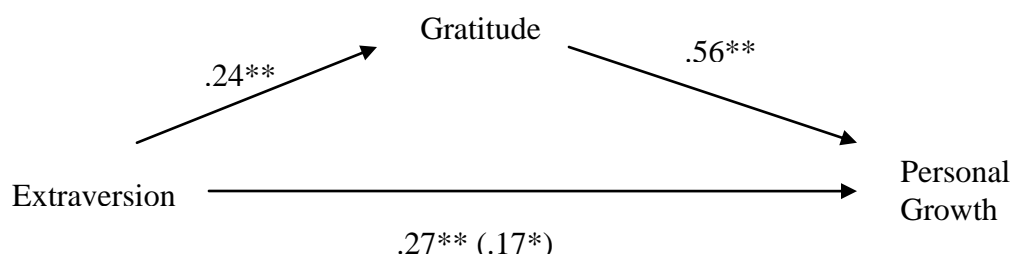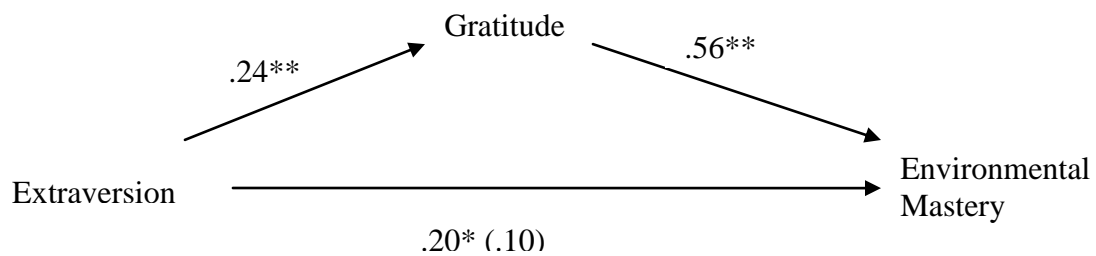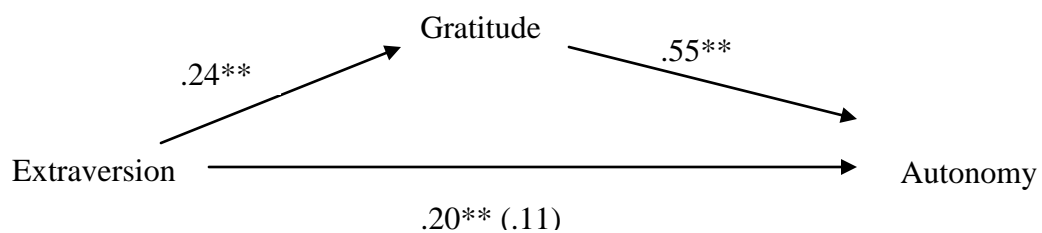
* $p <.01$, ** $p <.001$

Figure 1. The Mediating Role of Gratitude in the Relationship between Gender and Overall PWB, Extraversion and Overall PWB, and between Agreeableness and Overall PWB. The effect of gender and each personality characteristic was examined in the context of all the independent variables. The numbers outside parentheses are standardized Beta coefficients indicating the relationship between the independent and dependent variables when the variance associated with the other independent variables is controlled. The numbers in parentheses are the standardized Beta coefficients in the model with Overall PWB as the dependent variable, and gratitude added to personality and gender as an independent variable.

$* p <.01, ** p <.001$

Gratitude

.24**   .55**

Extraversion   Autonomy

.20** (.11)

Gratitude

.24**   .56**

Extraversion   Environmental
                                                Mastery

.20* (.10)

Gratitude

.24**   .56**

Extraversion   Personal
                                                Growth

.27** (.17*)

Gratitude

.24**   .65**

Extraversion   Positive
                                                Relations with
                                                Others

.39** (.27**)

Gratitude

.24**   .65**

Agreeableness   Positive
                                                Relations with
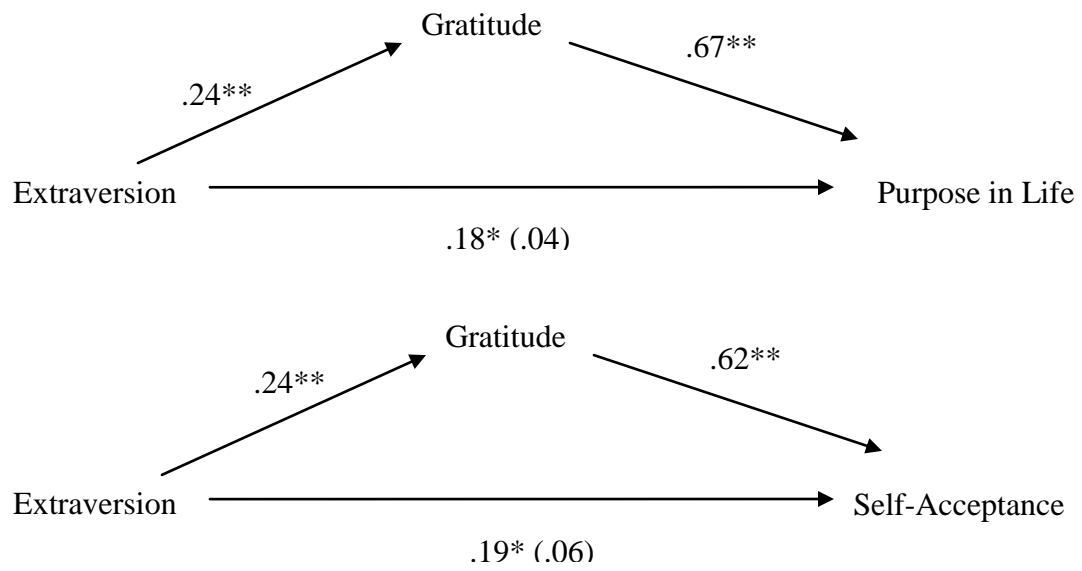   Others

.29** (.19**)

Figure 2. The Mediating Role of Gratitude in the Relationship between Personality and Each Dimension of PWB. The effect of gender and each personality characteristic was examined in the context of all the independent variables. The numbers outside parentheses are standardized Beta coefficients indicating the relationship between the independent and dependent variables when the variance associated with the other independent variables is controlled. The numbers in parentheses are the standardized Beta coefficients in the model with each individual dimension of PWB as the dependent variable, and gratitude added to personality and gender as an independent variable.

* $p < .01$, ** $p < .001$

Curriculum Vita

Angela Supatra Ziskis

EDUCATION   **Rutgers University,** Piscataway, NJ
 Ph.D., October 2010

 Rutgers University, Piscataway, NJ
 Master of Science, January 2008

 Northwestern University, Evanston, IL
 Bachelor of Arts, June 2003

WORK   Department of Psychology, Northwestern University, Evanston, IL
EXPERIENCE   **Project Coordinator**, August 2003 - July 2005

 Department of Psychology/Center for Alcohol Studies, Rutgers
 University, Piscataway, NJ
 Research Assistant, September 2005 – June 2006

 Department of Psychology, Rutgers, the State University of New
 Jersey, Piscataway, NJ
 Teaching Assistant/Grader, Fall 2006

 Department of Psychology, Rutgers, the State University of New
 Jersey, Piscataway, NJ
 Instructor, Summer 2006, Spring 2007, Summer 2007, Fall 2007,
 Spring 2008, Fall 2008

 Department of Psychology, Rutgers, the State University of New
 Jersey, Piscataway, NJ
 Instructor, Abnormal Psychology, Summer 2008

PUBLICATIONS   Chiong, A.S., Bry, B.H., & Fagley, N. (in press). Mediators
  between coping styles and substance use/intentions in urban, high
  school freshmen. *Journal of Addictive Behaviors.* Doi:
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