Relations Among Positive Emotions, Appraisals, the Big Five, and Appraisal Style

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Abstract

The associations among positive emotions and different personality factors may hold a key to understanding individual differences in emotional experience. The present research sought to examine individual differences by investigating the relationships among 12 positive emotions, 16 appraisals, the Big Five, appraisal style, and positive emotion differentiation. Furthermore, two different appraisal models were compared on their ability to predict four different positive emotions. Participants completed a survey containing the personality and trait measures; they then recalled and wrote about a past positive experience and rated the positive emotions and appraisals with respect to that experience. The Big Five were not significant predictors of appraisal or appraisal style, but significant correlations were found. Positive emotion differentiation was stable across momentary and retrospective situations. In comparing the two appraisal models, only the strongest appraisal predictors emerged as significant predictors of each emotion: happiness, gratitude, pride, and satisfaction/contentment.

Relations Among Positive Emotions, Appraisals, the Big Five, and Appraisal Style

Emotions are generally thought to be a person's adaptive responses to the environment, which function in reaction to situations, motivating some kind of action, and aiding in survival (Kirby, Tugade, Morrow, Ahrens, & Smith, 2014; Smith, 1991). Given the adaptive nature of emotional responses, striving to increase the understanding of the different factors involved in these responses is an important task within emotions research. To that end, an essential element to consider within the study of emotions is the role of individual differences, which helps inform why two people may react very differently to the same situation (Smith, 1991). For example, after being highly praised for a job well done, one person may feel proud and want to show off (Smith, Tong, & Ellsworth, 2014), while another person may feel contented and want to relax. Emotions are complex and their careful study might therefore require integration of multiple factors to better understand why certain emotions are elicited.

Appraisal Theory

One widely accepted theory of emotion is appraisal theory. Arnold and Gasson (1954) first presented the idea that emotions are based on appraisals, or cognitive meaning-analyses of situations. One modern form of this theory states that appraisals are the causal antecedents of emotions (Smith & Lazarus, 1990; Smith, 1991; Roseman & Smith, 2001). The essential component of this theory, an appraisal, can be defined as a person's cognitive evaluation of the significance of a situation for that person's well being (Smith & Lazarus, 1990). In other words, an emotion is elicited as a result of these appraisals, which reflect what one perceives about a situation, in that moment, and how one thinks the situation relates to oneself. For example, an appraisal of accountability

would comprise an assessment of who is responsible for the situation. Some researchers

theorize that appraisals are causal elicitors of emotions; evidence in support of this theory

can be found in the literature on appraisal and emotion (Roseman and Evdokas, 2004;

Smith & Kirby, 2009a). Emotion research that is based in appraisal theory can benefit from

directing attention to the role of individual differences in appraisal-emotion relationships,

appraisal styles, and personality/trait factors. Investigating the relationships among these

factors may help explain why one person feels pride and another feels contentment, when

faced with the same situation. Thus, the present research sought to examine the

relationships among these factors, specifically within the realm of positive emotion.

Structure of Appraisals

According to the appraisal theorists, Smith and Lazarus (1990), there are six

appraisal components. These components together make up the specific cognitive

evaluation that is associated with a particular emotion. The six components are

motivational relevance, motivational congruence, accountability, problem-focused coping

potential (PFCP), emotion-focused coping potential (accommodative coping potential or

ACP), and future expectancy. A determination of the motivational relevance of a situation is

a calculation of whether or not the circumstance matters to the person making the

appraisal (Smith & Lazarus, 1990). If the situation is appraised as relevant, an emotion will

be evoked, if not, there will be no emotional reaction. The motivational congruence of the

situation can be defined as the degree to which the situation aligns with the person's goals.

These two components, motivational relevance and congruence, make up the "primary

appraisal" (Smith & Lazarus, 1990).

The four remaining components of appraisal, according to Smith and Lazarus (1990), combine to give rise to "secondary appraisal," which further differentiates which emotion will be experienced. The secondary appraisal components are defined as follows: Accountability, either self-accountability or other-accountability, is an appraisal of who is responsible for the situation, or who caused it (Smith & Lazarus, 1990). The problem- and accommodative-focused coping potentials (PFCP and ACP) are evaluations of how well the person thinks he or she will be able to cope with the situation. The former (PFCP) is essentially a person's perception of his or her own ability to act on a problem and change it or deal with it adequately, whereas the latter, ACP, is a person's perceived ability to manage his or her emotions in response to the circumstances (Smith & Lazarus, 1990). Finally, the appraised future expectancy of a situation refers to how the appraiser expects the situation to change in the future. To illustrate, an example of how appraisals combine to form an emotion may be: a situation that is appraised as relevant, congruent, and another person was accountable for it will likely evoke gratitude (Smith, 1991). Conversely, if relevance and congruence were appraised with self-accountability instead of other-accountability, pride would likely be evoked.

Tong's (2015) appraisal theory extends this list to include 12 appraisals, in order to more precisely differentiate the kind of evaluation to which each appraisal refers. For example, Tong (2015) differentiates agency and control between self, other, and circumstances. Motivational relevance and congruence per Smith and Lazarus (1990) align with Tong's (2015) appraisals of relevance, pleasantness, problems, and goal-attainment. The coping potentials are similar to Tong's appraisal of "control" (Smith et al., 2014). Smith and Lazarus's accountability is comparable to agency in Tong's model. Future expectancy is

similar to, but not precisely the same as the combination of Tong's "certainty" and "predictability;" Tong adds the appraisal of "effort," which is defined as whether or not the person felt they needed to exert themselves. I used a combination of Tong's appraisals and Smith and Lazarus' appraisals in the present study in order to allow participants to provide the most appraisal information they could, and so that I could compare the models of Smith and Tong.

According to Smith (1991), the six appraisal components I have described form a distinct pattern, the outcome of which is associated with a particular emotion, and the specific nature of the emotion is dependent on the associated appraisal pattern. I used an elaborated version of this approach similar to the list that Tong (2015) used to examine the differentiation of positive emotions by appraisals. These thirteen appraisal items, with the three additions I made (accommodative coping potential, future expectancy, and motivational congruence), include the six basic components defined by Smith and Lazarus. Importantly, they have been shown to accurately classify thirteen positive emotions (Tong, 2015).

Though the appraisal models of Smith and Lazarus (1990) and of Tong (2015) are similar, the two theorists disagree on the universality of appraisal patterns for a particular emotion. According to Kuppens and Tong (2010), one aspect of emotional experience from which individual differences can arise is the relation between appraisals and emotions. Other appraisal researchers theorize that the appraisal-emotion relationship is invariant between persons (Roseman & Smith, 2001; Smith & Lazarus, 1993). In other words, a specific set of appraisals always leads to the discrete emotion "X" with which that appraisal set is paired, and this one-to-one relationship does not vary from person to person. Tong's

(2015) appraisal model includes a larger number of appraisals, and for this reason could

potentially allow greater variability in the appraisal patterns that are predicting particular

emotions. Thus, in this study I wanted to investigate the nature of the relationships

between positive emotions and the two different appraisal models of Smith and Tong.

Appraisal Styles

A tendency to make certain appraisals across situations is referred to as an

"appraisal style" (Power & Hill, 2010). According to Lazarus (1991, p. 138), appraisal style

is a "disposition to appraise ongoing relationships with the environment consistently in

one way or another" (as cited in Tong et al., 2006, p. 514). In other words, an appraisal

style refers to one's consistent pattern of appraising one's relationship to the surroundings.

Multiple studies have examined the relationship between appraisal style and personality

(Hemenover & Dienstbier, 1996; Power & Hill, 2010; Silvia, Henson, & Templin, 2009; Tong

et al., 2006; Tong, 2010). For example, Tong (2010) found that participants scoring higher

on a neuroticism, or emotional instability, scale tended to appraise situations more

negatively than those scoring lower in neuroticism. Additionally, Silvia, Henson, and

Templin (2009) identified two different appraisal styles for interest; one class of

participants, representing one of two appraisal styles, were higher in personality traits of

openness and curiosity. For these participants the novelty-complexity appraisal more

strongly predicted the emotion interest. The other class of participants had a different

appraisal style in which coping potential had a larger effect on interest. Individual

differences in personality seem to be associated with individual differences in appraisal

style, and both are related to the appraisal process. These findings demonstrate the utility

of examining appraisal style itself, and its relationship to personality, as a source of

individual differences in emotion. However, the focus of these studies is often negative

emotions, and a range of positive emotions is not included.

Positive Emotion Differentiation

According to Fredrickson's (1998) "broaden-and-build model" of positive emotions,

positive emotions are adaptive in that they encourage a person to pursue novel actions,

thus increasing the potential for a person to build psychological, physical, and/or social

resources. Each discrete positive emotion does this in a different way; for example,

experiencing happiness encourages a person to play and explore, thus potentially

increasing the person's intellectual, physical, and social resources (Fredrickson, 1998).

Additionally, one's ability to differentiate between one's own positive emotions has been

implicated in the literature as relating to coping styles and psychological well being (Kirby

et al., 2014; Tugade, Fredrickson, and Barrett, 2004).

Based on these theories and findings, there is much to be gained by the study of

discrete positive emotions and how they are differentiated. Thus, another individual

difference to consider in studying emotions is the extent to which participants differentiate

their positive emotions from one another within a positive experience. In other words, a

differentiation measure might indicate how well participants distinguish between their

own discrete positive emotions, such as pride and gratitude, when they are in a state of

positive affect. Emotions research has historically been focused on negative affect and its

differentiation into discrete negative emotions; some emotions theorists, however, argue

that positive experience is also highly differentiated into discrete emotions (Smith et al.,

2014). As mentioned, an important individual difference to consider in the study of positive

emotions is the extent to which different people differentiate their emotions, especially

because this factor has been implicated as having well being-related and adaptive significance.

Emotion and Personality

Multiple appraisal theorists stress the importance of examining both situational and personality factors when studying appraisal, since an appraisal reflects a relationship between a person and his or her environment (Smith & Lazarus, 1990; Smith and Kirby, 2009b; Tong et al., 2006). Personality is a construct that is stable across time and that reflects a person's ongoing relationship with the world in his or her thoughts, emotions, and behaviors. Numerous researchers have considered the associations between appraisals and personality factors, and have found relationships between the two constructs (Kuppens, Van Mechelen, Smits, De Boeck, & Ceulemans, 2007; Oliver & Brough, 2002; Power & Hill, 2010; Smith & Kirby, 2009a; Tong et al., 2006; Tong, 2010). For example, Kuppens et al. (2007) found that people who had the personality trait of easily experiencing goal-blocking were more likely to make the appraisal of frustration for anger-eliciting situations. Power and Hill (2010) found that participants who were more likely to appraise stressful events as manageable were those higher on personality factors such as hardiness and trait optimism. Furthermore, for individuals high on the personality factor of openness, the novelty appraisal more strongly predicted interest rather than the appraisal of coping potential (Silvia, Henson, & Templin, 2009).

Some of these studies on personality and emotion specifically use the Big Five personality factors (Costa & McCrae, 1989) as the personality measure (Oliver & Brough, 2002; Tong et al., 2006; Tong, 2010). Tong (2010) identified a difference in the strength of appraisal-negative emotion relationships between participants scoring high and low on the

Neuroticism factor of the Big Five model of personality. Specifically, for those scoring higher in neuroticism, negative emotions were more strongly related to appraisals than for those scoring lower on neuroticism (Tong, 2010). These studies show that it is useful to examine how appraisals and appraisal styles relate to individual differences in personality, because appraisal and emotion are dependent on the interplay of situational and personality factors. Thus, considering these factors together reveals relationships that can lead to a better understanding of the associations amongst personality, appraisal, and emotion.

Some studies have examined the relationships between personality and a wide range of positive emotions, but not appraisals, and have found distinct associations among them (Mitte & Kämpfe, 2008; Shiota, Keltner & John, 2006). Shiota et al. (2006) found correlations between seven dispositional positive emotions and the Big Five, which indicates that there are relationships between the Big Five personality factors and people's tendency to experience certain positive emotions. Mitte and Kämpfe (2008) also assessed positive emotions on a dispositional level and found associations between contentment, love, interest, joy, and the Big Five.

Overview of Present Study

Previous research indicates that there are relationships to be found among the Big Five personality factors, positive emotions, appraisals, and appraisal styles, so my study combined these related elements in a new and more complete way. The existing literature concerning appraisals and emotions as they relate to personality factors tends to focus on negative emotions, appraisals, and personality factors. In light of this emphasis on negative emotions, in the present study I incorporated the Big Five personality factors in an

investigation into the associations between personality, positive emotion appraisals, and appraisal styles of positive situations. Positive emotions deserve attention as they have been linked to building physical and social resources (Fredrickson, 2001), and research has shown that gratitude specifically plays a role in decreasing deleterious health symptoms and in increasing life satisfaction (Kimmerling, 2014). A more complete understanding of the relationships between appraisal styles, positive emotions, and personality factors could lead us closer to unveiling the potential positive effects of other positive emotions. Thus, the present study sought to examine the relationships between the 16 aforementioned appraisal items and 12 positive emotions: amusement, awe, determination, compassion, calm, gratitude, happiness, hope, interest, pride, satisfaction/contentment, and relief.

The personality and trait variables more specifically in question were positive emotion differentiation, the Big Five, and appraisal style related to positive experiences. Thus, the present study sought to investigate these relationships to increase the knowledge base of individual differences in the realm of positive emotion. In examining the relationships amongst these factors, I hoped to shed more light on individual differences therein, specifically regarding associations between the Big Five personality factors, positive emotion appraisals, and appraisal style.

The present study also compared the appraisal models of Smith and Lazarus (1990) and of Tong (2015), to examine which model better predicted emotional experience. I sought to examine the appraisal patterns that are stipulated by each model for positive emotions, to see how well specific appraisals could predict specific positive emotions, and how the models of Smith and Tong accounted for the variance in select positive emotions

with appraisal predictors. A more secondary question addressed in this study pertained to which positive-emotion appraisals are most strongly related to each positive emotion.

I had several specific predictions with regard to appraisal-emotion relationships. Refer to *Table 1* for a full account of my appraisal predictions for each emotion. I expected to find similar appraisal-emotion associations to the ones found by Tong (2015). Furthermore, I aimed to compare participants' differentiation of positive emotions given hypothetical situations in a momentary measure, the Differentiation of Positive Emotions Scale (*DOPES*, Kirby et al., 2014), versus a retrospective measure, the Felt Emotional Expression List (*FEEL*, Smith & Kirby, 2010), based on their own past experiences. In general, I expected to see that participants who clearly differentiated positive emotions on a retrospective emotions measure would also have a high level of positive emotion differentiation on a momentary positive experience measure. Conversely, participants who tend to feel multiple positive emotions to equal degrees, meaning less differentiation, for a given situation on the momentary measure would have lower differentiation on their retrospective measure results, as well. Because I used an open-ended writing prompt that asks only for the participant to describe a positive experience, the design allowed for the participant to differentiate the positive emotions within that experience.

While I expected the general patterns of appraisal-emotion relationships for the emotions, as outlined in *Table 1*, I hypothesized that appraisals may be differentially predicted by the Big Five personality factors, and that the strength with which the Big Five predicted appraisals would vary along with high and low scores on each of the five factors. Tong (2010) found that appraisal-emotion relationships for negative emotions varied as a function of neuroticism, and that higher neuroticism was related to stronger relationships

between anger, sadness, fear, guilt, and their corresponding appraisals. I predicted that participants higher in extraversion, openness, and agreeableness would rate their experiences as more pleasant and motivationally congruent. I predicted that participants higher in extraversion and conscientiousness would rate controllability (PFCP) higher than participants lower in the factors of extraversion and conscientiousness. I predicted that individuals higher in neuroticism will generally appraise events as less pleasant, more problematic, and less within their control. With regard to the Appraisal Styles Questionnaire (Smith & Kirby, 2013), I predicted that there would be associations between appraisal styles and personality factors as described above. Particularly, I predicted: positive correlations between openness, extraversion, agreeableness and motivational congruence, positive correlations between extraversion, conscientiousness and PFCP, and negative correlations between neuroticism and PFCP. The research question addressed in this study was concerned with individual differences as described by the relations among positive emotions, appraisals, and personality factors, namely the Big Five, appraisal style, and positive emotion differentiation.

Method

Participants & Design

A total of 101 Vanderbilt undergraduate students (74 females; 18-22 years old) participated in the study. Participants were recruited using SONA, the psychology research sign-up system. Participants received course credit or extra credit points for participating. There was one condition in the design of the study, thus all participants completed the same online survey at home. About half completed the same writing task, with corresponding emotion and appraisal questions, in the lab. The other half of the

participants completed both portions of the study at home rather than completing the second half, the writing prompt with the FEEL and appraisals, in the lab. These participants were allowed to complete both portions at home to expedite data collection as the end of the semester approached.

Measures

In the study, positive emotion was elicited and assessed in the lab using a retrospective emotion elicitation method similar to those that have been previously used in emotions research (Smith & Ellsworth, 1985; Tong, 2015). Participants were asked to recall and write about a time when they underwent a positive experience.

To assess which positive emotion was felt during the experience and to determine the strength of the emotion, participants rated their experience of the emotion adjectives from the Felt Emotional Expression List (*FEEL*, Smith & Kirby, 2010; for scale and examples see Appendix). The emotion adjectives from the FEEL are grouped into clusters, which represent a specific emotion. For the purposes of the study only the positive emotion clusters were included.

Appraisals for each of the positive experiences described were assessed using Tong's (2015) appraisals for positive emotions and three additional appraisals from Smith and Lazarus (1990). The additional appraisals of motivational congruence, accommodative coping potential, and future expectancy were added from our own lab (Smith & Lazarus, 1990; for appraisal items, see Appendix). Participants were asked to rate the appraisal items according to what they were thinking during the experience they described.

To understand the participants' general tendencies in differentiating positive emotions given hypothetical situations, the Differentiation of Positive Emotions Scale

(DOPES) was administered (Kirby et al., 2014; see Appendix). In this questionnaire,

participants are instructed to imagine themselves in each of 8 hypothetical situations, and

to rate 8 positive emotions according to how they feel imagining these situations. Positive

emotion differentiation in the hypothetical situations of the Differentiation of Positive

Emotions Scale (DOPES) has been shown to predict differentiation of emotional responses

to real-life events, as taken in an experience-sampling procedure (Kirby et al., 2014).

 To assess the Big Five personality factors (neuroticism, extraversion, openness,

conscientiousness, and agreeableness), I used the NEO-FFI (Costa & McCrae, 1989; for scale

and example items see Appendix).

Appraisal styles were assessed using the Appraisal Styles Questionnaire developed

by Smith and Kirby (2013; see Appendix). This questionnaire instructs participants to

imagine themselves in 12 hypothetical situations and rate the Smith and Lazarus (1990)

appraisals for the 12 situations, which include 6 positive and 6 negative situations, and 6

affiliation-based and 6 achievement-based scenarios.

Procedure

When a participant signed up for the study, the researcher emailed him or her the

REDcap link to the first survey. This survey containing the DOPES, NEO-FFI and Appraisal

Styles Questionnaire was administered online via email after participants signed up for the

study. The instructions stipulated that this at-home portion of the study was to be

completed before the in-lab portion. We required that these surveys be administered

separately in this way in order to insure that the same participants were not being asked to

complete the same trait surveys repeatedly for different studies within our lab, and to

reduce in-lab time. Upon participant arrival to the lab, the researcher confirmed that the

participant was there for the correct study, and that they had already completed the at-home survey portion of the study. The researcher then invited the participant to take a seat at the computer and, indicating a prepared consent form, asked the participant to look it over. The researcher addressed any questions the participant may have had about the consent form. After the participant signed the consent form, the researcher reiterated that the participant would be completing a brief writing task with corresponding questions. The researcher then opened the writing task, which was already set up on the computer, and directed the participant to read the instructions carefully and answer as honestly as possible. The participant proceeded to write for 10 minutes describing a positive experience that had happened to him or her in the past. After writing for approximately 10 minutes and advancing to the next page, the participant answered the appraisal items and the FEEL items. The participant then notified the researcher that s/he was finished with the questions. The researcher then returned to the room and debriefed the participant, explaining the purpose of the study, which was to examine individual differences in emotions, appraisals, and personality factors. The researcher addressed any questions, the participant was then thanked, and the researcher granted the participant 2 SONA credits online. For the participants who did both portions of the survey at home, the researcher emailed the links for both surveys to the participants who then completed the surveys outside the lab.

Results

Seventeen participants failed to complete all portions of the study; for analyses concerning these measures, the missing cases were omitted.

Correlations Between Positive Emotions and Appraisals

The correlations between 16 appraisals and 12 positive emotions can be found in *Table 2* of the appendix. The resulting correlations showed support for some of my hypotheses based on Tong's (2015) findings, but many hypothesized correlations were not supported; additionally, there were multiple significant correlations that were not predicted.

In support of my hypotheses, amusement was positively correlated with the appraisal of agency-other and negatively correlated with appraisals of problems and agency-self. However, amusement had no significant relationships with pleasantness, control-self, or effort, thus these hypotheses were not supported. It was negatively correlated with relevance and goal-attainment, and was positively correlated with certainty, which I did not predict.

As predicted, awe was positively correlated pleasantness and negatively correlated with control-self. However, awe was not related to agency-self, agency-circumstances, or control-circumstances; these hypotheses were not supported. It was positively correlated with agency-other and control-other, which reflects relationships in the opposite direction from my predictions. Additionally, awe was positively correlated with relevance and goal-attainment, and negatively correlated predictability and accommodative coping potential.

Calm was positively correlated with agency-circumstances and negatively correlated with problems and effort, as hypothesized. It was not significantly related pleasantness, congruence, or control-self; for these appraisals my hypotheses were not supported. Calm was negatively correlated with goal-attainment, which was the opposite of what I predicted. Significant relationships that I did not predict, but that were borne out in

the data, were that calm was positively correlated with relevance, agency-other, and predictability, and was negatively correlated agency-self.

As expected, compassion was positively correlated with agency-circumstances. It had no significant relationships with pleasantness, relevance, congruence, control-self, or control-circumstances, thus not supporting my hypotheses about these relationships. Compassion was positively correlated with control-other, which was a relationship I did not predict.

The results for contentment (satisfaction) that showed support for my hypotheses were that it was positively correlated with certainty and negatively correlated with problems. It was not related to pleasantness, relevance, control-self, or effort, contrary to my predictions. Contentment was positively correlated with agency-other and control-other, which were additional significant relationships that I did not expect.

Determination was positively correlated with relevance, problems, and effort, thus supporting my hypotheses about these relationships. It was also positively correlated with goal-attainment and agency-self, and negatively correlated with certainty. However, my hypotheses about pleasantness, congruence, control-self, and accommodative coping potential in relation to determination were not supported by the data.

Gratitude was, as predicted, positively correlated with control-other. However, it showed no relationship to pleasantness, relevance, congruence, agency-self, agency-other, or control-self. In addition to control-other, gratitude was positively correlated with certainty and future expectancy.

Happiness was positively correlated with pleasantness, relevance, congruence, and goal-attainment, thus supporting my hypotheses about these relationships. It was not,

however, significantly related to problems, control-self, effort, or accommodative coping potential as I expected it to be. Two unexpected relationships were that happiness was positively correlated with agency-other and certainty.

In support of my hypotheses, hope was positively correlated with pleasantness, relevance, and future expectancy. It showed no relationships with congruence, control-circumstances, effort, or accommodative coping potential, however.

Interest, for which the correlations all failed to support my hypotheses, had no significant relationships with pleasantness, relevance, and control-self. However, interest was positively correlated with certainty, which I did not predict.

Pride was positively correlated with relevance, goal-attainment, and agency-self and negatively correlated with control-circumstances, as predicted. Additionally, pride was positively correlated with problems and effort. Pride was not significantly related to pleasantness, congruence, agency-other, agency-circumstances, control-self, or control-other. It was negatively correlated with certainty, which was the opposite of my hypothesis regarding this relationship.

Finally, relief, for which the correlations all failed to support my hypotheses, was not related to pleasantness, problems, congruence, goal-attainment, control-self, and control-circumstances. However, relief was positively correlated with agency-circumstances.

Refer to *Table 1* and *Table 2* for a complete account of my hypotheses about the appraisal-emotion relationships and of the correlation findings between appraisals and emotions, respectively.

Positive Emotion Differentiation: DOPES and FEEL

The Differentiation of Positive Emotions Scale differentiation score was calculated for each participant, which reflects the extent to which each participant differentiated his or her emotional reactions to the measure's vignettes. A higher score reflected greater differentiation of positive emotions. This score was calculated for each participant and correlated with the differentiation score on the FEEL. The FEEL differentiation score was obtained by counting the number of positive emotions that were rated 6 or higher on the 1 to 9 Likert scale for each. Thus, this score was higher when participants differentiated positive emotions to a lesser extent. That is, there was more overlap in experiencing different positive emotions within the one positive experience, so a lower score reflected greater differentiation. Given the opposite nature of the two scores, my hypothesis predicted a negative correlation between the two variables: DOPES differentiation score and FEEL differentiation score. My hypothesis was supported; the two variables were significantly correlated, $r(79)= -.335, p < .01$.

Correlations Between the Big Five and Appraisals, Appraisal Style

Correlations were conducted between the Big Five personality factors, which were first transformed into composite scores, and the appraisal style composite scores (scores for each of: relevance, motivational congruence, PFCP, ACP, self-accountability, and other-accountability) for positive situations. Correlations were also conducted between the Big Five and the 16 appraisal items.

A median split was done for each of the Big Five personality factors, which were on a 1 to 7 Likert scale; the medians were as follows: for neuroticism, $Mdn = 3.95$, for extraversion, $Mdn = 4.92$, for openness, $Mdn = 4.64$, for conscientiousness, $Mdn = 5.25$, and for agreeableness, $Mdn = 5.27$. This was done so that I could compare participants high and

low on each factor, and determine whether the Big Five were significant predictors of

appraisals and appraisal style. Linear regression analyses revealed no significant results on

my hypotheses for the Big Five personality factors (neuroticism, extraversion, openness,

conscientiousness, and agreeableness) when testing these factors as predictors of

appraisals and of appraisal style.

Correlations between the Big Five and 16 appraisals revealed significant

relationships between extraversion and relevance, $r(93) = .242$, $p < .05$, openness and

problems, $r(93) = .288$, $p < .05$, openness and certainty, $r(93) = -.297$, $p < .01$, agreeableness

and agency-self, $r(93)= -.233$, $p < .05$, and between agreeableness and future expectancy,

$r(93) = .228$, $p < .05$.

The correlations conducted between the Big Five and appraisal styles in positive

situations revealed that extraversion was correlated with problem-focused coping

potential, $r(93) = .281$, $p < .01$, and with accommodative coping potential, $r(93) = .30$, $p <$

.01. Conscientiousness was correlated with motivational relevance, $r(93) = .371$, $p < .01$.

Finally, neuroticism was correlated with self-accountability, $r(93) = .27$, $p < .01$.

Differing Appraisal Models for Select Positive Emotions

Linear regression analyses were conducted to compare the appraisal models of

Smith (1991) and of Tong (2015) for the top four emotions that participants most

commonly wrote about for the positive experience prompt. These four emotions were

happiness (N=35), pride (N=18), satisfaction/contentment (N=8), and gratitude (N=7).

Happiness.

The Smith (1991) model lists, for happiness, the appraisals of relevance and

congruence. Relevance, but not congruence, significantly predicted happiness, $\beta = .095$,

$t(78) = 2.428$, $p < .05$. Relevance and congruence accounted for a significant proportion of variance in happiness, $R^2 = .169$, $F(2,76) = 7.728$, $p = .001$. The Tong (2015) model lists the appraisals of relevance, pleasantness, goal attainment, agency self, control-self, problems, and effort as the appraisals for happiness. Relevance significantly predicted happiness $\beta = .12$, $t(74) = 2.429$, $p < .05$, as did pleasantness $\beta = .524$, $t(74) = 4.953$, $p < .001$. This appraisal model also predicted a significant proportion of variance in happiness, $R^2 = .415$, $F(7,67) = 6.802$, $p < .001$.

Pride.

For the emotion pride, the Smith and Lazarus (1990) appraisals are relevance, congruence, and self-accountability (agency-self and control-self). Only agency-self significantly predicted pride, $\beta = .559$, $t(75) = 4.239$, $p < .001$. The appraisal model did account for a significant proportion of the variance in pride, $R^2 = .307$, $F(4,71) = 7.847$, $p < .001$. Tong's (2015) appraisals predicting pride include relevance, pleasantness, goal attainment, agency-self, control-self, agency-other (low), control-other (low), agency-circumstances (low), and control-circumstances (low). Goal attainment significantly predicted pride, $\beta = .672$, $t(73) = 4.887$, $p < .001$, as well as agency-self, $\beta = .508$, $t(73) = 4.055$, $p < .001$, and control-other, $\beta = -.270$, $t(73) = -2.208$, $p < .05$. This model accounted for a significant proportion of the variance in pride, $R^2 = .531$, $F(9,64) = 8.057$, $p < .001$.

Gratitude.

The appraisals for gratitude, according to Smith (1991), are relevance, congruence, and other-accountability (control-other and agency-other). Only control-other significantly predicted gratitude, $\beta = .197$, $t(76) = 2.169$, $p < .05$. The model accounted for a significant proportion of the variance in gratitude, $R^2 = .151$, $F(4,72) = 3.194$, $p < .05$. The appraisals for

gratitude per Tong (2015) are relevance, pleasantness, agency-other, and goal attainment. Only agency-other predicted gratitude, β = .167, $t(77)$ = 1.992, p = .05. The model did not account for a significant amount of the variance in gratitude, R^2 = .116, $F(4,73)$ = 2.390, $p >$ .05.

Satisfaction/Contentment.

The Smith et al. (2014) appraisal model for satisfaction/contentment includes appraisals of relevance and congruence. Congruence significantly predicted satisfaction/contentment, β = .256, $t(79)$ = 2.286, $p <$ .05. The model did not account for a significant amount of the variance in satisfaction/contentment, R^2 = .065, $F(2,77)$ = 2.667, p > .05. Tong's (2015) appraisal model for satisfaction/contentment includes relevance, pleasantness, goal attainment, control-self, agency-self, effort (low), and problems (low). Among these, only problems significantly predicted satisfaction/contentment, β = -.140, $t(75)$ = -2.295, $p <$ .05. This model did not account for a significant proportion of the variance in satisfaction/contentment, R^2 = .152, $F(7,68)$ = 1.746, $p >$ .05.

Discussion

The main purpose of the current study was to investigate the relationships among positive emotions, appraisals, and personality/trait factors. The correlations between the 16 appraisals and 12 positive emotions supported several of my hypotheses regarding the relationships between them. However, the present study did not replicate previous findings (Tong, 2105) for multiple relationships between appraisals and emotions. This may be due to the fact that this study combined appraisals from two different theorists, which could have led participants to choose a certain appraisal over another if they felt like two were similar. For example, the motivational congruence and goal-attainment

appraisals had different wording in the survey, but the two are similar in meaning.

Additionally, several significant relationships were found that were not as expected, based

on the literature (Smith et al., 2014; Tong, 2015). Refer to *Table 2* for an account of these

correlational findings.

Before I discuss the personality and trait factors, I will briefly discuss the results of

the linear regression analyses conducted on the appraisals and emotions. Because the

appraisal list in this study included appraisals from the two appraisal theorists, Smith and

Tong, linear regression analyses were performed to investigate how well the two appraisal

models predicted the top four most common emotions that participants described in their

writing prompt responses: happiness, pride, gratitude, and satisfaction/contentment. The

study instructed participants to write about a positive experience, and the FEEL items only

included positive emotions. As a result, the appraisals that significantly predicted each

emotion were those most strongly related to their corresponding emotion; thus, the other

appraisals that are often common to positive emotions (such as congruence), were not

significant predictors. Consequently, the regression results reflected what participants felt

were the most important appraisals for happiness, pride, gratitude, and

satisfaction/contentment. This explanation indicates that participants felt the most

important appraisals for happiness were pleasantness (Tong) and relevance (Smith), for

pride they were goal attainment and agency-self (Tong) and self-accountability (agency-

self) (Smith), and for gratitude they were agency-other (Tong) and other accountability

(control-other) (Smith). As stated above, neither model significantly predicted

satisfaction/contentment. As previously mentioned, this is probably because only the

strongest predictors were significant, due to the design utilizing positive emotions

exclusively. Satisfaction/contentment is similar to happiness, but with a lower motivational relevance (Smith & Kirby, 2010), so it is possible that neither model was able to predict it because the emotion itself has lower appraisal levels, quantitatively. That is to say, participants rated all appraisals lower for this emotion, than other, similar positive emotions.

Overall, the significant predictors for each of the emotions under both appraisal models seemed similar to Smith's (1991) notion of a *core relational theme*, which is an appraisal description at the categorical level, that reflects the overall relationship of the person to the environment at the time of the appraisal. For example, Smith (1991, p.124) describes the core relational theme of pride as "self-credit." This is only different from self-accountability in that the whole core relational theme encapsulates the appraisals of relevance, congruence, and self-accountability, the combination of which results in the emotion of pride. The results of the present study provide a look into which appraisals the participants generally thought were most important for each emotion, as dictated by the different appraisal models of Smith and Tong.

It was predicted that the trait factor of positive emotion differentiation as measured by the DOPES would be correlated with positive emotion differentiation on the FEEL. The results indicated that the two were significantly related, so it seems that participants' tendency to differentiate between their own positive emotions is stable across vignette-based positive emotions and their own actual positive-emotion experiences. In other words, the momentary vignettes and the retrospective writing prompts both got at the notion of positive emotion differentiation, and participants who differentiated their emotions to a greater extent on the DOPES also did so on the FEEL. This result lends

support to the usefulness of the DOPES as a trait measure of positive emotion

differentiation. It successfully aligns with the state-based assessment of positive emotion

differentiation as measured by the positive-experience recall method and FEEL.

Based on the results of the linear regression analyses of the Big Five personality

factors, divided by a median split into participants high and low on each factor, as

predictors of appraisal and appraisal style, it seems that these personality factors are not

playing a large role in how participants appraise positive experiences. The present study

examined the relationships between the Big Five and positive-emotion appraisals, which

have not been widely researched, based on the literature. Tong et al. (2006) did include the

emotion of happiness in an investigation into relationships between appraisals and the Big

Five, but the other five emotions in the study were negative. Thus, Tong's study could not

be applied to my hypotheses regarding positive emotion appraisals. I therefore predicted

what I expected to find with respect to appraisals, knowing the main characteristics of each

of the Big Five personality factors. In Tong et al.'s study, each of the Big Five except

agreeableness significantly predicted at least one appraisal. Particularly, both neuroticism

and conscientiousness significantly predicted the "perceived control" (control-self)

appraisal. This specific result was not replicated in the present study. Perhaps this was

because I was looking exclusively at positive emotions, whereas the measures given to

Tong et al.'s participants asked them to rate mainly negative emotions.

That being said, correlational analyses found several significant relationships

between the Big Five and appraisals and between the Big Five and appraisal style.

Extraversion was positively correlated with relevance, which was not originally

hypothesized, but it is reasonable given that the personality trait extraversion is related to

trait adjectives such as enthusiastic and assertive (John, Naumann, & Soto, 2008 based on John, 1990). An extraverted person may be inclined to emotionally engage in situations more deeply, as reflected by higher relevance ratings. John et al. (2008) also noted that openness was associated with curiosity, which could help explain the relationship between openness and problems in the present study. If curiosity makes one think of many questions, each unanswered question could be seen as a problem, even in positive situations. This same reasoning could help explain the negative correlation between openness and certainty; if a person has many questions about the situation they may feel uncertain about it. The negative relationship between agreeableness and agency-self could reflect the appreciative and humble aspects of an agreeable personality (John et al., 2008). The agreeable person is grateful for what someone else caused, and takes no self-credit. The trusting and appreciative aspects of a person higher on the trait of agreeableness may also be inclined to an optimistic outlook about their future expectancy of the situation. None of these correlations, however, aligned with my hypotheses about the relationships between the Big Five and appraisals. Given the limited nature of the existing literature combining the Big Five and positive-emotion appraisals of positive situations, it is difficult to say whether more correlations between the Big Five and positive-emotion appraisals should have been expected. Future research may uncover more relationships between the two constructs by using an experience-sampling method to get a better hold on each precise appraisal the participant is experiencing at the time s/he is experiencing it.

In contrast to the single-situation scenario of the writing prompt, the Appraisal Styles Questionnaire addressed appraisal style across multiple different positive and negative situations. The positive situations were of main interest for the present study.

While no significant correlations were found between neuroticism and participant appraisals of past positive experiences as related to the writing prompt, in the ASQ neuroticism was related to self-accountability in positive situations. Perhaps a person higher in neuroticism may be quick to take credit in different positive situations, even when they are not truly responsible for the good outcome, because of an underlying anxious, self-pitying outlook (John et al., 2008). Extraversion was related to both problem-focused and accommodative coping potential in positive situations. It appears that extraverted persons were more confident in their abilities to keep a positive situation the way they wanted it, and to deal emotionally with it. The relationship between extraversion and PFCP supports my original hypothesis that persons higher in extraversion would rate controllability higher than those lower in extraversion. As mentioned, however, high extraversion was not a significant predictor of PFCP (control-self), so the directionality of the relationship remains uncertain. It is interesting to note that these same relationships were not found with extraversion in the positive experiences that participants described from their own lives. Perhaps participants were not inclined to think that they needed to cope with positive situations, but in the more restricted format of the ASQ they tended to rate the coping potentials higher because they were two of only six appraisals. Finally, conscientiousness was related to relevance in positive situations. Conscientious individuals are responsible, dependable, and perhaps more likely to focus on the importance of achievement-oriented situations to themselves. These results from correlational analyses between the Big Five and appraisal style support the existence of relationships between personality factors and consistent tendencies to appraise positive situations in specific ways.

Limitations and Future Directions

The present study was based exclusively on self-report and survey data, and is thus subject to the common criticisms of these methods. Another limitation was that almost half of the participants did not write very extensively about their positive experiences and, as a result, they may not have been able to report very accurately about the emotions and appraisals that they experienced; it is possible that their limited writing did not fully engage them in how the experience felt. The average word count of the writing prompts was 255 words (*Mdn* = 242), with 30 of 84 participants having written less than 200 words. Future studies may consider a required word count in order to encourage participants to elaborate upon the experience and all of its facets. It remains unclear why the present study did not find that the Big Five personality factors were significant predictors of the predicted appraisals, as it seems that the Big Five do predict some negative-emotion appraisals (Tong et al., 2006). Future studies may conduct another investigation into relationships between positive-emotion appraisals and the Big Five in order try to replicate previous findings and to expand the number of studies that have attempted to investigate those relationships. Finally, an additional limitation of the present study was that exclusively positive emotions were investigated. It would have been beneficial for several of my statistical analyses if both positive and negative emotions were considered. Positive and negative are two ends of a spectrum of emotionality; the progression of recent psychological studies towards considering the two more equally is both encouraging and necessary for a more complete understanding of emotion. Future studies should consider both positive and negative emotions together, preferably with a wider range of positive emotions like in the present study. Individual differences in the associations between

personality and trait factors are related to emotionality, and future studies in emotions research should continue investigating emotions as they relate to individual differences.

Conclusions

The present study primarily sought to investigate the relationships among personality factors, appraisals, and appraisal styles, within the context of positive emotions. Correlational analyses revealed several relationships between the Big Five and appraisals/appraisal styles that were not predicted, but which made sense within the context of each personality factor's typical features. Additional interesting relationships among these constructs may remain to be found, which can enlighten our understanding of the relations between individual differences in personality and the appraisal process. This vein of emotions research can help flesh out the kinds of cognitive evaluations people make when they experience positive emotions, which are implicated in well-being. Thus, a richer understanding of the positive side of emotion and personality may help improve lives.

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Appendix

Appraisal items (Tong, 2015).

Pleasantness: "How pleasant was this situation?"
Relevance: "How important in this situation was your needs/goals/desires?"
Problems: "Did you feel that there were problems that had to be solved before you can get what you want?"
Goal attainment: "Did you achieve important goals/wishes that you aspire to achieve?"
Agency-self: "Did you cause what happened?"
Agency-others: "Did someone else cause what happened?"
Agency-circumstances: "Did circumstances or forces beyond anyone's control cause what happened?"
Control-self: "Did you feel that you were in control of what was happening?"
Control-others: "Did you feel that someone else was controlling what was happening?"
Control-circumstances: "Did you feel that circumstances or forces beyond anyone's control were controlling what was happening?"
Certainty: "How certain were you about what was happening?"
Predictability: "How well could you predict what was going to happen next?"
Effort: "Did you feel that you needed to exert yourself to deal with this situation?"

Additional appraisal items (Smith & Lazarus, 1990)

Motivational Congruence: "When you were in this situation, how consistent was what was happening with what you wanted to happen?"
Accommodative Coping Potential: "When you were in this situation, how certain were you that you would be able to deal emotionally with what was happening, however it turned out?"
Future Expectancy: "At the time you described, how, if at all, did you expect this situation to change in the future?"

FEEL (Smith & Kirby, 2010)

Below are a number of adjective clusters that describe different emotions or feelings. Each group of adjectives is meant to convert a single basic feeling or emotion. Please indicate the extent to which you felt each of these at the time of the event you just described.

```
     1------2------3------4------5------6------7------8------9
not at all                   moderately                    extremely
```

Rating

1) _____   surprised   10) _____   grateful
             astonished   appreciative
                                                   thankful

2) _____   guilty
              culpable

3) _____   defeated
              resigned
              beaten

4) _____   relieved
              unburdened

5) _____   tranquil
              calm
              serene

6) _____   frustrated
              thwarted
              exasperated

7) _____   regretful
              remorseful
              sorry

8) _____   determined
              persistent
              motivated

9) _____   love
              affection

11) _____   interested
              engaged

12) _____   mad
              angry
              annoyed

13) _____   hopeful
              optimistic

14) _____   bored
              detached
              uninterested

15) _____   nervous
              anxious
              apprehensive

16) _____   schadenfreude
              (pleasure at someone else's
              misfortune)

17) _____   proud
              triumphant

18) _____   afraid
              frightened
              scared

19) _____   sad
              downhearted
              blue

20) _____   ashamed
              disgraced

21) _____   disgusted
              repulsed
              revolted

22) _____   awed
              wondrous
              amazed

23) _____   indebted
              obligated

26) _____   joyful
              happy
              glad

27) _____   eager
              enthused
              excited

28) _____   embarrassed
              humiliated

29) _____   disappointed
              let down

30) _____   satisfied
              content

24) _____   amused   31) _____   compassionate
                                                            empathetic

25) _____   lust   32) _____   indebted
             desire   obligated
             attraction

Differentiation of Positive Emotions Scale example (Kirby et al., 2014)

For each situation please try to imagine yourself in the situation as vividly as you can. If such a situation happened to you, how do you think you would be feeling while you were in this situation?

The First Situation:

You are hiking up a hill through thick woods. It was raining earlier, but the rain stopped a short time ago, and the sun is now shining. All of a sudden, you come to a clearing near the top of the hill, and enter a beautiful meadow filled with wildflowers and butterflies. A clear stream is running through the meadow, and there is a rainbow in the sky. Off in the distance you can see some snow-capped peaks from a nearby mountain range.

INTERESTED//CURIOUS

          1-------2-------3-------3-------5-------6-------7-------8-------9
       not at all   moderately   extremely much

Appraisal Styles Questionnaire example (Smith & Kirby, 2013)

Imagine yourself in the following situation:

A CLOSE FRIEND BEATS YOU OUT FOR THE OPPORTUNITY TO PARTICIPATE IN AN ACTIVITY YOU HAD BEEN LOOKING FORWARD TO

When you have this situation in your mind as vividly as you can, please answer the following questions about what it is like to be in this situation.

          1-------2-------3-------3-------5-------6-------7-------8-------9
       not at all   moderately   extremely

How important is what is happening in this situation to you?

NEO-FFI sample items (Costa & McCrae, 1989)

1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree,
5 = somewhat agree, 6 = agree, 7 = strongly agree

Neuroticism

Sometimes I feel completely worthless.
I often feel inferior to others.
I often feel tense and jittery.

Extraversion

I like to have a lot of people around me.
I laugh easily.
I really enjoy talking to people.

Table 1. *Predictions of differences for 12 positive emotions on individual appraisals*

	Amusement	Awe	Determination	Compassion	Calm	Gratitude	Happiness	Hope	Interest	Pride	Contentment	Relief
Pleasantness	H	H	L	L	H	H	H	H	H	H	H	H
Relevance			H	L		H	H	H	H	H	H	
Problems	L		H		L		L				L	H
Congruence			L	L	H	H	H	H		H		H
Goals					H		H			H		H
Agency-Self	L	L					L			H		
Agency-Other	H	L					H			L		
Agency-Circumstances		H		H						L		
Control-Self	L	L	H	L	H	L	H		H	H	H	L
Control-Other		L				H				L		
Control-Circumstances		H		H				H		L		H
Certainty					H					H	H	
Predict												
Effort	L		H		L		L	H			L	
Accommodative Coping Potential			H					H	H			
Future Expectancy								H				

Note. H = predicted positive relationship; L = predicted negative relationship

Table 2. *Correlations between appraisals and 12 positive emotions*

	Amusement	Awe	Determination	Compassion	Calm	Gratitude	Happiness	Hope	Interest	Pride	Contentment	Relief
Pleasantness	0.015a	0.363**b	0.139a	-0.02a	-0.011a	0.148a	0.495**b	0.252*b	0.170a	0.032a	0.215a	0.217a
Relevance	-0.283*d	0.269*d	0.364**b	-0.099a	0.364**d	0.219a	0.362**b	0.398**b	0.073a	0.318**b	-0.036a	
Problems	-0.226*b		0.484**b		-0.421**b		-0.019a			0.507**d	-0.327**b	0.071a
Congruence			-0.023a	-0.108a	-0.186a	0.093a	0.323**b	0.113a		0.032a		0.065a
Goals	-0.285*d	0.298**d	0.560**d		-0.441**c		0.278*b			0.575**b		0.052a
Agency-Self	-0.270*b	-0.017a	0.393**d		-0.384**d	-0.192a				0.511**b		
Agency-Other	0.431**b	0.301**c			0.268*d	0.217a	0.291**d			-0.137a	0.296**d	
Agency-Circumstances		0.007a		0.223*b						-0.168a		0.277*d
Control-Self	-0.099a	-0.243*b	0.129a	-0.213a	0.038a	-0.182a	0.014a		-0.062a	0.118a	-0.050a	0.206a
Control-Other		0.330**c		0.282*d		0.332**b				-0.142a	0.343**d	
Control-Circumstances		0.091a		0.042a				0.042a		-0.261*b		0.152a
Certainty	0.245*d		-0.225*d		0.265*b	0.244*d	0.285*d		0.342**d	-0.268*c	0.251*b	
Predict		-0.250*d			0.265*d							
Effort	-0.097a		0.541**b		-0.278*b		0.049a	0.042a		0.447**d	-0.059a	
Accommodative Coping Potential		-0.271*d	-0.186a				-0.09a	-0.087a				
Future Expectancy						0.234*d		0.249*b				

*Note. *p<.05, **p<.01*
a Hypothesis incorrectly predicted significance, results indicate no relationship.
b Hypothesis correctly predicted the relationship.
c Hypothesis predicted relationship in the opposite direction.
d No hypothesis was made about the relationship, but a significant relationship was found.

Table 3. *Correlations between the Big Five and 16 appraisals*

	Extraversion	Openness	Agreeableness	Conscientiousness	Neuroticism
Pleasantness	0.136	-0.117	0.041	0.174	0.129
Relevance	0.242*	0.076	0.030	0.200	0
Problems	0.015	0.288*	-0.081	-0.015	0.035
Congruence	0.067	-0.148	-0.169	0.038	0.037
Goal-Attainment	0.220	0.072	0.036	0.174	-0.125
Agency-Self	0.129	0.019	-0.233*	0.065	0.061
Agency-Other	0.057	-0.179	0.004	0.028	0.069
Agency-Circumstances	-0.118	0.081	-0.104	-0.188	-0.039
Control-Self	0.081	0.010	-0.174	0.103	-0.022
Control-Other	-0.084	-0.015	0.113	0.091	0.142
Control-Circumstances	-0.036	0.031	0.033	-0.189	0.035
Certainty	0.025	-0.297**	-0.004	0.121	-0.079
Predictability	0.189	-0.104	-0.051	0.109	-0.145
Effort	0.158	0.005	-0.112	0.134	0.021
Accommodative Coping Potential	-0.101	-0.030	0	-0.038	-0.084
Future Expectancy	0.153	-0.220	.288*	-0.085	0.009

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

Table 4. *Correlations between the Big Five and appraisal styles in positive situations*

	Extraversion	Openness	Agreeableness	Conscientiousness	Neuroticism
Motivational Relevance	0.185	-0.154	-0.002	0.371**	0.137
Motivational Congruence	0.167	-0.037	0.097	0.128	0.135
Self Accountability	0.009	-0.053	-0.092	0.101	0.270**
Other Accountability	0.164	-0.014	0.036	0.066	-0.058
Problem-Focused Coping Potential	0.281**	-0.104	0.130	0.184	-0.020
Accommodative Coping Potential	0.30**	-0.003	0.147	0.183	-0.105

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