PERSONALITY AND MORAL JUDGMENT: SELF-TRANSCENDENCE AND OPENNESS TO EXPERIENCE AS PREDICTORS OF EMOTION DIFFERENTIATION

By

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Dedication

To Jonathan

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Chapter 1: Introduction

Psychology's interest in the underlying processes of human morality has increasingly focused on the role emotion may have in moral reasoning and the rendering of moral judgments (Haidt, 2007). Research on moral judgment has shown that situational affect (i.e., disgust) can influence the execution of moral judgments (Olejnik & Asenath, 1980; Rest, Coder, Masanz, & Anderson, 1974; Schall, Haidt, & Clore, 2006; Trafimow, Bromgard, Finlay, & Ketelaar, 2005; Wheatley & Haidt, 2005; Zarinpoush, Cooper, & Moylan, 2000). Interestingly, the ability to identify and differentiate between one's own emotional experiences has been shown to mitigate this specific effect and allow for moral judgments that are not obfuscated by unrelated emotional material (Cameron, Payne, & Dorris, 2013). This ability, called emotion differentiation, appears strongly related to several concepts that continue to be actively explored, such as empathy (Batson, Ahmad, & Stocks, 2004), alexithymia (Sifneos, 1973), and emotional intelligence (Salovey & Mayer, 1995).

Moral judgment also has been shown to be related to personality traits (Athota, O'Connor, & Jackson, 2009; Dollinger & LaMartina, 1998; see also McAdams, 2009). However, there is a lack of systematic research in this area, and the intersection among personality, moral judgment, and emotion differentiation remains virtually unexplored. This is surprising given the importance some personality theorists have placed on emotional concepts—such as empathy and alexithymia—within certain personality traits (Cloninger, 2004). In particular, the trait Openness to Experience within the Five Factor Model (FFM) of personality, as well as Self-Transcendence within the seven factor model of temperament and character, may be related to emotion differentiation.

One likely reason for the research gap in this area may be that moral psychology has only recently moved beyond stage theories of moral reasoning and judgment. Such stage theories arguably could be described as overly rationalistic relative to other models that incorporate specific brain modules and intuitive/emotional heuristics. Kohlberg (1969), with his stages of moral development, in many ways is the father of the study of morality within modern psychology. Kohlberg's model fell into disfavor due to expanded conceptualizations of moral development, accusations of sexism, the introduction of other moral philosophies, and a cultural shift in public attention away from social justice (Rest, Thoma, & Edwards, 1997). Rest (1983, 1984; Rest et al., 1997) has argued that there are essentially four basic components to moral development that include: (1) empathic interpretation of a situation (*moral sensitivity*), (2) determining which course of action is most justifiable (*moral judgment*), (3) prioritizing just moral action in lieu of other concerns and values (*moral motivation*), and (4) self-regulated behavior congruent to the previous three components (*moral character*). Defining moral issues, determining outcomes for involved parties, and discerning the appropriate rationale for one's own response falls under the auspice of moral judgment (Rest et al., 1997).

From Kohlberg sprung a plethora of complementary and competing theories. In contrast to more rational conceptualizations, Haidt (2001) has championed a social-intuitionist model that presupposes that moral reasoning is at the mercy of our affective heuristics. Any conscious, rational reasoning is considered to be a mere post-hoc justification for our affectively-driven conclusions. In contrast, Paxton and Greene (2010) have challenged Haidt with a competing dual-process model of moral reasoning as indicated by logical and intuitive processes. They argue that utilitarian decisions—that is, the ethical

perspective that the ends justify the means if the overall benefits of a decision outweigh their costs—are the product of logical processes in the brain. Intuition, or affective responses, is therefore thought to motivate deontological conclusions (i.e., the ethical stance that one should adhere to a code or rule-system, irrespective of the consequences).

The aforementioned models illustrate the current state of moral judgment research. While the debate as to the role of emotion in moral judgment lingers on, what seems clear is that emotion has an impact on moral judgment and its underlying processes. Contributing to this discussion is the work of Cameron, Payne, and Dorris (2013), who used two experiments to investigate the extent to which moral judgment may be impacted by the ability to discern between two categories of emotion. To do this, they distinguished between emotions that are justifiable, or *integral*, from those which are influential but irrelevant, or *incidental*. Integral emotions are emotions that have an appropriate place within moral judgment due to the information they provide to the individual. In contrast, incidental emotions are considered to be unrelated emotional conditions that share no conceptual correspondence to the judgment at hand, and are therefore irrelevant to ethical consideration. The ability to separate integral emotions from incidental ones is referred to as emotion differentiation (Lindquist & Feldman Barrett, 2008).

The first experiment conducted by Cameron et al. (2013) was correlational, but it found that independent of general mood intensity, skilled emotion-differentiators were able to counteract the influence of incidental disgust when making moral judgments. They primed individuals with pictures eliciting disgust before giving them a social taboo to evaluate in terms of intensity of its inappropriateness. They then administered to participants the Level of Emotional Awareness Scale (LEAS; Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990),

which presents everyday scenarios and asks participants to rate the intensity of varying emotions they feel. To control for the effects of potential confounds that could influence the LEAS (e.g., social desirable responding, poor insight about emotional experiences), the researchers used the intra-class correlations (ICCs) of the ratings on the LEAS to identify what they considered to be the emotion "experts." Hypothetically, the lower the ICCs for emotional responses, the greater the skill in emotion differentiation. Cameron and colleagues concluded that emotional experts have more variability in their emotional responses, as unskilled emotion differentiators tend to view things in more narrow, less complex terms, such as valence (i.e., good vs. bad).

Their second experiment was more experimental. Participants were randomly assigned to a training group or the control group. The training group was provided an instructional prompt based on previous emotion differentiation self-report questionnaires, which included examples of emotional labels based on emotionally evocative scenarios and the justifications behind them. In contrast, control participants were asked to introspect simplistically, without the benefit of being provided illustrative examples of specific emotional states (i.e., they were told to think in terms of “good” vs. “bad” feeling). For training of both groups, images from the International Affective Picture System (IAPS; Lang, Öhman, & Vaitl, 1988; Lang, Bradley, & Cuthbert, 1997; Lang, Bradley, & Cuthbert, 2005) again were used, specifically six pictures from the “undifferentiated” normed subset that represented only diffuse negative affect (Mikels, Fredrickson, Larkin, Lindberg, Maglio, & Reuter-Lorenz, 2005a, 2005b). After 10 second exposure to each of the six images, both groups’ participants were required to assess their feeling states using different metrics. For the control group, ratings were assigned on a five-point scale of “bad” (1) to “good” (5). For

the training group, ratings were made across five emotions (anger, disgust, fear, guilt, sadness) in terms of severity (1=not at all, 5=extremely). Following this training, the participants in both groups then completed an affective priming task similar to the one employed in experiment one except that it comprised of 50 trials involving equal presentations of 15 neutral images and 15 images eliciting disgust. As with the affective priming task in the first experiment, participants were prompted to make moral judgments after being presented with the primes. Results for this second experiment suggested that, although the training group had harsher judgments when compared to the control group, nevertheless the incidental disgust prime did not seem to influence their moral judgments as it did with the control group.

While highly preliminary, these findings suggest that one's ability to differentiate between emotional experiences may present as an important and perhaps over-looked factor for both the social intuitionist and dual-process models of moral reasoning. More specifically, the question emerges: what are the underlying causes or influences within an individual that allow for such personal "expertise" of subjective feelings? One likely contributor could be personality. For instance, Bagby, Taylor, and Parker (1994) have shown that alexithymia—a personality trait that encapsulates an impairment in one's awareness of inner emotional experience psychologically and physically—has a strong negative correlation with psychological mindedness (r=-.68, p<.001) and the FFM trait of openness to experience (r=-.49, p<.001). This might explain, at least in part, Day's (1997) finding that openness to experience and moral maturity (as measured by Colby & Kohlberg, 1987) are equally good predictors of moral behavior. Therefore, it is reasonable to conclude that some

personality traits, such as those embodied by the FFM, may be implicated in the process of moral judgment.

For over 30 years the FFM has dominated the study of personality and individual differences in psychology despite the absence of a unifying theoretical basis, particularly in terms of psychobiology (MacDonald & Holland, 2002a). The initial conceptualization of the FFM dates back at least half a century (see Tupes & Christal, 1958, 1961). Although there has been a large body of research supporting the applicability and utility of the FFM, the model has suffered from a preponderance of critique. In addition to its atheoretical nature, criticisms for the FFM include its intercorrelations between facets and factors (Eysenck, 1992; Silva, Avia, Sanz, Martínez-Aria, Graña, & Sánchez-Bernardos, 1994; Block, 1995; Digman, 1997; Becker, 1999; DeYoung, 2006; Van der Linden, te Nijenhuis, & Bakker, 2010), limited replicability using confirmatory factor analysis (Borkeneau & Ostendorf, 1990; Church & Burke, 1994; Vassend & Skrondal, 1995; Donnellan, Oswald, Baird, & Lucas, 2006; Gignac, Bates, & Jang, 2007), questions on cross-cultural validity (Borkenau & Ostendorf, 1990; Parker, Bagby, & Summerfeldt, 1993; Church & Burke, 1994; Holden & Fekken, 1994; Silva et al., 1994; Katigbak, Church, & Akamine, 1996; Vassend & Skrondal, 1997; Aluja, García, García, & Seisdedos, 2005; Gurven, von Rueden, Massenkoff, Kaplan, & Lero Vie, 2013), and limited scope in explaining human personality (Paunonen & Jackson, 2000; Paunonen, Haddock, Forsterling, & Keinonen, 2003; McAdams, 1995).

Questions also remain as to the number and composition of factors necessary to understand and explain human behavior (Ashton, Lee, & Goldberg, 2004). Despite these concerns, the FFM has remained a staple of personality assessment. The most widely studied measure of this model is the NEO Personality Inventory, now in its third edition (McCrae &

Costa, 1983, 2010; Costa & McCrae, 1985, 1992c; McCrae, Costa, & Martin, 2005). The measure includes items for each of the five factors: Neuroticism (e.g., sensitive/nervous vs. secure/confident), Extraversion (e.g., outgoing/energetic vs. solitary/reserved), Openness to Experience (e.g., inventive/curious vs. consistent/cautious), Conscientiousness (e.g., efficient/organized vs. easy-going/careless), and Agreeableness (e.g., friendly/compassionate vs. cold/unkind).

The controversies and limitations of the FFM (see Block, 2010 for an overview) have led to the development of alternative models of personality assessment. One such approach developed concurrent to the NEO Personality Inventory is Cloninger's (1986, 1987, 2004; Cloninger, Svrakic, & Przybeck, 1993) seven factor model of temperament and character. This model utilizes an underlying psychobiological theory to explain personality as a combination of four temperament and three character traits. Temperament is defined as biologically-based behavioral influences that are heritable, represented by Novelty Seeking (NS), Harm Avoidance (HA), Reward Dependence (RD), and Persistence (PS). In contrast, character refers to behavior impacted largely from subject-object relations developed across the lifespan of an individual. They are represented by Self-Directedness (SD), Cooperativeness (CO), and Self Transcendence (ST). Although Cloninger has created various psychometric revisions to measures of his model[1], the latest streamlined version of the test is the Temperament and Character Inventory – Revised (TCI-R).

Considerable research has been done with Cloninger's model in both nonclinical and clinical populations. Areas of clinical research have included mood and anxiety disorders (Svrakic, Przybeck, & Cloninger, 1992; Cloninger, Bayon, & Svrakic, 1998; Hansenne,

[1] See http://psychobiology.wustl.edu/are-there-legacy-versions-of-the-tci/ and http://psychobiology.wustl.edu/what-are-the-different-versions-of-the-tci/

Reggers, Pinto, Kjiri, Ajamier, & Ansseau, 1999; Corruble, Duret, Pelissolo, Falissard, & Guelfi, 2002; Loftus, Garno, Jaeger, & Malhotra, 2008; Cloninger, Zohar, Hirschmann, & Dahan, 2011), suicidality (Cloninger et al., 1998), personality disorders (Svrakic, Przybeck, & Cloninger, 1993; Daneluzzo, Paolo, & Rossi, 2005; Basoglu et al., 2011), and schizophrenia (Smith, Cloninger, Harms, & Csernansky, 2008, Margetić, Jakovljević, Ivanec, & Margetić, 2011). However, the model is not without its fair share of criticism (Farmer & Goldberg, 2008a, 2008b). Further, research has demonstrated considerable overlap between the NEO and TCI (MacDonald & Holland, 2002a; Aluja & Blanch, 2011), suggesting that they are measuring similar constructs.

Cloninger's model of personality has developed in three stages over time (Cloninger, 1986, 1987, 2004; Cloninger et al.,1993). His initial model (Cloninger, 1986, 1987) included only three temperament traits: Harm Avoidance, Novelty Seeking, and Reward Dependence. While useful in its own right, Cloninger (2004) recognized explanatory gaps in his initial model of personality, including executive control, empathic cooperation, creativity, symbolic invention, and striving for coherence/self-integration. Examining character theories from transpersonal, humanistic, and psychodynamic schools, Cloninger, Svrakic, and Przybeck (1993) developed character traits to measure personal goals and values understood in terms of subject-object relations: Self-Directedness (self-concept or subject-subject relations), Cooperativeness (concept of relationships with others or subject-object relations), and Self-Transcendence (concept of one's participation in the world as a whole or object-object relations). In other words, Cloninger eventually (2004, 2008) came to relate heritable biases and behavioral conditioning to temperament, whereas character he saw as related to more learned, developmental processes and cognitive functions. In his model, the three character

traits are theorized to be rational processes for adaptation that correspond, respectively, to three mental branches of self-governance: executive functions (i.e., *foresight*, or predicting and planning for self-directed behavior), legislative functions (i.e., *judgment*, or utility of pragmatic and flexible interpersonal rules), and judicial functions (i.e., *insight*, or intuitive discernment of when to apply certain legislative functions).

Based on Cloninger's (2004, 2008) description of Self-Transcendence, which embodies the judicial functions of intuition, it could share much in common with the concept of *emotional intelligence* (cf. Salovey & Mayer, 1995, p. 5). For instance, Cloninger (2008) has hypothesized that individuals lower in Self-Transcendence are characterized by somatization disorder, alexithymia, and/or hysterical/repressive personality features, and that they have difficulty recognizing meaning in sensory experience intuitively and describing their own emotions (Cloninger, 2004).

The literature on the TCI and its individual traits is certainly extensive. However, research on Self-Transcendence remains sparse relative to the other traits within the model. Research has shown that Self-Transcendence is associated with certain personality profiles (Svrakic, Draganic, Hill, Bayon, Przybeck, & Cloninger, 2002), particularly those involving dissociative tendencies (e.g., borderline, narcissistic, and histrionic) and magical thinking/imaginative inner experiences (e.g., schizotypal and paranoid). While further research has shown its relationship to certain forms of psychopathology, many of these studies concern relatively heterogeneous samples that require replication and further study (Garcia-Romeu, 2010). Furthermore, to this researcher's knowledge there have been no published studies on the relation between moral judgment and Cloninger's model of

personality. Of particular interest are two of the character traits in the model, Cooperativeness and Self-Transcendence.

Trait Cooperativeness involves empathic stances, as well as the implementation of interpersonal rules of conduct. Therefore, it is not outlandish to suppose that this trait might be implicated in moral processes in general. However, Self-Transcendence is chiefly concerned with insight into one's internal experiences, so it may represent an equal if not greater predictor given its striking resemblance to the construct of emotion differentiation. In other words, it is reasonable to consider that higher Self-Transcendence may aid in the differentiation of integral emotions (i.e., one's inner experience) from incidental ones, and therefore have a meaningful impact on moral judgments. Similarly, related personality traits from other models might further be related to emotion differentiation. Chief among these is the FFM trait Openness to Experience, of which its highly variable facets capture "the breadth, depth, and permeability of consciousness, and…need to enlarge and examine experience" (McCrae & Costa, 1997, p. 826). Given the lack of research on personality and moral judgment, particularly as they relate to emotion differentiation, there is sufficient justification for investigation in this area. Significant findings could impact current attempts to conceptualize the underlying processes of moral judgment, as well as the continued search for a comprehensive model for capturing individual differences in personality. These two broad areas of study hold widespread importance to clinical assessment, therapeutic intervention, and educational instruction.

This study seeks to accomplish three main points of investigation. First, the direct effects of personality traits (specifically Cooperativeness, Self-Transcendence, and Openness to Experience), emotion differentiation, and experimentally induced disgust on moral

judgment-making are examined. Second, indirect effects of these personality traits on moral judgment are observed, through their influence on the capacity to identify and differentiate emotions, such as experimentally induced disgust. Third, the interplay among personality traits, emotion differentiation, and incidental disgust are compared to other psychological variables that might have an impact on moral judgment, including executive control and general intelligence. Lastly, the aforementioned model is examined in light of direct and indirect relations of a number of potentially influential variables, including gender, age, empathy, and mood.

CHAPTER 2

Literature Review

Moral Psychology: An Overview

Origins. Studying the role of morality in human experience dates back to the roots of psychology itself. Its importance is perhaps unparalleled in therapeutic endeavors. This can be seen easily with Freud. Freud described the psychic architecture of morality both on the individual (1923/1961) and societal level (1930/1962). He called this aspect the superego, a strict moral agent of the psyche which places harsh demands on the ego and is the part of oneself that handles perception and interaction with the world, and which must also reconcile demands both internal and external, conscious and unconscious. The superego therefore is an extension of the ego, the result of internalized parental object. Freud viewed the conscience as one aspect of superego, the watchful gaze that constantly monitors the comings and goings of the ego; a constant evaluator of "right" or "permissible" behavior. Guilt, therefore, can be viewed as the ego's perception of the superego's watchfulness (consciously or unconsciously), creating pressure that is driven by the tension between the ego's own strivings and the severe demands of the superego. It is of little wonder that, conceptualized this way, Freud (1915/1957) viewed conscience as something undesirable and problematic for the individual.

This psychological reduction of morality by Freud has been challenged, however. As an example, Jones (1966) has argued that Freud's dissection of the superego and its functions actually explains non-moral phenomena, a fact that has been clouded due to the latter's self-recognized use of ambiguous terminology (e.g., "conscience" instead of "operation of the superego," or "feeling of guilt" rather than "feeling of anxiety"). Skinner (1971)—noting

that humans are as much "like a god" as they are "like a dog"—suggested that morality could be defined as society's tendency to reward or punish certain acts.

Encompassed within the varying ideas on the etiology of morality is the process by which it unfolds. Two basic, but difficult to define concepts emerge: *moral judgment* and *moral reasoning*. Haidt (2001, p. 817) broadly defines moral judgment as "evaluations (good vs. bad) of the actions or character of a person that are made with respect to a set of virtues held to be obligatory by a culture or subculture." In other words, this is an evaluative cognitive process that is subject to the influence of strong external factors. Haidt (2001, p. 818) contrasts this with moral reasoning, which he defines as "conscious mental activity that consists of transforming given information about people in order to reach a moral judgment." Within this definition is an important distinction, namely that of *conscious* processes. Partial to a narrower definition, Paxton and Greene (2010, p. 6) define moral reasoning as "conscious mental activity through which one evaluates a moral judgment for its (in)consistency with other moral commitments, where these commitments are to one or more moral principles (in some cases) particular moral judgments."

Again as with Haidt, Paxton and Greene take note of the importance of conscious processes in describing moral reasoning, and they emphasize that it is a critical method by which one reaches a moral judgment. However, this highlights an important debate within the realm of moral psychology: to what extent are our moral processes driven by rational and critical forces? Further, in the midst of such forces, what factors may be contributing to the moral conclusions we reach? Discussion of these questions must begin with the origins of moral psychology, rooted in developmental psychology.

Rationalist stage models. While Freud and others certainly endorsed the importance of moral experience, moral psychology did not coalesce into a distinctive field of study until the 1960's. During its inception, emphasis was placed on rational perspectives of moral development. Rational approaches underscore how truth is acquired through the use of a priori reasoning (Williams, 1967). This can be seen in the propagation of stage theories of moral development.

Piaget. Piaget (1932/1965) provided a theory of moral development based on his observations and experiments with children. He believed that, "all morality consists in a system of rules and the essence of all morality is to be sought for in the respect which the individual acquires for these rules" (p. 1). Piaget noted how these moral rules appeared to manifest within the rule systems employed in children's play. He also presented children with moral vignettes in order to study their thinking on consequences for transgressions. Children could select one of two strategies: expiation or reciprocity. Expiation is retributive, referring to overt punishment for an offense as means for atonement. An example of this might be spanking. Reciprocity, in contrast, is a corrective approach by which the offender is shown the implications of their errors so that they might improve their behavior. An example of this might be a parent asking their son to explain why he was wrong for hitting his sibling.

Although not describing them as formal stages, a progression of development was developed by Piaget. He described the child's early life (i.e., birth to two years) as motoric. During this time the child's behavior is ritualistic and conforming to individual wishes (the *motor rule*). From age two to five, the child learns to play on their own without regard to rule mechanics. Any established rules are viewed as untouchable, eternal, and sacred, originating from adults. It is inconceivable to consider that these rules could be altered. In other words,

the authority figures of the child are thought to dictate edicts based on unilateral respect (the *coercive rule*). However, around age seven to eight, this sense begins to break down as children learn incipient cooperation with one another. Rules are vague at this point, but they are based on mutual consent and respect (the *rational rule*). At age 11-12, Piaget believed that rules begin to become codified by children.

Piaget did not view these trends as clearly demarcated stages. This is also true of his exploration of children's understanding of punishment and justice. He noted that younger children (age six to eight) seemed to judge acts based on objective responsibility, or the perceived proportion of damage that was dealt. This principle, which he called heteronomy or moral realism, was hypothesized to come from the moral constraint provided by authority figures (i.e., unilateral respect). The justice is therefore retributive; the punishment, expiatory. Piaget also noted that children at this age appeared to embrace the idea of immanent justice: that punishments will inevitably follow a transgression, whether through overt and direct action or through misfortunes.

Piaget hypothesized that this sense of immanent justice disappears as a child begins to grasp the imperfections of adult justice and internalize rules and commands. He believed this was evidenced by his observations of different thinking in older children. Children ages 11-12 seemed to embrace the concept of subjective responsibility, focusing not solely on consequences but considering the motives of the individual. This principle of moral relativism emphasizes cooperation with others, which leads to autonomy of thinking. Justice from this frame of mind is distributive and develops in three steps: (1) the child first embraces what is commanded by the adult; (2) the child approaches morality from an egalitarian perspective; and finally (3) the child adopts a sense of equity (i.e., consideration

for the unique circumstances of each individual independently). Punishment is viewed not based on expiation, but on reciprocity.

These two different perspectives are more clearly delineated through the example of lying. Piaget found that the younger children held the firm stance that lying is merely an untruth that, regardless of intentions, is wrong. They also believed that it was worse to lie to an adult than to lie to a peer. The exact opposite sentiment was held by the older children, again representing the differences in paradigm: egocentricity and unilateral authority vs. cooperation and egalitarianism. However, Piaget also noted that there were differences between thinking and behavior, so that a child acting out behaviors consistent with this second perspective could still reason primarily from the first.

Piaget's work was far from the final word on moral development, and attracted its share of critics. First, Piaget concluded initially that boys employed more complex rules than girls. And yet, it should be pointed out that he studied two different styles of game play (marbles with boys and hide and seek with girls). Conclusions by Piaget also likely were based on his preconceived notions (i.e., experimenter bias) and lack of experimental controls (Gabain, 1935). Issacs (1934) also criticized the simplistic and somewhat negligent stance Piaget took in describing the psychological life of children under two years of age.

While such criticisms may be justifiable, Piaget's attempt to systematically track the general progression of moral thought in human development are commendable. His ideas served as the principle contributor to the thinking of Lawrence Kohlberg (1927-1987), who arguably could be called the "father" of moral psychology.

Kohlberg. Inspired by Piaget's work, Kohlberg (1958, 1969, 1971) posited a stage theory of moral psychology that stressed the importance of conscious, language-based

cognitive processes in moral development. In his dissertation (1958; published 1963/2008), Kohlberg used a vignette of a challenging moral dilemma to gain insight into differences in psychological functioning in children. He called this Heinz's Dilemma:

> In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging ten times what the drug cost him to make. He paid $200 for the radium and charged $2,000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money, but he could only get together about $ 1,000 which is half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist said: "No, I discovered the drug and I'm going to make money from it." So Heinz got desperate and broke into the man's store to steal the drug-for his wife. Should the husband have done that? (Kohlberg, 1963, p. 19)

Kohlberg posed this hypothetical scenario to others, concerning himself not so much with others' conclusions as to whether or not it was right to steal the drug, but *why*. His position, which he called *formalism*, was to examine moral reasoning based on form and structure of responses rather than their content (Kohlberg, 1971; Kohlberg, Levine, & Hewer, 1983). He examined the responses to dilemmas and created a stage theory of the development of moral reasoning. The theory can be divided broadly into three basic levels. Each of these levels in turn contain two stages, forming a hierarchy of six stages, as shown in Table 1.

Table 1

Kohlberg's Stages of Moral Development

Level	Stage	Focus
Pre-Conventional	1. The punishment and obedience orientation	obedience
	2. The instrumental relativist orientation	self-interest
Conventional	3. The interpersonal concordance orientation	conformity
	4. The "law and order" orientation	law and order
Post-Conventional	5. The social-contract legalistic orientation	human rights
	6. The universal ethical-principle orientation	universal human ethics

Kohlberg (1973) believed each stage to be successively more complex and differentiated than prior ones. Rest's (1973) research has shown that in order for a person to conceptually understand a stage, that person must have reached the stage themselves or, at the very least, be in the process of moving toward that stage. In other words, a person at stage two is incapable of understanding the moral reasoning a person might employ at stage six.

Using the Moral Judgment Interview (Kohlberg, 1958; Colby & Kohlberg, 1987), a 45-minute semi-structured interview, scores can be produced based upon form and structure of responses that correspond to one of the six stages. As one might expect, the pre-conventional level is typically found in children. At this level, egocentrism and examination of direct consequences are the driving forces behind moral decisions. In the punishment and obedience orientation stage (1), authority dictates what is right and this is accepted without question. From this perspective, one might decide that Heinz would be wrong to steal the medicine, because he knows it is against the law and would result in him going to prison. In the instrumental relativist orientation stage (2), the relative nature of authority is recognized, so that self-interest takes preference. In contrast to stage one, a Heinz at this developmental

level would conclude that, because he would be much happier with a wife that is alive, he should steal the drug even if it means serving time in prison.

Although it is possible that adolescents and adults could reason at the pre-conventional level, Kohlberg proposed that more often they are found to be in the conventional level. Here judgments are determined after weighing the expectations and views of society against one's actions. At the interpersonal concordance or "good boy-nice girl" orientation stage (3), it is highly valued to be a good person by being helpful towards others. In other words, Heinz should steal the medicine, as he wants to be a good husband and his wife would hope for this choice. The "law and order" orientation stage (4), however, places value on society and characterizes recognition that the group is protected through rules and laws. Therefore, Heinz should not steal the medicine; it is against the law and therefore illegal in the eyes of society.

The third level was viewed by Kohlberg as the most mature. This post-conventional (aka autonomous or principled) level considers the separateness of the individual from society when making moral judgments. The social-contract legalistic orientation stage (5) focuses on individual basic rights, with understanding that virtue is synonymous with the greatest good for the greatest number of people (i.e., utilitarianism). From this perspective, Heinz has a choice based on his focus of rights: he should steal the medicine because everyone is entitled to live, or he should not steal because the scientist has a right for compensation for his services, like everyone else. Finally, in the universal ethical-principle orientation stage (6) morality is a matter of abstract reasoning based upon ethical principles that are considered to be universal, irrespective of law and social convention. Again, Heinz has a choice from this highest level. He might decide that, because the right to life is more

fundamental than the right to compensation, he should steal the drug. Conversely, he may decide that his only choice is to not steal, as there are other people who no doubt need the drug and they too have a right to the medicine.

Kohlberg also mused about the possibility of a seventh stage of moral development, which he called Transcendental Morality (Kohlberg & Power, 1981). This stage was never fully developed, though, nor did he provide any empirical support for its existence. Kohlberg underscored it as speculative and metaphorical. However, the stage was intended to address the question as to "why" a person should be moral. From this stage, a person views life from a cosmic perspective, so that there is an intimate sense of connection with the universe, allowing for a more comprehensive understanding of life and aiding in the promotion of growth in self and other (Kohlberg & Ryncarz, 1990). Kohlberg was motivated to consider the need for a seventh stage in order "to resolve questions and conflicts arising at Stage 6" (Locke, 1986, p. 30). This points to a realization by Kohlberg that his model, while perhaps not wholly incorrect, had severe limitations that might threaten its verdicality. In fact, he eventually did acknowledge that his view of moral development was overly rational and individualist (Rest, Power, & Brabeck, 1988).

Criticisms of Kohlberg's Theory. There have been numerous points of criticism leveled at Kohlberg's theory. Locke (1986) has argued that stage six is illusory, whereas stage seven hints at Kohlberg's desire to infuse the rationality of the post-conventional level with moral emotions (e.g., love, forgiveness, and compassion) found in stage three. There may be basis for criticizing stage six, as a longitudinal study of 58 boys showed that, distinct, hierarchically sequenced stages of development were found for only five stages (Colby & Kohlberg, 1987). As for stage seven, Locke admits that it is possible that he simply does not

understand it, if one assumes the validity of Rest's (1973) findings that a person cannot understand reasoning at a stage that is out of one's reach! Due to this conundrum Locke compares Kohlberg's model to the unconscious processes espoused in psychoanalytic theory.

Gilligan (1982) took issue in particular with Kohlberg's underlying assumptions and methodological approach to his model. She argued that Kohlberg's theory was androcentric, as his initial research was based on only males. She also contended that he held a narrow rule and justice-oriented conceptualization of morality. Her stance on moral reasoning differences in men and women became the foundation of *difference feminism*, or the belief that the inherent differences women have from men should be recognized and promoted. For instance, she reasoned that in the moral dilemmas proposed by Kohlberg men tend to consider what is "right" whereas women tend to display more reluctance in responding due to concern over harming others. Gilligan noted this difference in particular with regard to Kohlberg's method of scoring moral dilemmas, which seemed to favor reasoning based on objectivity and principles over those based on relationships and subjectivity. She therefore proposed a complementary theory that stressed interconnectedness, nonviolence, and compassion.

Building from Chodorow's (1978) work, Gilligan (1982) suggested that the relationship boys and girls have to their mothers promotes gender differences in moral reasoning. Gilligan asserted that the connection girls have with their mother leads to a decreased preoccupation with fairness, whereas differentiation and separation from the mother in boys seems to cultivate a sensitivity to inequality. Using a sample of women (N=29) from abortion and pregnancy centers, Gilligan suggested pre-conventional, conventional, and post-conventional levels for her theory of an ethic of care. Björklund

(2003) found support for Gilligan's theory in two experiments, in which women were found to be more care-oriented and men were found to be more justice and duty-oriented, respectively. However, Gilligan's ideas in turn have been criticized. Weisstein (1993) has criticized Gilligan and other feminist psychologists for promoting an essentialist view that does not fully appreciate the importance of social context in psychological differences between men and women. This would include the role of power differentials in society (Hare-Mustin & Marecek, 1988). For these reasons, Gilligan has been accused of committing the fundamental attribution error (Mednick, 1989).

The issues raised by Gilligan sparked further exploration into the area of gender and morality. Bussey and Maughan (1982) found that the context used in moral dilemma scenarios can influence the stage of reasoning employed, at least in male participants. Walker (1984) conducted a meta-analysis of 79 studies and found little support for any meaningful sex differences; those few studies that did favor men tended to be methodologically flawed. Further, Clopton and Sorell (1993) reviewed the literature on stable versus situational gender differences, finding that reasoning based on justice typically occurs when individuals are presented with abstract dilemmas, whereas reasoning based on care tends to proliferate in dilemmas featuring personal content. Their own study—which looked at gender differences in moral reasoning in parents of disabled and non-disabled children—found that men and women tended to make similar moral decisions, provided they were presented with equivalent dilemmas (i.e., both presented with hypothetical dilemmas and/or solicited real-life ones). They observed this trend regardless of the personal relevance of the dilemma (i.e., hypothetical vs. real-life), the means of responding (i.e., standard format or elicited), or the dilemma's perceived difficulty or importance. Finally, Jaffee and Hyde's (2000) meta-

analysis of moral orientation yielded only small gender differences for care orientation (females, d = -.28) and justice orientation (males, d = .19).

Prior to Kohlberg's writings in the late 1950s and 60s, the absence of work on psychological functioning from a moral stance was conspicuous (Rest et al., 1988). At the very least, he should be recognized for his instrumental role in making moral reasoning a nascent endeavor for psychological research. Further, he distinguished it from theorists emphasizing the role of socialization (cf. Vygotsky, 1934, 1979, 1983; Bandura, 1977), as well as prominent psychoanalytic and behaviorist thought (Rest et al., 1988). Kohlberg has had a lasting effect on the field of moral psychology, training many of the current researchers and inspiring the rest (Haidt, 2001).

When looking at the strengths and weaknesses in Kohlberg's theories of moral reasoning, several important areas of further inquiry emerge. First, to what extent are there inherent differences that are observable in moral reasoning based upon gender? Further, while a strictly rational and cognitive model of moral reasoning appears inadequate, to what extent is this the case? Locke (1986) has suggested that Kohlberg yearned to capture an emotional aspect to moral psychology that seemed trapped in earlier stages of his model, and Gilligan (1982) noted that the negligence in recognizing this absence was responsible for conclusions that women are morally inferior based on his theory. Lastly, and perhaps most provocatively, is the question as to whether there is a component of moral reasoning that includes a conscious awareness that transcends the self and other, what Kohlberg himself hinted could be "cosmic" or "transcendental" (Kohlberg & Power, 1981).

Beyond Kohlberg. Today, the field of moral psychology is a highly experimental, interdisciplinary endeavor that is increasingly focused on examining the role of emotion in

moral reasoning (Haidt, 2007; Greene, 2011). The “tasting menu” of the field provided by Greene (2011) offers a sample of the multifarious research currently being undertaken. These include studies on the interplay of moral motivation and moral emotion (Batson, 2011), interest in how specific moral emotions’ influence different moral judgments (Horberg, Oveis, & Keltner, 2011), the evolutionary significance of moral emotions like “cleanliness” and purity (Schnall, 2011), and challenges to disgust as a “moralizing” emotion (Pizarro, Inbar, & Helion, 2011) or even as discernible emotion in general (Royzman & Kurzban, 2011).

In addition to emotion, studies have shown other numerous factors impacting moral judgment. For instance, social context, orientation to task (i.e., self vs. other), and content seem to significantly influence moral judgment (Agerström, Möller, & Archer, 2006). Björklund (2003) has found that having limited response time also seems to increase the likelihood that responses will have significantly poorer argumentation for their justification, and tend to be based upon justice, duty, and rights rather than care and consequences. Cognitive load, or the limited capacity of working memory, also seems to decrease quality of argumentation (Björklund, Haidt, & Murphy, 2000). Björklund (2003) also has observed that non-serious moral dilemmas tend to elicit from individuals a justice-based approach to moral judgment.

These findings are only a sample of the research that has been pursued on various influences of moral reasoning and judgment. While the field clearly is far too vast to be covered in its entirety here, two competing, post-Kohlbergian theories warrant attention. The first of these has been revolutionary in adding emotion and intuition to a game dominated predominantly by rationality.

Social intuitionist model. There are several intuitionist models of morality (Navarez, 2010). Perhaps the most influential has been the social intuitionist model, which Haidt (2001) laid out in his article, *The Emotional Dog and Its Rational Tail*. In it Haidt distinguishes moral intuition by recognizing it as cognition but *not* rational. The social aspect of the model is integral, as he views moral judgment as an interpersonal, rather than individual, process. A useful analogy employed by Haidt is the difference in the role of a "judge" to that of a "lawyer." Instead of serving as an advocate for truth (the judge), people instead tend to accumulate reasons to justify their position irrespective of the actual truth, an indispensable quality for any lawyer. Although many people might presume that moral judgment is the product of moral reasoning, the social intuitionist model asserts the opposite. Judgment occurs as the result of quick, automatic intuitions, and then there is a slow, conscious development of reasons to support the judgment (Haidt & Björklund, 2008a). In other words, whereas Kohlberg focused on the primacy of reasoning in moral judgment, and others on the equal interplay between reasoning and intuition (Navarez, 2008, 2010), Haidt (2001, 2010) has purported intuition's primary role in such processes.

In general, Haidt's intuitionism can be distinguished from rationalism with the following principles (Graham, Haidt, & Nosek, 2009; Haidt, 2001, 2012, 2013, p. 869; Haidt & Björklund, 2008a, 2008b; Haidt & Joseph, 2007): (1) intuitions precede justification; (2) there are five foundations to morality—in-group boundaries/loyalty, respect/authority, purity/sanctity, ideas of past moral harm/care, and fairness/reciprocity—despite the fact that only the last two seem to receive the preponderance of attention in moral psychology and other cross-disciplines of morality; and (3) "morality binds and blinds." With regard to his specific theory, Haidt's (2001) argument for a social intuitionist model of moral judgment

can be broken down into four basic points. First, while he does not dispute that both reasoning and intuition are the main active processes, he suggests that reasoning has a history of being over-emphasized. Second, despite the presence of reasoning, there is often an underlying motivation for it. Third, there is an illusion of objectivity despite the fact that a post-hoc justification has taken place. Lastly, when one looks at moral behavior they will find more congruence with moral feeling rather than moral reasoning.

Haidt (2013) challenges what he believes to be misguided assumptions, such as judgment and justification being considered wedded to one another rather than distinct processes. Haidt (2001) writes that it is a misnomer to construe intuition and reasoning in terms of emotion and cognition. He explained that both intuition and reasoning are subsumed under cognition; instead, intuition should be thought as an effortless, quick, and automatic process outside of conscious awareness that produces an outcome that is available to conscious observation. Haidt contrasts this with reasoning which "occurs more slowly, requires some effort, and involves at least some steps that are accessible to consciousness" (p. 818).

There are four core processes identified by Haidt (2001) in the social intuitionist model (See Figure 1). The first is the *intuitive judgment link*, whereby moral intuitions lead to the effortless and automatic generation of moral judgments. This is followed by the *post-hoc reasoning link*, in which effortful and conscious reasoning occurs in the wake of the moral judgment, a search for arguments and explanations that justify the evaluation that already has been made. The next process in Haidt's proposed model is the *reasoned persuasion link*. The moral reasoning that has been produced is verbally articulated as justification for the initial moral judgment. It is inferred that any persuasion towards another

is the result of triggering the listener's own affectively valent intuitions rather than through logically sound argumentation. The last of the core processes is the *social persuasion link*. Due to individual attunement to group norms, moral judgments are thought to directly influence peers, even in the absence of reasoned persuasion. These effects may be limited to outward semblances of conformity to internal shaping of individual moral judgments.

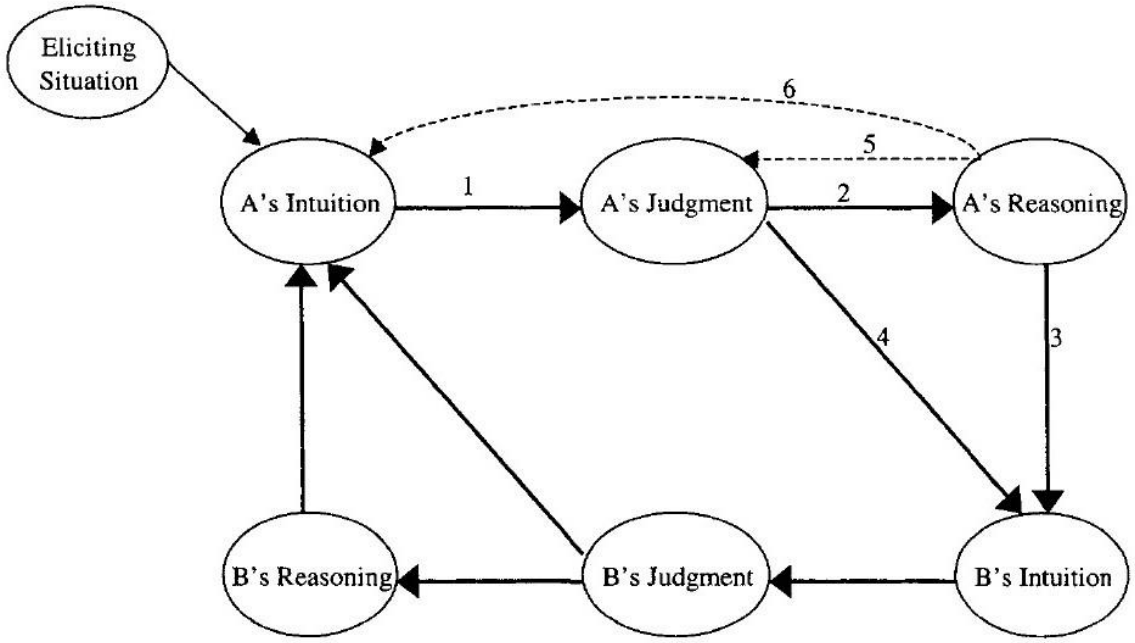

Figure 1. The Social Intuitionist Model. The diagram shows the interplay between two people (A and B) from A's perspective only. The four main links are: (1) The intuitive judgment link, (2) post-hoc reasoning link, (3), social persuasion link, and (4) reasoned persuasion link. Haidt hypotheses that the links that are emphasized in rationalist models, the reasoned judgment link (5) and private reflection link (6), are possible but not typically utilized. Reproduced from Haidt, 2001.

While the core processes of the model allow for moral reasoning to hold a causal relationship with moral judgment, this relationship is hypothesized to apply only when such reasoning involves others within the process. Haidt (2001) acknowledges some exceptions to

this proposed trend, and it involves two further processes that can extend from the core links. Through the *reasoned judgment link,* a preponderance of logical thought can override intuition, although Haidt notes that this is likely to occur only when logical processing is high in contrast to relatively weak intuitive judgment. In these instances, though, the intuition may remain dormant if it is particularly strong and incongruent with the reasoned judgment. However, there is also the *private reflection link,* as well. Through consideration about a situation a person can trigger new, and potentially competing, intuitions. One principal way this can occur is through role-taking, or what could be called empathy. The moral judgment can then be selected based on either the strength of the intuitions or through conscious selection by way of applying rules/principles. The social intuitionist model is therefore concerned with the core links (i.e., 1-4), whereas Haidt argues that rationalist models concern the less frequent links five and six.

The model draws upon past research that suggests active post-hoc justification for decision making (Haidt, 2013), such as people's tendency to rely on unreliable sources of information (e.g., anecdotes) to justify an initial hypothesis (Kuhn, 1991) and the finding that more intelligent people are just as biased as others but simply find more arguments to support their own position (Perkins, Farady, & Bushey, 1991). Haidt (2001) lists four main reasons why the assumption of causality is misplaced when considering moral reasoning as the antecedent to moral judgment. First, rationalist models typically utilize moral judgment interviews that tend to artificially create an atmosphere of reasoning more akin to links five and six, rather than the basic core processes. Second, reasoning is motivated through relatedness motives and coherence motives. Relatedness motives can be understood in terms of impression management and facilitating social relationships. Put a different way, it is

evolutionarily advantageous for an individual to be in cooperation with members of one's cohort (e.g., promote camaraderie in the presence of foes, advance social goals, foster affection from peers, etc.). Coherence motives, on the other hand, can be understood from a defense mechanism perspective geared towards reducing cognitive dissonance and preserving one's culturally established constructs about the world. Rather than allowing oneself to be crippled by the anxiety that would arise from contradictory or disconfirming information about one's own beliefs, reasoning becomes selective, such as through favoring information supporting preconceived notions or changing thinking in such a way that reinforces self-definitional attitudes (i.e., values, moral commitments).

Haidt (2001) explains that a third reason to question the causality of reasoning in moral judgments is due to the tendency individuals have to use information that is not readily available to justify their moral judgments, while simultaneously dismissing those factors that might be important to consider. What extends from intuitions is a biased search for supporting information, one which leads an individual to rely on a cultural collection of *a priori* norms to determine what constitutes moral behavior. Because the selection of an exemplar tends to be congruent with the individual's intuitive judgment, this presents the semblance of the former causing the latter. The fourth and final reason Haidt provides is moral action's strength of correlation with moral emotion over moral reasoning. When intelligence is controlled for, the strength and consistency of moral behavior's relation with moral reasoning decreases significantly. Haidt cites the case studies on psychopaths presented by Cleckley (1955) as further support for the idea that intelligence and knowledge of social consequences can be present without a repertoire of affective response and empathy.

Furthermore Haidt (2001) does not just criticize the role of causality; he identifies three key signs that demonstrate that post hoc reasoning is occurring. First, a person might focus on extraneous facts or otherwise try and alter aspects of the situation at hand. Second, changes to the story—even drastic ones—seem to make little difference to the perceived impartiality of the judgment. Third, post hoc reasoning can be signified by a time delay between the initial evaluation and the first presentation of a meaningful reason.

Haidt's arguments are compelling, but others have challenged his model, suggesting an alternative approach for incorporating intuition in moral reasoning and judgment. Navarez (2008) has criticized the model on several aspects, such as suggesting that its definition and focus on moral reasoning processes is narrow (e.g., it does not seem to capture how one might reconcile multiple options or evaluate the quality or progress of a decision, among others). Further, she has contended that intuitions and momentary affect are only one of several influential factors (e.g., context, mood, personal preferences, etc.) in decision making, and that the model fails to incorporate antecedent knowledge from affective neuroscience and developmental psychology. With regard to this latter point, Navarez has chided Haidt and Björklund's (2008a) inappropriate equivalence of enculturation with moral development, an important distinction, notes Navarez, that has been established since Kohlberg's (1969) challenges to psychology's pervasive stance on ethical relativism.

Similarly, Jacobson (2008) has offered his share of criticisms and caveats to social intuitionism. First, he has expressed the need for greater consistency and latitude in terms of the claims the model makes about the degree to which logic and principled reasoning can override intuitive judgment. Next, Jacobson argues that social intuitionism is less about *moral* judgment specifically, and more about *evaluative* judgment in a general sense.

Jacobson further speculates that philosophers are likely prone to the same biases as non-philosophers when it comes to real-world cases of moral judgment. Like Navarez (2008), Jacobson challenges the social intuitionist model's perhaps ad-hoc endorsement of moral truth that appears to be an inconsistent but nonetheless thinly veiled cultural relativism (i.e., confusing claims of anthropocentric truth with a perhaps more accurate ethnographic approach), a pessimistic conclusion about human morality that is not saved by the social aspect of the model (contrary to its proponents aims). He further draws attention to the model's insinuation that "good" thinking is bias-free thinking, which seems to contradict notions that intuitions are neither good nor bad.

In the face of such criticisms Haidt and Björklund (2008b) have retracted their stance that enculturation is equivalent with moral development, augmenting their previous statement that "a fully enculturated person is a virtuous person" (Haidt & Björklund, 2008a, p. 216). Acknowledging poor clarity of argumentation, they have explained that the social intuitionist model is morally pluralistic and that enculturation yields a virtuous individual in so far as moral ideals have been transferred. And yet despite criticisms, Haidt and Björklund (2008b) insist the model is concerned with the description of moral judgment only, not decision making or moral choice, and that moral judgment functions similar to other kinds of judgments, just as moral decision making resembles other forms of decision making (e.g., aesthetics for both, respectively). They assert that their model incorporates current understanding of innate brain structure and neuroplasticity as reflected in their endorsement of function (rather than anatomical) brain modules that embody the interplay of genetics and environment, analogous to the subsequent revisions of a first draft manuscript. They further contend that the social intuitionist model, if appearing to reflect evaluative judgment, actually

represents the broad cross-culture repertoire of moral evaluations. Similarly, their intentions are to present a model that is focused on all five of their self-defined, cross-cultural moral ideals, rather than what they see as excessive focus on harm/care and justice. From a social group's own narrative of these five foundations of morality" (Haidt & Björklund, 2008, p. 252) moral truth is determined.

Lastly, and in opposition to Jacobson's (2008) skepticism that philosophers are any more apt to use links five and six (reasoned judgment and private reflection links) in "real-world" moral situations, Haidt and Björklund (2008b) propose that these links may be used routinely when it comes to personal moral decision making, but that this is different from moral judgment. They add that they do believe moral deliberation is common, although this tends to occur on a social level, one which is typically not held to principled rigorous evaluation (e.g., scientific process) and therefore prone to reasoning that affectively triggers intuitions.

Unsurprisingly, the social intuitionist model is far from the last word on moral judgment. The dual-process model of moral judgment brings to the table the vestiges of the earlier arguments aimed at Kohlberg by Gilligan. In particular, propoents argue that any approach dominated by a basic cognitive process (in Haidt's case intuition, with Kohlberg rationality) is myopic and untenable. They further contend that, similar to what Navarez (2008, 2010) has suggested, perhaps co-occurring and complimentary routes to moral judgment exist.

Dual-process model. A contrasting model to social intuitionism is the dual process model of moral judgment, proposed by Greene and colleagues (Greene, 2007a; Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008; Greene, Nystrom, Engell, Darley, & Cohen,

2004; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Paxton & Greene, 2010). The model describes two distinct—sometimes even competing—brain systems that are involved in moral decision making. This is most clearly demonstrated through the "Trolley Problem" (Foot, 1967) and its numerous variants (e.g., Thompson's [1985] "Fat Man" problem; Greene and colleagues' [2001] "Crying Baby" dilemma). The problem has been framed in the following way:

> Suppose that a judge or magistrate is faced with rioters demanding that a culprit be found for a certain crime and threatening otherwise to take their own bloody revenge on a particular section of the community. The real culprit being unknown, the judge sees himself as able to prevent the bloodshed only by framing some innocent person and having him executed. Beside this example is placed another in which a pilot whose aeroplane is about to crash is deciding whether to steer from a more to a less inhabited area.
>
> To make the parallel as close as possible it may rather be supposed that he is the driver of a runaway tram which he can only steer from one narrow track on to another; five men are working on one track and one man on the other; anyone on the track he enters is bound to be killed. In the case of the riots the mob has five hostages, so that in both the exchange is supposed to be one man's life for the lives of five. The question is why we should say, without hesitation, that the driver should steer for the less occupied track, while most of us would be appalled at the idea that the innocent man could be framed. (p.8)

This type of dilemma places utilitarian and deontological moral philosophies at odds with one another. Cognitive neuroscience has weighed-in on such dilemmas, recognizing that

different brain regions are activated depending on the respondent's preference for evaluating the consequences of their decision. Emotion-based reasoning seems to occur when consideration for the dilemma is centered on the individual rights of the person being sacrificed for the sake of the other five, as indicated by ventromedial prefrontal cortex activation (Ciarmaelli, Muccioli, Ladavas, & di Pellegrino, 2007; Greene et al., 2001; Greene, Nystrom, Engell, Darley, & Cohen, 2004; Koenigs et al., 2007; Mendez, Anderson, & Shapira, 2005; Paxton & Greene, 2010). In contrast, rational processes have been shown to be associated with more utilitarian judgments, evidenced by dorsolateral prefrontal cortex activation (Greene et al., 2001, 2004; Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008; Paxton & Greene, 2010). Friesdorf, Conway, and Gawronski (2015) also have drawn attention to this, citing studies that have shown how deontological decisions can be either induced (Amit & Greene, 2012; Bartles, 2008) or reduced (Strohminger, Lewis, & Meyer, 2011) through manipulation of negative consequence and affect in moral reasoning scenarios.

The social intuitionist and dual process models are, in many ways, compatible with one another (Greene & Haidt, 2002; Haidt, 2001; Paxton & Greene, 2010). Haidt (2001) argues that the intuitive system serves merely as the "default" setting, especially since moral reasoning is a natural occurrence in social interactions. This corresponds to links three and four of his model. Conversely, private, conscious reflections on intuitions also are possible and do shape moral judgments, as represented by links five (reasoned judgment) and six (private reflection). Paxton and Greene (2010) contrast the two models not in terms of the primacy of emotion and intuition within moral judgment, but rather as a debate as to whether or not one person can directly and consciously engage reasoning in moral discussion with another. Further, they highlight two fundamental differences between the two models. First, a

tenet of the dual-process model is that reasoning is pervasive in moral judgment, particularly when utilitarian thinking is engaged. Conversely, the social intuitionist model suggests that such reasoned judgment is not one of the core processes of moral judgment, but a tertiary process represented in link 5 (reasoned judgment). Any logical reasoning aimed at overriding an intuition typically requires high logical processing and a relatively weak intuition. Haidt (2001) also asserts that this approach is typically reserved for a small portion of the population (e.g., philosophers) and that intuitions are not so much extinguished as they are subjected to dormancy. This further extends into Paxton and Greene's second crucial difference between the two models: the reasoned judgment link does not afford a social component. In other words, there is no way for an individual to directly modify another person's moral judgment through reasoning without addressing the person's underlying intuition.

Participants who use deontological reasoning seem to have difficulty in expressing their use of such principles (Cushman, Young, & Hauser, 2006). However, Paxton and Greene (2010) note that subjects employing utilitarian decision making approaches will cite their application of specific reasoning principles, such as the action principle (i.e., harm by action is worse than harm by omission) and the contact principle (i.e., harm by physical contact is worse than harm due to a lack of touch). For instance, a study conducted by Cushman, Young, and Hauser (2006) looked more closely at the contact principle (or, arguably, the "personal force" principle; see Greene et al., 2009). In this study, 60% of participants cited the contact principle. Further, 20% of the participants cited the contact principle, only to later reject it after recognizing that it was inconsistent with their moral beliefs.

Paxton and Greene (2010) have emphasized converging neuroimaging studies that have provided support for the dual-process model. For instance, the anterior cingulate cortex (ACC), associated with response conflict detection (Botvinick, Braver, Barch, Carter, & Cohen, 2001), was observed to be activated in an fMRI experiment studying moral reasoning in dilemmas (Greene et al., 2004). Regions of the dorsolateral prefrontal cortex (DLPFC), which are known to be associated with response conflict resolution through cognitive control processes, have been found to be engaged when subjects grapple with moral dilemmas and when utilitarian decision making is occurring (MacDonald et al., 2000; Miller & Cohen, 2001). Paxton and Greene (2010) argue that further convergent evidence for two competing processes in moral judgment can be seen in the extended reaction times (RTs) in responses when subjects are faced with particularly difficult moral dilemmas. However, a social intuitionist-perspective could conclude just as easily that the longer reaction times are attributable to the length of time needed to develop reasons to justify a judgment that already has been made intuitively (see Haidt & Björklund, 2008a). Greene et al. (2004) also have acknowledged that extended response time can only be *presumed* to represent processing conflict.

Paxton and Greene (2010) have hypothesized that the two automatic processes of the dual-process model are mediated by a cognitive control mechanism. However, they dispute the idea that this cognitive control mechanism is neutral. Instead, Greene and colleagues (Greene et al., 2001, 2004; Paxton & Greene, 2010) have argued that explicit measures, such as the Stroop task, demonstrate how use of principles guides cognitive control. This brings to bear an important distinction between the dual-process and social intuitionist models. A social intuitionist might argue that social progress against discrimination is a result of

replacing people's intuitions, but a dual-process approach instead would suggest that this is actually the result of volitional implementation of cognitive principles on the part of individuals (Paxton & Greene, 2010). In fact, Paxton and Greene have noted that studies measuring implicit attitudes towards minorities have not supported the social intuitionist stance (e.g., Cunningham, Johnson, Raye, Gatenby, Gore, & Banaji, 2004). Instead, it seems that people may be able to overcome a stronger automatic process with principles, and, by extension, that intuitions *and* such principles can be communicated socially via moral reasoning with others.

The dual process model offers some insight on potential gender differences to moral reasoning and judgment. For instance, Fumagali et al.'s (2010) findings on personal moral dilemmas were consistent with the dual-process model and further indicated that men tend to overlook concerns about harm in lieu of justice-oriented decisions, whereas women appear to place more emphasis on social dynamics (e.g., relationships, expectations, harm to others). Friesdorf et al. (2015) have noted that, while there do not appear to be any meaningful cognitive differences, numerous studies have shown that women in general are more sensitive in emotional areas (e.g., experiencing greater emotional responses in general, being more influenced by emotional messages, exhibiting greater concern and empathy), and therefore may have differences in terms of deontological judgments. Their meta-analytic re-analysis of 40 moral dilemma studies (N = 6,100) used an innovative process dissociation analysis that yielded important insights on the discussion of gender differences in moral judgment and the dual-process model.

The process dissociation method (Jacoby, 1991) enables utilitarian and deontological decisions to be treated as independent, allowing for comparison of incongruent and

congruent trials of responses (Payne & Bashara, 2009). Conway and Gawronski (2013) have used process dissociation analysis to show how deontological and utilitarian moral judgment have independent features that are uniquely predicted by empathic concern and cognitive load, respectively. Friesdorf et al. (2015) found that the underlying assumption of independence of both moral reasoning approaches was supported through correlational analyses. They found through the use of process dissociation analysis that, as reported in previous literature, there was a preference for utilitarian judgments in men. Further analysis showed that, while men and women engage in essentially equal levels of utilitarian processing, a moderate effect (.36 < Cohen's *d* < .65, per Hyde, 2005) was found for women's tendency to use deontological processing more often than men. Once Friesdorf et al. transformed this effect size from Cohen's *d* to *r* (based on the meta-analytic finding that gender differences tend to be smaller than others), they concluded that the relative size of the effect suggests a lack of appreciation for such gender differences in prior studies of moral judgment. Intriguingly, findings supported the conclusion that men and women have equally strong dispositions towards utilitarian decision making, but that women also make stronger deontological decisions. Lastly, process dissociation analysis found that men's propensity for utilitarian decision making is best understood through the gender differences in deontological reasoning (i.e., women's greater proclivity over men), with such differences being attributable to "affective responses to harm" (p. 709).

While many questions still remain in the ongoing debate surrounding emotional/intuitive vs. cognitive/rational processes in moral judgment, affective neuroscience appears to be an indispensable tool for further inquiry, as seen in lesion studies that offer support for the dual-process model (Koenigs et al., 2007). Relatedly, some researchers have

challenged Greene and colleagues on the authenticity of the dual-process model, with ongoing debates pertaining to methodological flaws to tertiary components of the model (i.e., personal/impersonal distinction; Greene, 2009; McGuire, Langdon, Coltheart, Mackenzie, 2009; Moore, Lee, Clark, & Conway, 2011), subsequent neuroimaging studies that yield ambiguous and/or inconsistent empirical findings (Koenigs & Tranel, 2007), and parsimony (Greene, 2007b; Moll & de Oliveira-Souza, 2007a, 2007b).

In the end, the dual-process model does not suggest that intuitions are absent in moral decision making; only that their force is more easily mitigated by rational, cognitive processes. Similarly, it is a misnomer to construe the social intuitionist model as solely anti-rationalist, as it does include logical processes within ancillary links (five and six, specifically). However, it clearly describes and explains the preponderance of moral reasoning as having only superficial influence by rational processes (Haidt, 2001). In the end, both models recognize intuition and emotion as forces to be reckoned with in moral judgment. However, a few points appear clear at this point: 1) there is no one moral center in the brain, 2) social cognition seems to be a factor in at least some moral judgment formulations, and 3) emotion certainly has a role to play (Greene & Haidt, 2002). The question remains, however, as to the exact role and extent to which emotion plays in the process of moral judgment.

Emotion

It could be argued that the study of human emotion has yielded more questions than answers. Theories on the phenomena of emotion are vast and multifarious, but the enormous amount of research that has been directed towards understanding this domain has produced results that are far from conclusive. For instance, a large body of literature has provided

substantial support for the hypothesis that human emotions are relatively small in number and universally recognizable in facial expressions (Ekman, 1972, Ekman & Cordarao, 2001; Ekman & Friesen, 1971; Izard, 1971, 1994, Matsumoto, Keltner, Shiota, Frank, & O'Sullivan, 2008; Tomkins, 1962, 1963). However, a recent study by Gendron, Roberson, van der Vyver, and Feldman Barrett (2014) has shown that when the cultural and conceptual context of experiments are taken into account, such "universality" claims disappear, suggesting that language, culture, and individual experience all shape emotion perception.

Moors (2009) has noted the widespread variation in theories of emotion causation, in particular a lack of consensus in psychology and philosophy when it comes to definition, explanatory components (e.g., elicitation, intensity, differentiation), underlying process for emotion elicitation, process description, and the order by which the component process unfolds. Despite the difficulty in constructing a consensual definition for such a fundamental aspect of human functioning, researchers generally agree that *emotion* contains expression (i.e., external communication of emotion), experience (i.e., subjective, internal experience of emotion), and physiological arousal (Kang & Shaver, 2004; Malatesta & Izard, 1984). The most widely studied and least understood aspect is emotional experience, due in large part to the fact that its neurological genesis remains largely a mystery (Kang & Shaver, 2004).

Affect misattribution. Psychology and other disciplines have evolved considerably since Kohlberg to focus on the primacy of emotion in decision making, including moral judgment. The precise interplay between affect and cognition is far from clear (Lazarus, 1984; Panksepp & Panksepp, 2000; Zajonc, 1984). Nevertheless, there is evidence in the evolutionary neuroscience literature (for an overview see Weisfeld, 2002; Weisfeld & Goetz, 2013) for the centrality of emotional processes in motivated behaviors, such as antecedent,

independent effects of core emotions like pride and shame on higher-order cognitive processes (Weisfeld, 1997). For instance, higher-order cognitive processes in the brain were preceded evolutionarily by affective circuits (Decety, Norman, Berntson, & Cacioppo, 2012; Decety & Svetlova, 2012). Suggesting that a false dichotomy exists with regard to rational and emotive processes, Weisfeld (2002) has noted how the neocortex is strongly influenced by the orbitofrontal cortex of the limbic system, citing in particular Panksepp's (1998) observations of greater neural connections to the neocortex from the limbic system than vice versa. Further, Weisfeld (2002, p. 208) has highlighted Zajonc's (1984) observations of emotions "contaminating" human beings' so-called rational functions.

Judgment and evaluation have been shown to be heavily influenced by affect and emotion (Angie, Connelly, Waples, & Kligyte, 2011). Emotions can influence reasoning, belief accuracy, self-control, working-memory capacity (i.e., cognitive load), risk-tendency, and general attributions towards objects (Pham, 2007). Further, these influences can occur extremely quickly. Research on subliminal presentations has indicated that a variety of stimuli can illicit automatic affective processing within one fourth of one second (Haidt, 2001; Bargh, Chaiken, Raymond, & Hymes, 1996; Hermans, De Houwer, & Eelen, 1994; Murphy & Zajonc, 1993; Fazio, Sanbonmatsu, Powell, & Kardes, 1986). Affect misattribution is one such example of this sort of bias, in which an emotional reaction to—or evaluation of—a target stimulus is prejudiced due to the introduction of an unrelated stimulus, evoking an emotional reaction than otherwise might not occur (e.g., Dutton & Aron, 1974; Jones, Fazio, & Olson, 2009; Murphy & Zajonc, 1993; Payne, Cheng, Govorun, & Stewart, 2005; Ruys, Aarts, Papies, Oikawa, & Oikawa, 2012; Schwartz & Clore, 1983; White, Fishbein, & Rutstein, 1981).

In the now famous study, Schacter and Singer (1962) demonstrated how both physiological arousal and cognitive labeling play a part in the experiencing of emotions (i.e., Two-Factor Theory) through the manipulation of epinephrine, misinformation, and behavioral cuing on experimental groups. In doing so, Schacter and Singer showed that when ambiguity for the source of arousal is introduced, the mind will search for an appropriate label for the experience within the environment, allowing for misattributions of affect. This phenomenon can occur even when there is no direct manipulation. For instance, research participants have been shown to have more positive moods on sunny days and therefore report higher levels of life satisfaction, in contrast to having more negative moods and lower life satisfaction on rainy days (Schwartz & Clore, 1983).

As noted by Pham (2007) and colleagues (Cohen, Pham, & Andrade, 2007), a distinction between *integral* and *incidental* emotions (Bodenhausen, 1993) can be helpful when discussing the biasing effects that emotion can have on behavior and decision making. These are best distinguished from one another when considering their relationship to a target object of judgment or evaluation. Emotional responses are thought to be integral when they are the direct product of a target object, irrespective from their actual correspondence to the material world (i.e., they need only be perceived or imagined as a product from the target object). However, emotions are considered to be incidental when they have no direct relationship with a target object. These emotions may thus be viewed as artifact associated with current mood-states and emotional dispositions. Given the established finding that individuals tend to ascribe their current emotional state to the object within their attention (Schwartz & Clore, 1996), the importance of distinguishing between incidental and integral emotions becomes evident.

Despite this phenomenon, it has been shown that when people are made cognizant of the use of affective cues in inciting emotions that are unrelated to the target object, misattribution decreases (Lambie, 2007; Murphy & Zajonc, 1993; Oikawa, Aarts, & Oikawa, 2011; Schwartz & Clore, 1983, 1996, 2007; Tesser, 2000). However, this effect is diminished when prime and target are presented in quick succession to one another (Payne et al., 2005). Similarly, Ruys, Aarts, Papies, Oikawa, and Oikawa (2012) have concluded experimentally that the determining factor for affect misattribution is the ambiguity of the source of the affect cue, so that when primes are not limited to an exclusive source misattribution can nevertheless persist.

Moral reasoning tasks, such as the Defining Issues Test (Rest, Coder, Masanz, & Anderson, 1974), also can be influenced by the manipulation of mood. Zarinpoush, Cooper, and Moylan (2000) induced various mood states (e.g., happy, sad, neutral) in participants and found that happy participants produced weaker arguments on the DIT. However, Olejnik and Asenath (1980) found previously that better performance on the DIT occurred when participants were manipulated to feel positive affect rather than negative affect. The inducement of affect (i.e., repulsion) also appears to lead people to make moral judgments that are less tolerant of violations (Schall, Haidt, & Clore, 2006; Trafimow, Bromgard, Finlay, & Ketelaar, 2005), whereas tolerance has been shown to increase when integral affect is misattributed as being incidental (Trafimow et al., 2005). Hypnotic suggestions of disgust in highly hypnotizable participants similarly have been shown to bias the severity of judgments about moral transgressions (Wheatley & Haidt, 2005).

Moral judgments present a unique problem to the study of decision-making tasks: there typically is no objective or clearly-defined “correct” answer to a moral dilemma. This is

due not only to the continued debate as to the underlying process of arriving at a moral judgment, but also to the various philosophies of ethics one might employ in arriving at and/or justifying a moral decision. Extraneous factors, such as incidental emotions, introduce an additional level of "noise" that biases the process of arriving at a moral judgment. However, there may be factors that contribute to a person's susceptibility to the biasing effects of incidental emotions.

Emotion differentiation. As previously introduced, decision-making tasks, such as those that require moral judgments, may be biased due to affect misattribution. However, there has been some evidence demonstrating that such misattributions can be minimized or circumvented through an individual's expertise in differentiating their emotions (Cameron et al., 2013). *Emotion differentiation* (aka, *emotional granularity*; see Feldman Barrett, 1998; Lindquist & Feldman Barrett, 2008) refers to a person's ability to assign unique and precise descriptors to emotional experience (e.g., angry, frustrated, pleased) in contrast to more simplistic and predominantly dichotomous classifications focusing globally on valence and arousal (e.g., good vs. bad, happy vs. sad). Emotion differentiation "captures the nuance with which people conceptualize affective experience into qualitatively distinct emotional states" (Cameron et al., 2013, p. 720; Lindquist & Feldman Barrett, 2008). In other words, it refers to one's ability to understand and identify personal emotions, contributing to an individual's emotional complexity.

There have been numerous efforts to quantify the ways in which individuals identify and understand emotion within themselves. The Levels of Emotional Awareness Scale (LEAS; Lane, Quinlan, Schwartz, Walker, and Zeitlin, 1990) was developed to measure emotional experience based upon the cognitive-developmental theory proposed by Lane and

Schwartz (1987). The model posits that there are five levels of emotional awareness: 1) awareness of bodily sensations, 2) awareness of the body in action, 3) awareness of individual feelings, 4) awareness of blends of feelings, and 5) awareness of blend combinations. The model allows for easy operationalization of its concepts to self-reports, but the LEAS distinguishes itself from traditional emotional self-report measures (i.e., rating mood or emotion based on intensity and frequency when given words and phrases) by using structural criteria to rate emotional responses of self and other when respondents are faced with hypothetical interpersonal experiences that are evocative in nature (Lane et al., 1990).

The LEAS is based upon a model in which "emotion is hypothesized to undergo structural transformation in a hierarchical developmental sequence of progressive differentiation and integration" (Lane et al., 1990, p. 125). However, Kang and Shaver (2004) note how this basic expectation may lack support as a significant negative correlation (r = -.24) between age and the LEAS was found in a sample (N=380) of five age groups (Lane, Sechrest, & Riedel, 1998). Nevertheless, the LEAS has also been adapted for use as a measure of emotion differentiation through the use of intra-class correlation coefficient (Cameron et al., 2013), with higher intra-class correlations inversely being representative of emotion differentiation (Feldman Barrett, Gross, Christensen, & Benvenuto, 2001; Tugade, Fredrickson, & Feldman Barrett, 2004).

There are numerous factors that may impact individual emotion differentiation, including culture, age, and gender. Emotions are, at least in part, socially constructed; unlike the "either-or" mindset of Western societies, Eastern cultures have philosophical traditions of accepting contradictions which seems to allow more readily for experiences of coinciding and contradictory emotional states (Lindquist & Feldman Barrett, 2008). Results from an

experience-sampling study of American adults (N=184) as old as 94 showed that more differentiated emotional experience appears to increase as individuals age (Carstensen, Pasupathi, Layr, & Nesselroade, 2000). These results conflict with those found with the LEAS (Kang & Shaver, 2004), which taken together provide only mixed support to the notion that emotion differentiation is a function of age. However, Carstensen, Pasupathi, Layr, and Nesselroade (2000) also found that the steady increase in emotion differentiation that was observed in individuals age 18 onwards corresponded to personality profiles that exhibited higher emotional control and lower neuroticism.

Conversely, gender differences in emotion differentiation appear more straightforward. Controlling for verbal abilities (as measured by intelligence scores), Feldman Barrett, Lane, Sechrest, and Schwartz (2000) observed that women across seven undergraduate samples produced higher scores than men on the LEAS. Medium effect sizes were found for LEAS self scores (*SD* = .69), other scores (*SD* = .54), and total scores (*SD* = .61). These results suggest greater complexity and differentiation in women's use of language to describe emotional experience. These results also are corroborated by earlier findings in a sample comprised of persons with borderline personality disorder and controls (Levine, Marziali, & Hood, 1997). Feldman Barrett et al. (2000) extrapolate that together these findings may indicate divergent coping styles in men and women, so that there is a male tendency for automatic behavioral responses in contrast to women who may tend to self-reflect and even ruminate.

The pervasive stereotype that women are inherently more emotionally "tuned" has been challenged, however. For instance, research has pointed to gender differences in retrospective, global self-descriptors of emotion but not in moment-to-moment ratings

provided by the same men and women (Feldman Barrett, Robin, Pietromonaco, & Eyssell, 1998). Additionally, differences in gender on emotional tests that use hypothetical scenarios may actually be representative of cultural gender biases (Lindquist & Feldman Barrett, 2008).

Alexithymia. Closely related to the concept of emotion differentiation is alexithymia, a personality trait that was coined by Sifneos (1973) based on his work with patients with psychosomatic symptoms. Alexithymia is currently understood to be a personality feature which describes a "disturbance in both affective and cognitive functioning characterized by difficulty in describing or recognizing emotions of the self" (Moriguchi et al., 2006, p. 1472). Based upon the ratings of thirteen experts using the 100-item California Q-set (Block, 1961/1978), prototypic features of alexithymia include flattened affect, the bodily manifestation of anxiety and tension, concern for bodily functioning, reliance on action and nonverbal behavior to communicate with others, and the avoidance of intimate relationships (Haviland & Reise, 1996). It also has been described as undifferentiated emotional experience (Lane, Sechrest, Reidel, Weldon, Kaszniak, & Schwartz, 1996; Nemiah & Sifneos, 1970).

The most widely used measure of alexithymia is the Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994). Studies examining the TAS-20 have provided support for alexithymia as a unique personality trait that is not wholly accounted for by any one dimension within the Five Factor Model (FFM) of personality (Luminet, Bagby, Wagner, Taylor, & Parker, 1999). Broadly, the TAS-20 has been shown to have a significant positive correlation to neuroticism (r = .38) and significant negative correlations with extraversion (r = -.36) and openness to experience (r = -.41;

Bagby, Taylor, & Parker, 1994; Luminet, Bagby, Wagner, Taylor, & Parker, 1999). However, lower-order traits on the agreeableness domain, specifically altruism (r = -.33) and tender-mindedness (r = -.25), have been found to be predicted by lower scores on the TAS-20, which is consistent with clinical observations that alexithymic individuals are coldly rational and lack empathy (Luminet et al., 1999).

The TAS-20 also has been found to have a statistically significant, but ultimately small, correlation to the LEAS (r =-.19, N =380, p < .001); much of this relationship seems accounted for by the shared variance found in both measures' positive correlations with old age, male sex, and lower SES and education (Lane et al., 1998). These findings for alexithymia were further supported in a 31-year follow-up study (Kokkonen et al., 2001) of Finnish participants (N=5,028). Results of this study showed a strong positive correlation between alexithymia and the following variables: poor socio-economic status, unemployment, poor education, and residence in rural (versus urban) areas. Gender differences also were observed, with men reporting significantly higher degrees of alexithymia, particularly those who were single (whether never married or divorced). All of these findings remained significant even after accounting for psychological distress.

While the lack of shared variance between the TAS-20 and the LEAS is somewhat surprising, this does not discount the role of personality traits in the differentiation of emotional experiences. The importance of affect has been stressed in the organization of personality (Malatesta, 1990, Pervin, 1993; Watson & Clark, 1992), and this can be seen rather easily when one looks at the Neuroticism or Extraversion domains of the FFM. Further, it appears reasonable that emotion plays a substantial role in moral judgments. Since personality is dictated in part by both rational and emotional processes (Cloninger et al.,

1993)—as well as biology and learning—it is worthwhile to consider further the role that personality may play in moral judgment.

Personality

Even though few would question the relationship between personality and emotion, research on the predictive power of personality towards moral judgment remains scarce. A closer examination of personality psychology, particularly with regard to trait theory, illustrates the importance in exploring the possibility of such a relationship. However, the specific approach towards understanding personality appears vital for research purposes. For instance, cultural and ethnic biases that are inherent in categorical models—the approach employed in the DSM— seem significantly reduced when compared to dimensional approaches (Cloninger, 1987). In the end, personality must be inferred by psychologists, and debate exists as to the existence of certain underlying components, such as traits (John, Angleitner, & Ostendorf, 1988).

Allport (1937, p. 48) described personality in simple, direct terms: "personality is something and personality does something...it is what lies behind specific acts and within the individual." Allport and Odbert (1936) discussed five basic approaches to the study of personality. In the orthodox nomothetic view, a person is seen as merely a generalization of human functioning, the summation of concepts from general psychology (e.g., sensations, needs, abilities). The dynamic nomothetic view, however, examines the uniform constitution of personality, including indistinguishable structure (e.g., id, ego, superego) and mechanisms (e.g., repression, identification, fixation, etc.) across individuals. From the view of specificity, any essential aspects of personality are marginal, so that specific stimulus responses are accountable for perceived differences in personality; inter-dependent habits

may form, but there are no endogenous traits. As with other nomothetic views, factorial psychology assumes that the basic components of personality are universal, and through the use of statistical methods such as factor analysis, independent traits can be derived. Factor analysis offers a systematic way to provide convergent and divergent validity through the identification of groups of variables that, taken together, may represent latent constructs (see Costa & McCrae, 1992a). At the same time, no statistical method can be equated with objective truth (Meehl, 1992). Lastly, there is the trait-hypothesis.

A trait is defined by Allport (1937, p. 295) as, "a generalized and focalized neuropsychic system (peculiar to the individual), with the capacity to render many stimuli functionally equivalent, and to initiate and guide consistent (equivalent) forms of adaptive and expressive behavior." In other words, traits are unique, organizing, consistent, psychological configurations within a person that guide and direct behavior. Allport's conceptualization of traits included those aspects of self that are highly personal and overlapping; however, today in personality assessment traits are viewed as "broad, decontextualized, and relatively nonconditional constructs" (McAdams, 1995, p. 365). Further, while it is assumed in factorial psychology that traits exist within an individual, there can be no assumption that these traits are independent from one another or that traits obtained from any one sample are basic to the corresponding population. This approach to traits appears to have garnered the most popularity among personality researchers today.

Trait theory. Traits were first conceptualized by Allport (1937) as a way to organize and understand personality within a person. Despite his suggestion for the use of cardinal, central, and secondary traits, he nevertheless insisted on an idiographic approach to understanding the whole of a person. Since Allport, trait theory has become a large

component of the study of personality in America (Buss, 1989). McAdams (1994, 1995) has observed that the dominance of trait theory in current personality research is likely attributable to five basic findings: (1) they appear to be more than just a linguistic artifact, (2) they appear to be consistently observable across longitudinal studies, (3) behavior can be predicted based on aggregated trait data, (4) for predicting behavior, situational effects are no more incrementally valid when compared to trait effects, and (5) consensus supports FFM or "Big Five" of personality. However, this last observation by McAdams is problematic. There are other competing trait theories that existed prior to the modern FFM that maintain support (e.g., Eysenck's Three Factor Model), and there has been continual interest in trait models that propose superordinate dimensions, one of the more intriguing and perplexing examples of this being the General Factor of Personality (GFP; Erdle & Rushton, 2011; Irwing, 2013; Veselka, Just, Jang, Johnson, & Vernon, 2012).

The methods by which personality traits have been derived are extensive and impressive. For example, Allport and Odbert (1936) provided a thesaurus of 17, 953 words to describe human behavior that included: neutral or objective terms (4,541 words or 25%); descriptors that embody rich affect or other temporary states of being, evaluative or characterological words (5,226 words or 26%), and miscellaneous designations of a potentially dubious or metaphorical nature (3,682 words or 21%). Echoing Jeremy Bentham (1780/1907), they argued that only those terms that were objective and neutral should be considered true "trait" names. In the words of Allport and Odbert (1936, p. 2), "there is everything to gain by using terms that designate true psychic structures." However, they also asserted that traits tend to manifest based upon the demands of culture, which inevitably presents a daunting challenge to personality theorists subscribing to a nomothetic view.

Individual differences between two people are not simply quantitative in nature, as no two traits need be present nor express themselves in the same way across individuals. Further, temporal considerations help delineate traits from other personal considerations, such as goals and motivations (McAdams, 1995). Along the same lines, Allport and Odbert (1936, p. 17-18) noted that, "Trait names are not themselves traits. At best they indicate roughly and somewhat haphazardly the possibility of traits." This sobering statement helps elucidate the problematic task of constructing an underlying taxonomy for personality.

Predating and influencing Allport and Odbert's (1936) work on English language descriptors were Klages (1926/1932) and Baumgarten's (1933) similar efforts with German language. Klages laid out the assumption that traits become encoded within the natural language of a culture, to the degree that the trait's importance was inversely proportional to the number of words needed to express it (i.e., single vs. multiple words; John, Angleitner, & Ostendorf, 1988). Baumgarten tested Klages' conclusions that some 4,000 trait descriptors existed in the German language, ultimately finding trait descriptors for adjectives and nouns totaling 941 and 688, respectively. The efforts of Allport and Odbert, Klages, and Baumgarten have served as the modern-day basis of what is now known as the *lexical hypothesis* (John et al., 1988).

Among the first to apply the fundamental lexical hypothesis was Sir Francis Galton (1884), who compiled approximately 1000 words to capture human personality, with some more distinct than others. McCrae and John (1992) have explained the fundamental assumptions of the lexical hypothesis. First, daily experience can allow for the average person to come to a relatively accurate appraisal of the basic personality traits one has.

Second, such traits pervade across all languages and cultures due to their social importance. Lastly, covariance among traits are restricted to a relatively small number of basic factors.

While the lexical hypothesis has relatively reasonable premises, there are notable limitations that deserve attention, as pointed-out by John, Angleitner, and Ostendorf (1988). Firstly, there may be many traits of importance in describing an individual that laypeople simply might not notice enough to try and describe or encode within language. Also, generalizability of language-based descriptors may be limited due to variation among language cultures and the tendency for language to evolve over time. Then there is the problematic nature of language itself. Words can be vague or "fuzzy" so that their meaning remains somewhat ambiguous and therefore problematic for scientific interpretation.

Such limitations of the lexical hypothesis add to chief criticisms of many trait models, namely factor analysis. Certain "debatable assumptions" of factor analytic approaches seeking to apprehend personality were criticized early on by Alport & Odbert (1936, p. 11-12) for failing to capture adequately the true characteristics of individuals in a given sample, such as contentions (Lorge, 1935) that factors must be completely independent from others in order to be considered valid or "pure." Replication of factors within personality models therefore has been critically important, and many models of personality have not been consistently replicated. For instance, Cattell (1943, 1945, 1946, 1947, 1949) eventually settled upon 16 stable oblique factors, but they have been shown to be replicable only partially across multiple studies that utilized orthogonal rotation methods, with only five factors emerging consistently (Goldberg, 1990). Based on this and similar concerns, Costa and McCrae (1992a) have recommended the following criteria be fulfilled in order for a personality dimension (i.e., factor) to be considered "basic": it must be temporally and

culturally stable, exhibit validity across observers, maintain both face and content validity, and be part of a model that has biological correlates. However, they add that with this latter point, there need not be any explicit theoretical basis. They further declare that traits are (1) "enduring dispositions that can be inferred from patterns of behavior," (2) are stable over time, and (3) reliably identifiable by others (p. 655).

The Five Factor Model (FFM). In truth, many five factor models exist (John, 1989); nevertheless, convergent validity among the various five factor models has been established (Costa & McCrae, 1992a). The traits of the FFM have been shown to be temporally stable across decades and demonstrate convergent and discriminant validity (McCrae & Costa, 2003). Additionally, convergent evidence for the five factors across instruments (e.g., adjective scales and questionnaires) and raters (i.e., self and observer) has been found by McCrae and Costa (1985c, 1987). The traits of the FFM emerged in a four-step hierarchy of abstraction (Digman, 1990). First, there are the fundamental responses from participants. Second, these responses together can be identified as habits, act frequencies, dispositions, and items. Moving upwards, these collections can then be understood as characteristics, scales, and facets. Finally, these clusters can then be organized into five traits.

Origins. Extraction of the five robust factors of personality has been demonstrated and replicated across raters (i.e., self and observer) and various groupings/clusters of adjectives (Goldberg, 1990). A five factor solution or personality adjectives dates back as early as Thurstone (1934). From there, Fiske (1949) also identified a five factor solution across self and collateral ratings of personality. He described the traits as follows: Social Adaptability, Emotional Control, Conformity, The Inquiring Intellect, and Confident Self-Expression. However, these factor solutions were intimated earlier by McDougall (1921;

1932, p. 15), who mused that “five distinguishable but separable factors” might best account for personality. He labeled these intellect, character, temperament, disposition, and temper.

Although Cattell championed his own 16 factor model, his work was nevertheless integral in the evolution of five factor trait models. Studies on five factor trait models were based on 35 bipolar clusters derived by Cattell (1943). An analysis of these traits by Tupes and Christal (1961) across eight samples identified five strong factors, Surgency, Agreeableness, Dependability, Emotional Stability, and Culture; ultimately they concluded that it was unlikely that they represented the only fundamental traits of personality based upon Allport and Odbert’s (1936) list of adjectives. Norman (1963) replicated the work of Tupes and Christal (1961), identifying five factors that he called Extraversion (or Surgency), Agreeableness, Conscientiousness, Emotional Stability, and Culture. Relatedly, Smith (1967) looked at 42 traits put forth by Cattell (1957) in a study of peer ratings of personality across three different populations. Smith extracted five stable factors in the same vein as Tupes and Christal (1961) and Norman (1963) which he called Agreeableness, Extraversion, Strength of Character, Emotionality, and Refinement. Peer ratings for Norman’s factors also were shown to be reliable and to demonstrate predictive validity.

Despite this foundational work, it was not until the 1980s that significant interest in five factor trait models surfaced (McCrae & John, 1992). McCrae and John (1992) have described how personality psychology became distracted and disenfranchised during the 1970s until Goldberg’s (1981, 1982) efforts galvanized investment in such research.

Goldberg (1990) used self-rating data of 1,710 trait adjectives and then scored these data on scales derived from category data that was created by Norman (1967).[2]

The names of the factors have been controversial. Naming of the factors has typically fallen into either (1) the lexical tradition or (2) the questionnaire tradition (McCrae & John, 1992). The former is often attributed to Norman's (1963) efforts to factor analyze natural language adjectives originally provided by Cattell (1946). The latter approach is credited to H.J. Eysenck and his analysis of personality tests. Eysenck initially extracted the factors Extraversion and Neuroticism (Eysenck & Eysenck, 1964, 1975) and then later a third factor which he called Psychoticism. These first two factors, Extraversion and Neuroticism, are the two most widely agreed upon traits and are sometimes called the "Big Two" (Wiggins, 1968). Diverging from Eysenck, Tellegen and Atkinson (1974), identified a third independent factor from Neuroticism and Extraversion which they called Openness to Absorbing and Self-Altering Experience. Working concurrently to Tellegen and Atkinson, Costa and McCrae (1976, 1980) called this factor Openness to Experience. They later developed two additional factors, Agreeableness (1985) and Conscientiousness (1989). Based on replication, it appears that five factors are the upper limit for extraction in lexical studies (Goldberg, 1990; Ostendorf, 1990).

Names and descriptors of the five factors vary considerably. For instance, the five factors also have been classified as Power, Love, Work, Affect, and Intellect (Peabody & Goldberg, 1989). For this reason, Fiske (1949, p.340) put forth quite early that "It is, perhaps, unwise to name the factors obtained in exploratory studies because a name may cause us to distort our conception of a factor." Due to discrepancies in the naming of factors, Norman's

[2] A superb account on the history and development of the lexical approach and ultimate development of the FFM is presented by John et al. (1988).

(1963) Roman numeral designations (i.e., Factors I-V) are sometimes advantageously employed due to their theoretical neutrality; however, greater ease of use is allowed through initial designations (e.g., "N" for Neuroticism) first adopted by Eysenck (McCrae & John, 1989).

The most agreed upon names for the five factors are Extraversion (also known as Surgency), Neuroticism (sometimes referred to as Emotional Stability), Agreeableness, Conscientiousness (or Dependability), and Openness to Experience (or Absorption). This last factor tends to be the most variable among personality researchers, particularly given the breadth of meanings that can be inferred by its name (cf. Intellect with Culture). Nevertheless, these aforementioned five factors have the following names and descriptors (Costa & McCrae, 1992c; John, 1990a; McCrae & Costa, 1987; McCrae & John, 1992):

Neuroticism (N). This domain represents an individual's level of adjustment and emotional stability. It is closely associated with negative affect (e.g., nervousness, frustration, depression, anxiety), psychiatric disorders, and a range of maladaptive behaviors such as guilt, self-consciousness, inadequate self-esteem, poor impulse control, somatization, irrational thinking, and ineffective coping techniques. A person with high neuroticism might also be described as self-pitying, tense, touchy, unstable, and worrying. In contrast, someone with lower trait neuroticism might reflect a calm, secure, confident, relaxed, and even-tempered demeanor.

Extraversion (E). Propensity toward sociability, excitement, stimulation, and optimism are all are captured by this dimension. Individuals high on this factor are described as active, assertive, energetic, enthusiastic, outgoing, warm, gregarious, and talkative. It should be noted that lower extraversion in this conceptualization is introversion, but only in

the sense that there is an absence of extraverted tendencies, rather than the opposite of extraversion (this distinction is particularly important to keep in mind when considering introversion as viewed from a Jungian perspective). Therefore, low extraversion represents those individuals who are shy or have tendencies for being alone, silent, quiet, reserved, and withdrawn.

Agreeableness (A). This dimension captures interpersonal tendencies, such as having an orientation that predominantly is focused on others versus against others. While it would be easy to generalize this trait as exclusively advantageous, extremes of either orientation can be pathological (e.g., dependent vs. antisocial/narcissistic). High agreeableness describes a person who is appreciative, forgiving, generous, kind, sympathetic, altruistic, nurturing, caring, emotionally supportive, and trusting. Lower agreeableness represents a person who is hostile and has indifference toward others. Such people are likely viewed as self-centered, spiteful, skeptical, critical in thinking, and prone to jealousy. Agreeableness and Extraversion are sometimes interpreted differently depending on the specific FFM model being used (McCrae & John, 1992).

Conscientiousness (C). One's control and management of impulses is encapsulated in this trait. A person exuberating conscientiousness would be described as efficient, organized, planful, reliable, neat, diligent, achievement-oriented, responsible, and thorough. Those low in conscientiousness may be described as unorganized, spontaneous, self-indulgent, relaxed, easy-going, careless, and apathetic. Agreeableness and conscientiousness are evaluative in nature, reflecting aspects traditionally referred to as character (McCrae & John, 1992).

Openness (O). This dimension taps an individual's subjective experiences, be they internal or external. Differences in the lexical and questionnaire approaches have led to

openness being the most controversial dimension of the FFM (McCrae & John, 1992). Whereas studies on English language adjectives suggested a factor perhaps more accurately defined as Intellect, openness has a number of traits associated with it that do not contain corresponding, single word descriptors in English (McCrae, 1990; McCrae & John, 1992). Regardless, a person who has an abundance of openness likely would be described as artistic, curious, imaginative, insightful, and original. Higher trait openness also tends to describe those who have wide intellectual interests, creativity, differentiated emotions, aesthetic sensitivity, need for variety and experience, unconventional values, and a general proneness to ideas, fantasies, feelings, sensations, and values. Lower openness, in contrast, describes a person who may be more conventional, consistent, cautious, and conservative.

NEO Personality Inventory. The NEO Personality Inventory (Costa & McCrae, 1985, 1990, 1992c) is the most widely used measure of the FFM (McCrae & Allik, 2002). The original form of the test, the NEO-I (Costa & McCrae, 1978), contained only the Neuroticism, Extraversion, and Openness dimensions. In 1985 the test received a major revision, becoming the NEO Personality Inventory (NEO PI). The primary test has seen two additional revisions, the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992c) and NEO Personality Inventory, Third Edition (NEO PI-3; McCrae, Costa & Martin, 2005). The test creators have asserted that the inventory's five factors are "both necessary and reasonably sufficient" in capturing the general features of individual personality (McCrae & Costa, 1986, p. 1001). Costa and McCrae (1991) also have argued that models of personality with divergent factor compositions (e.g., Eysenck, 1990, 1991; Zuckerman, Kuhlman, Thornquist, and Kiers, 1991) are likely due to variations in factor rotation and misinterpretations of their domains (e.g., Openness as equivalent to intelligence). While the

five factors appear consistent across the majority of cultures, the expression and composition of these factors appear to vary across linguistic and cultural lines (Yang & Bond, 1990).

The NEO PI-R contains five higher-order traits or domains: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Each domain contains six facet scales (see Table 2). While each of the respective facet scores have adequate loadings on their corresponding factors, there are several instances of cross-loadings (e.g., -.41 loading for C1: Competence on the Neuroticism factor; see Costa & McCrae, 1992a). Cross-observer correlations on ratings for all five factors of the NEO PI-R (peer/peer, peer/self, spouse/self) exceed the minimum acceptable validity threshold (i.e., .30; Tinsley & Tinsley, 1987) with a median value of .50 (Costa & McCrae, 1992a). When using an exploratory factor analytic approach, the NEO PI-R produces consistent factor structures across self, spouse, and peer ratings (McCrae & Costa, 1989). Although there is considerable support for the heritability of the five factors (Jang. Livesley, & Vernon, 1996; Jang, McCrae, Angleitner, Riemann, & Livesley, 1998) Costa and McCrae (1992a) have disavowed the need for putting forth a biological theory for their model of personality on the basis that there is much more known about human personality structure than on human brain functioning.

Table 2

Domains and Facets of the NEO Personality Inventory Revised (Costa & McCrae, 1992c)

Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
N1: Anxiety	E1: Warmth	O1: Fantasy	A1: Trust	C1: Competence
N2: Angry Hostility	E2: Gregariousness	O2: Aesthetics	A2: Straightforwardness	C2: Order
N3: Depression	E3: Assertiveness	O3: Feelings	A3: Altruism	C3: Dutifulness
N4: Self-Consciousness	E4: Activity	O4: Actions	A4: Compliance	C4: Achievement Striving
N5: Impulsiveness	E5: Excitement-Seeking	O5: Ideas	A5: Modesty	C5: Self-Discipline
N6: Vulnerability	E6: Positive Emotions	O6: Values	A6: Tender-Mindedness	C6: Deliberation

Criticisms of NEO Personality Inventory. Despite the long history of and support for the FFM, both it and (by extension) the NEO Personality Inventory have had a fair share of

detractors. For instance, series of factor analyses were conducted by Silva, Avia, Sanz, Martínez-Aria, Graña, and Sánchez-Bernardos (1994) on the NEO PI using two large Spanish samples involving the general population (n = 1171) and two universities (n = 1444). Findings pointed toward the representative weakness of Extraversion in particular, while also calling into question the orthogonal nature of the NEO factors [Block (2010) has echoed this criticism, stressing how any one factor of the FFM is undeniably influenced by the others despite research protocols that too often examine factors on an individual basis]. Silva et al. (1994) further speculated in their study that Eysenck's three factor model is being misinterpreted, citing Agreeableness as a marker for Psychoticism and significant intercorrelations among the other four factors (specifically between Extraversion and Openness to Experience as well as Neuroticism and Conscientiousness).

Criticisms also have been levied at the inconsistent factor solutions that arise with the NEO depending on the specific factor analytic technique employed. There have been considerable discrepancies in the use of exploratory factor analysis vs. confirmatory techniques. EFA assumes an exploratory, data-driven approach that does not utilize a priori assumptions; in contrast, CFA relies on a theory-driven approach to locate significant loadings on predetermined, underlying factors (Hopwood & Donnellan, 2010). Aluja, García, García, and Seisdedos (2005) have summarized how:

> A large discrepancy between EFA and CFA conclusions regarding the validity of the NEO personality inventory has been found in several countries: Germany (Borkenau & Ostendorf, 1990), Philippines (Katigbak, Church, & Akamine, 1996), Norway (Vassend & Skrondal, 1997), and United States (Church & Burke, 1994; Parker,

> Bagby, & Summerfeldt, 1993). These studies have always rejected the Five-factor simple structure. (p. 1880)

Hopwood and Donnellan (2010) have noted multiple instances of CFA exact fit failures (e.g., Borkeneau & Ostendorf, 1990; Church & Burke, 1994; Donnellan, Oswald, Baird, & Lucas, 2006; Gignac, Bates, & Jang, 2007; Vassend & Skrondal, 1995). Vassend and Skrondal (2011) have concluded that, like many CFA-based studies of the FFM, the NEO PI-R demonstrates acceptable overall model fit, suggesting a complex but altogether robust structure of personality. However, they similarly point toward poor model fitness during independent one-factor CFA analyses (i.e., exogenous/variable-trait fit), particularly for the dimensions Extraversion and Agreeableness, which emphasize a potential problem above and beyond mere model complexity. Gignac, Bates, and Jang (2007) conducted a three stage CFA of the 60 item NEO PI-R short form, the NEO-FFI, using two independent samples (N = 538, N = 539) for cross-validation. They found a degree of reliability overestimation for the NEO-FFI dimensions ranging from .02 (Neuroticism) to .06 (Extraversion), the latter of which is at least a small effect size (Cohen, 1992) when represented as a correlation coefficient (i.e., $r = .25$). They also discovered that Extraversion, Openness, and Agreeableness reliability estimates fell below the standard marker of adequacy (Nunnally & Bernstein, 1994).

Researchers looking at model misfit in CFA approaches as grounds to call into question the FFM have been criticized by Hopwood and Donnellan (2010) as making "Henny Penny problems." Accurately, they point out that there are no "perfect" items in any personality inventory. They add that this imperfection can lead to "a smattering of correlated residuals in an item-level CFA and generate overall model misfit when not explicitly

included in the analysis" (p. 334). In addition, they suggest that other issues could contribute to model misfit, including: item-wording artifacts, failure to account for multi-factor cross-loadings when testing higher order personality structure (failures that are not easily ameliorated due to overly restrictive assumptions), and the likelihood of correlated residuals between facets within a single dimension due to shared associations. They completed exploratory and confirmatory factor analyses on seven mainstream measures of personality, including the NEO PI-R, yielding disappointing results using the standard CFA conventions. Hopwood and Donnellan nevertheless noted that, "several instruments performed reasonably well by more relaxed criteria associated with EFA techniques (e.g., 'congruence coefficients') consistent with our 'eyeball' tests of the factor pattern matrices" (p. 341). Cautious about falling for their aforementioned "Henny Penny" problem, they concluded that researchers must be: (1) more critical when it comes to CFA structural models of omnibus inventories, (2) hesitant in accepting model fit "golden rules" in CFA, and (3) willing to use alternative measures of analysis (e.g., explicit modeling of response-style factors, specification search).

Costa and McCrae (1992b) have attempted to address the frequent intercorrelations of the NEO PI-R's factors with two explanations. First, they have suggested that spurious correlations may be occurring as a result of implicative meanings derived from the biases of some respondents. For instance, they speculate that viewing oneself in a more desirable light could be reflected through responding high on Agreeableness and Conscientiousness and low on Neuroticism. Two studies on FFM self-report questionnaires conducted by Bäckström, Björklund, and Larsson (2009) have supported this line of argumentation, showing that covariance among the five factors is perhaps largely attributable to increased social

desirability among participants. However, Costa and McCrae (1992b) give more weight to their second explanation for the intercorrelations: traits simply are not discretely organized into individual domains, allowing for considerable overlap. Musek (2007) has criticized the FFM along these lines, calling into question the "orthogonal" nature of the five factors if procedures in factor analysis included oblique solutions.

CFA has also found itself the subject of attack, despite being viewed by many as the "gold standard" in internal structure evaluation (Hopwood & Donnellan 2010, p. 333). In the face of poor CFA solutions for the FFM, some researchers (Aluja et al., 2005; McCrae, Zonderman, Costa, Bond, & Paunonen, 1996) offer that artifact of simplistic models of CFA are responsible for the apparently better model fit of oblique vs. orthogonal rotation methods. Furthermore, McCrae, Zonderman, Costa, Bond, and Paunonen (1996, p. 563) have opined that there are "serious problems" in using confirmatory maximum likelihood analysis to evaluate personality structures "known to be reliable." McCrae et al. (1996) and Aluja et al. (2005) have emphasized further that as model complexity increases, the superiority of oblique models over orthogonal ones disappears. In this way, they argue that CFA studies that do not support the FFM utilize overly simplistic models. However, Aluja et al. (2005) have pointed out that in the case of McCrae et al.'s (1996) study, optimal Maximum Likelihood estimations criteria were not met, as the degrees of freedom exceeded the sample size. Critics of CFA also have drawn attention to the reliance on X^2 test of exact fit, as there are varying sentiments regarding its appropriateness in determining goodness of model fit (McCrae et al., 1996; Hopwood & Donnellan, 2010).

More broadly, a number of criticisms have been launched at the underlying approach to the FFM itself. Emphasis on the primacy of rotation was noted by Norman (1963) when

discussing the discrepancy in identified factors between Cattell (1947) and Tupes and Christal (1961). Similarly, variable selection strongly influences factor structure (Peabody & Goldberg, 1989). Based on such limitations, Block (1971) has argued for analysis and interpretation of individual items—rather than global factors—in the endeavor to understand a person psychologically. However, descriptive terms commonly used in describing personality often incorporate two of more factors, such as the circumplex models (Goldberg, 1992; John, 1989b; McCrae & John, 1992). Further, the cultural universality of the FFM model has been significantly challenged, as Gurven, von Rueden, Massenkoff, Kaplan, and Lero Vie (2013) did not find support for a five factor model of personality in two large Tsimane samples (N = 632, 430, respectively), a predominantly illiterate, indigenous society located in Bolivia.

In a related vein, Cloninger (1994) has criticized the FFM's neglect of the entire human lifespan, such as failing to include traits that capture the breadth of individual differences within childhood (c.f., persistence) and old age (c.f., self-transcendence). Similarly, Block (2010, p. 6) has condemned the model (among other reasons) for the fact that "it provides no empirical expectations regarding an infant's developmental course or its adaptive strengths or susceptibilities before becoming a literate late adolescent." More broadly, the use of factor analysis in general also has been criticized (Digman, 1990). Factor analysis is useful but highly dependent on researcher interpretation. The technique is as much dictated by mathematics as it is by researcher prefence, aka degrees of freedom (Block, 2010). It may be adequate for determining what might be understood as traits underlying personality, but it cannot elucidate the underlying causal reasons for why such characteristics are integral aspects of human experience, suggesting the need for extra-statistical methods

(Cloninger et al., 1993). Cloninger (1994) has noted that difficulties within the psychobiological identification of even the most longstanding personality traits, extraversion and neuroticism, could suggest that these factors are actually composites of multiple facets of temperament and character. He offers this explanation to account for seemingly comparative FFM dimensions (e.g., high neuroticism) within discrete personality categorical presentations (e.g., mature individuals with anxiety disorder vs. those with personality disorders who are impulsive).

Perhaps the most troubling critique for the FFM is that the "how" and "why" behind it has yet to be addressed, making the FFM theoretically weak (in fact, it remains atheoretical) despite robust empirical findings to support it (Block, 2010; Revelle, 1987). While proponents urge that the lexical hypothesis is seen as a theoretical basis for the FFM (McCrae & John, 1992), this only circumvents the dilemma temporarily, as the lexical hypothesis invites no coherent theory of personality. McCrae and John (1992, p. 188) refer to an "implicit personality theory…encoded in the personality language we all use." From an evolutionary perspective, it may be that changes in the adaptive value of certain personality traits has allowed for their heritability; conversely, "traits" may be little more than "noise" with little or no significance adaptively (Tooby & Cosmides, 1990). And yet, identification of these traits in others may serve to adaptively facilitate social interaction (Buss, 1991).

While the FFM seeks to do for the psychology of personality what the DSM sought to do for clinical diagnosis, it is far from a perfect model. However, the prospect of the FFM as the single most robust model of personality offers a "common language" for psychologists both in research and applied areas (McCrae & John, 1992). It is therefore no wonder that Costa and McCrae (1992a) have recommended conforming to a five factor solution—either

through direct orientation of their factors or through the use of easily identifiable markers—so as to streamline and make readily accessible trait data for all personality researchers. However, other trait models exist that do not conform to the "necessary and sufficient" five factors, and moreover incorporate a comprehensive theoretical structure of personality. Before exploring traits that may be instrumentally related to emotion differentiation, an exploration of one such model is valuable.

Alternative Models: Temperament and Character. The FFM emerged as an atheoretical conceptualization to account for normal personality within non-clinical samples, only later being applied to account for psychopathology. However, Cloninger (1986) developed a trait model of personality that could be viewed as opposite in almost every respect. He formed a clinically-based theory designed to account for personality. As his own thinking expanded, he incorporated theory and research to encapsulate clinical and non-clinical personality classifications. This is most clear in the expansion of his initial temperament traits to include traits of character (Cloninger et al., 1993).

***Cloninger's theory*.** Cloninger (1986, 1987; Cloninger et al., 1993) uses a comprehensive psychobiological model to explain personality that, at its heart, emphasizes the distinction and interaction between temperament and character. It is an epigenetic model (i.e., one that acknowledges the role of regulatory mechanisms of gene expression within human personality development), that attempts to integrate psychological theory with biological and psychometric research. Cloninger (1994; Cloninger et al., 1993) distinguishes character and temperament in several ways. Temperament can be viewed as nonconscious and automatic behavioral biases that are driven by perception. They tend to be heritable (50%), culturally and developmentally stable, habitual, and emotion-based. Character,

however, is thought by Cloninger to be concept-driven and tends to be much less heritable and more sensitive to the influences of society and culture. However, it should be noted that the neurobiological hypotheses of the model have not been supported meaningfully by research, including the heritability tendencies of temperament traits (Paris, 2005).

Cloninger (2004, 2008) asserts that character involves step-wise but non-linear progressions of maturity that build from learning and temperamental underpinnings. He proposes that this occurs primarily through insight, which he defines as "the apprehension of relationships" (Cloninger et al., 1993, p.978) which occurs through the organization of percepts using concepts. The act of using insight allows for the reorganization of experiential learning which can increase adaptive functioning. In other words, because personal identity is based on one's conceptual understanding of experiences and perceptions, changing the potency and prominence of certain stimuli can in turn alter unconscious and automatic behavioral biases (i.e., temperament).

Cloninger Svrakic, and Przybeck (1993) have put forth several hypotheses regarding the personality correlates to specific types of psychopathology. They view temperament as heavily contingent on neurobiology and genetics, asserting that these aspects of personality are the principal antecedents of neuroses. In contrast, character dysfunction is thought to be responsible for disorders of self, including personality disorders and psychosis. They also suggest that other types of psychopathology, such as addiction and eating disorders, seem to implicate both temperament and character. In short, while temperament and character are distinct within Cloninger's theory, both aspects of personality continue to assert their influence on the other in an epigenetic fashion (i.e., heritable behavioral biases ↔ response biases based on self-concepts).

Further, distinct brain systems are thought to be engaged with both temperament and character (Cloninger, 1994; Cloninger et al., 1993). In his theory, temperament is mostly concerned with procedural memory and learning, which focuses on pre-semantic percepts, emotion, habits, instincts, skills, and other associative learning. Such aspects can be found in most vertebrates. These traits are thought to be moderately heritable learning biases, emerging in early life and remaining predictive of later developmental behavior well into adulthood. In contrast, character is more focused on propositional memory and learning, with emphasis on concepts (especially abstract and symbolic ones), volition, insight, will, and cognition. Cloninger (1994; Cloninger et al., 1993) further suggests that the propositional memory and learning tied to character is evident in lesion studies focusing on several higher-order brain regions (e.g., the neocortex, hippocampal formation, entorhinal cortex, amygdala, medial thalamic nuclei, ventromedial prefrontal cortex, and the basal forebrain). He points to further lesion studies that contrast this with the cortico-striatal system (i.e., sensory corticol brain areas, caudate, and putamen) implicated in the procedural memory and learning thought to embody temperament. To empirically study his model, Cloninger has created several iterations of his personality assessment measure, currently called the Temperament and Character Inventory – Revised (TCI-R).

Development of the Temperament and Character Inventory. Cloninger's (1986, 1987) theory of personality initially began with only three traits, all of which were considered temperament: Harm Avoidance (anxiety proneness vs. outgoing vigor/risk-taking), Novelty Seeking (exploratory impulsiveness vs. stoic frugality), and Reward Dependence (social attachment vs. aloofness). Additional research, including large-scale twin studies (Heath et al., 1994; Stallings et al., 1995), soon added additional support for a fourth

temperament factor. Originally considered a subscale of Reward Dependence, Persistence has since emerged as a temperament trait that captures industry vs. underachievement.

The original three temperament dimensions were the basis of Cloninger's (1987) first personality assessment measure, the Tridimensional Personality Questionnaire (TPQ). The measure focused on capturing personality response styles toward novelty, punishment, and reward from a perspective that integrated neuroanatomical and genetic factors with adaptive responses to one's environment. Cloninger's initial theory of novelty seeking, harm avoidance, and reward dependence as basic traits to personality led to the construction of the TPQ to capture individual behavioral variation on each dimension. However, he also created the Tridimensional Interview of Personality Styles (TIPS; Cloninger, 1987) to capture variations of personality possible through the various combinations of his three basic dimensions of personality. The TIPS was used to explain eight stimulus-response categories of personality that closely correspond to clinical categories of personality disorder as well as six "second order" clusters of personality traits. The eight personality categories were antisocial (high NS, low HA, low RD), histrionic (high NS, low HA, high RD), passive-aggressive (high NS, high HA, high RD), explosive (high NS, high HA, low RD), obsessional (low NS, high HA, low RD), schizoid (low NS, low HA, low RD), cyclothymic (low NS, low HA, high RD), and passive-dependent (low NS, high HA, high RD). The second-order personality clusters included: (1) impulsive-aggressive (high NS, low HA) vs. rigid-patient (low NS, high HA), (2) hyperthymic (low NS, low HA) vs. hypothymic (high NS, high HA), (3) scrupulous-authoritarian (low NS, high RD) vs. opportunistic-libertarian (high NS, low RD), (4) narcissistic (high NS, low RD) vs. self-effacing (low NS, low RD),

(5) passive-avoidant (high HA, high RD) vs. oppositional (low HA, high RD), and (6) gullible-heroic (low HA, high RD) vs. alienated-cowardly (high HA, low RD).

Taken in concert, these first order and second order traits could be integrated to create eight third-order categories with heuristic value in the classification of personality disorders: antisocial (impulsive, opportunistic, oppositional), histrionic (impulsive, narcissistic, gullible), passive-aggressive (hypothymic, narcissistic, passive-avoidant), explosive (hypothymic, opportunistic, alienated), obsessional (rigid, self-effacing, alienated), schizoid (hyperthymic, self-effacing, oppositional), cyclothymic (hyperthymic, scrupulous, gullible), and passive-dependent (rigid, scrupulous, passive-avoidant). At this point in his theory's development, Cloninger (1987) suggested that while extremes in any of the temperament traits could be advantageous to the individual given appropriate circumstances, overall any extremes would be disadvantageous to typical day-to-day functioning. Therefore, equilibrium within each temperament trait was viewed as ideal for optimal adaptive functioning.

However, Cloninger (1993) eventually added the additional, aforementioned fourth temperament trait. Persistence was originally thought to be a component of Reward Dependence, but has since emerged within his model as a discrete trait in its own right (Heath, Cloninger, & Martin, 1994; Stallings, Hewitt, Cloninger, Heath, & Eaves, 1996). The trait represents perseverance in the face of obstacles (e.g., frustration, fatigue) and it is thought to moderate self-control and to play a part in emotion regulation (Cloninger, Svrakic, & Svrakic, 1997). Persistence is different from the other temperament traits in that it modulates the relationship of temperament to goal-directed behavior. In other words, "Persistence serves as a modulator between intentions and drives, holding representations of goals and values in memory while delaying responses to affective stimuli so that person can

make choices that take into account both past conditioning and expectations about future outcomes" (Cloninger, Zohar, Hirschmann, & Dahan, 2011, p. 764). High Persistence in adults 40 and older has been shown to be associated with increased emotions overall (Cloninger, Zohar, Hirschmann, & Dahan, 2011). While Persistence seems to serve a protective function from mood disorders through the influx of positive emotions, the corresponding increase in negative emotions increases the likelihood of anxiety disorders, suggesting Persistence may function as a uniquely discriminant trait in differentiating anxiety from mood disorders. However, this trend towards anxiety in highly persistent individuals appears to vanish when Harm-Avoidance and Self-Directedness are low (or, when all three character traits are high, although this is rarer; see Cloninger & Zohar, 2011). Ultimately, like the other temperament traits, Persistence is not conceptualized as either "good" nor "bad," with extremes displaying both strengths (e.g., achievement-oriented) and weaknesses (e.g., anxious). Table 3 presents each of the four temperament traits, including descriptors for high vs. low trait charcteristics.

Table 3

Descriptors of Cloninger's Temperament Traits

Harm Avoidance	
Inhibition or cessation of behavior in response to punishment or lack of reward	
High: ruminative, pessimistic, shy, passive, avoidant, fearful, easily fatigued	*Low*: energetic, optimistic, courageous, confident, tolerant of ambiguity, imprudent toward danger
Novelty Seeking	
Activation or initiation of behaviors toward novelty, reward, and punishment	
High: impulsive, pleasure-seeking, exploratory, boredom-prone, intolerant of frustration, easy to anger, fickle, extravagant	*Low*: frugal, reflective, stoic, reserved, systematic, rule-oriented, uninquiring, monotonous, unenthusiastic, rigid
Reward Dependence	
Continuation of behavior toward social reward	
High: Sentimental, socially sensitive, attachment-prone, approval-seeking, tender-hearted, socially dependent, sociable, unobjective, suggestible	Low: practical, tough-minded, cold, socially insensitive, irresolute, indifferent, independent, socially withdrawn, interpersonally cold, critical
Persistence	
Maintenance of behavior in spite of frustration, fatigue, and irregular reinforcement	
High: ambitious, industrious, tenacious, determined, perfectionistic, hard-working, perseverant, over-achieving, indomitable, eager	Low: indolent, inactive, unstable, erratic, low frustration tolerance, apathetic, relinquishing, emotionally labile, pragmatic

Note: All temperament traits are considered to be heritable biases. Definitions and descriptors adapted from http://psychobiology.wustl.edu/what-does-the-tci-measure/

Drawing upon humanistic and transpersonal schools of thought, as well as social and cognitive development, Cloninger expanded his temperament-based model to include character dimensions in his revision of the TPQ, the Temperament and Character Inventory (TCI; Cloninger et al., 1993). The measure included the original three temperament factors of the TPQ (Harm Avoidance, Novelty Seeking, and Reward Dependence), the additional temperament factor Persistence that was originally viewed as a component of the original three (specifically Reward Dependence), and three new character traits: Self-Directedness, Cooperativeness, and Self-Transcendence. Each of the character traits are described in detail

below based on Cloninger's evolving theory (Cloninger, 1987; Cloninger et al., 1993; Cloninger et al., 1997):

Self-Directedness. The first of the character traits, Self-Directedness is understood by Cloninger as one's sense of autonomy. It is a developmental process associated with will and independence and capacity for self-regulation and goal-directed behavior. It represents intentionality and adaptability when faced with changing situations, imparting the concept of individual responsibility to human behavior. This trait includes the ability to delay gratification and to construct meaning and purpose in one's own life, and the ability to volitionally control and manipulate one's own behavior in line with personal aspirations and goals. High Self-Directedness reflects maturity, resourcefulness, responsibility, effective behavior management of one's environment, and a willingness to take initiative. A person with a high degree of Self-Directedness also tends to have well-developed self-esteem, a sense of self-acceptance, and belief that they have a strong mastery of their own environment. Low Self-Directedness describes those who feel inadequate about themselves, diffuse personal responsibility to others and outside causes, and who are generally immature, vain, and apathetic. Identity is likely poorly formed or undifferentiated and there is expected to be a propensity for highly reactionary behavior. Furthermore, whereas high Self-Directedness reflects a general synchrony between one's goals and own automatic behaviors, low Self-Directedness indicates a basic distrust and lack of confidence in oneself. Of particular note is the fact that this trait correlates very strongly with personality disorder, above and beyond all other personality factors of the model (Svrakic et al., Przybeck, & Cloninger, 1993; Daneluzzo, Paolo, & Rossi, 2005; Basoglu et al., 2011).

Cooperativeness. The second character trait, this represents one's sense of belonging with society and humanity. High Cooperativeness is reflective of agreeability, tolerance and kindness towards others, helpfulness, empathy, and a problem-solving approach that favors mutually beneficial solutions with others. Conversely, low Cooperativeness is indicative of self-centeredness, hostility, and revengefulness. Individuals low in the Cooperativeness dimension are inclined to be opportunistic and have little interest in and tolerance for others, even viewing them as alien. Cooperativeness is thought to correspond with Kohlberg's (1958, 1969, 1971) ideas of well-developed moral character. Cooperativeness also has been shown to be a strong predictor of personality disorder. Studies have demonstrated that all personality disorders appear to be associated with low Cooperativeness (Svrakic et al., 1993; Daneluzzo, Paolo, & Rossi, 2005; Basoglu et al., 2011).

Self-Transcendence. The final character trait of Cloninger's model is also the most esoteric. It is believed to represent one's sense of communion with the universe. Self-Transcendence is defined as, "identification with everything conceived as essential and consequential parts of a unified whole…acceptance, identification, or spiritual union with nature and its source" (Cloninger et al., 1993, p. 981). It is a sense of one's evolutionary place within the universe. Self-actualization, unitive consciousness, communion with nature, stable self-forgetfulness (i.e., absorption and identification with that which is beyond one's experience of self), intuition, tolerance for the unknown—these are all thought to embody elevations on this dimension. In contrast, a person who is low in Self-Transcendence might be viewed as possessive, controlling, concrete, sense-driven, materialistic, and pragmatic.

Cloninger's model appears to have benefitted greatly from the expansion of character traits, particularly with regard to its descriptive and explanatory power towards personality

disorders. Specifically, low scores on the Self-Directedness and Cooperativeness dimensions seem to be indicative of pathological personality organization (Daneluzzo, Paolo, & Rossi, 2005; Basoglu et al., 2011; Cloninger et al., 1993). These character traits are determining factors of character pathology, influencing the qualitative expression of fixed temperament determinants. For instance, mature character development can mean the difference between a histrionic organization (high NS, low HA, high RD) and a passionate one (Cloninger et al., 1997). In addition to theorietcal changes, the TCI construction also has evolved. Originally only true and false, the TCI was revised (TCI-R; Cloninger, Svrakic, Bayon, & Przybeck, 1999) to include a five-point Likert scale to improve scale reliabilities. Table 4 provides the organizations of TCI-R subscales.

Table 4

TCI-R Scales and Subscales

Temperament				Character		
Novelty Seeking	Harm Avoidance	Reward Dependence	Persistence	Self-Directedness	Cooperativeness	Self-Transcendence*
NS1 Exploratory Excitability	HA1 Anticipatory Worry	RD1 Sentimentality	PS1 Eagerness of Effort	SD1 Responsibility	C1 Social Acceptance	ST1 Self-Forgetful
NS2 Impulsiveness	HA2 Fear of Uncertainty	RD2 Openness to Warm Communication	PS2 Work Hardened	SD2 Purposeful	C2 Empathy	ST2 Transpersonal Identification
NS3 Extravagance	HA3 Shyness	RD3 Attachment	PS3 Ambitious	SD3 Resourcefulness	C3 Helpfulness	ST3 Spiritual Acceptance
NS4 Disorderliness	HA4 Fatigability	RD4 Dependence	PS4 Perfectionist	SD4 Self-Acceptance	C4 Compassion	*
				SD5 Enlightened Second Nature	C5 Pure-hearted Conscience	*

Note. *Some revisions of the test include an alternative subscale structure for Self-Transcendence: ST1: Self-Forgetfulness vs. Self-Conscious Experience, ST2: Transpersonal Identification vs. Self-Isolation, ST3: Spiritual Acceptance vs. Rational Materialism, ST4: Enlightened vs. Objective, and ST5: Idealistic vs. Practical. An alternative five-subscale model of Self-Transcendence has also been proposed (See MacDonald & Holland, 2002b).

Cloninger and Zohar (2011) have found several associations among the three character traits, subjective well-being (i.e., perceived health, social support, and life-satisfaction), and happiness (i.e., the difference between positive and negative emotion self-

reports). All measures of subjective well-being demonstrated strong associations with Self-Directedness. Results for Cooperativeness produced a more complex picture. While it was shown to be strongly associated with perceived social support, the other aspects of well-being that were measured had only weak associations with Cooperativeness, most notably when Self-Directedness was also low. No significant associations were found between Self-Transcendence and measures of subjective well-being. Self-Transcendence, when taken in context with the other two character dimensions, had strong associations with positive affect, while having no significant effect on the reduction of negative emotions.

The TCI-R has been shown to have reliability in the diagnosis of personality disorders on par with clinician evaluations (Jylhä et al., 2013). However, this same study found mixed support for the TCI-R's predictive ability to detect personality disorders in a sample of mood disorder research cohorts. They replicated previous findings consistently showing the link between personality disorder and low scores on Self-Directedness and Cooperativeness. Furthermore, higher scores in Self-Transcendence corresponded to schizotypal personality disorder and symptoms of borderline personality disorder. However, Jylhä and colleagues also found that the TCI-R temperament traits lacked adequate sensitivity to identify specific personality disorder types, as originally suggested by Cloninger (1987, 2000; Cloninger et al., 1993; Svrakic, Whitehead, Przybeck, & Cloninger, 1993).

This question—whether or not Cloninger's measure can predictably identify personality disorder types—is rather important, as such claims have been cited to justify its use as a clinical instrument and/or screening tool (Svrakic et al., 1993). By comparison, Neuroticism in the NEO contains widely heterogeneous facets (such as Anxiety, Depression,

and Impulsivity) that have led to questions about this factor's construct validity (Ben-Porath & Waller, 1992). In a study comparing the predictive power of the TCI over the NEO in the prediction of personality disorders (Svrakic et al., 1993), Neuroticism was found to have significant associations with low Self-Directedness, high Harm Avoidance, and (to a lesser extent) low Cooperativeness. Svrakic, Przybeck, and Cloninger (1993) have replicated the findings on the association between general personality pathology and low scores in Self-Directedness and Cooperativeness, while at the same time noting basic cluster trends among three temperament traits. These temperament cluster trends correspond to the loosely organized clusters of personality disorders: cluster A (odd, eccentric), cluster B (dramatic, emotional), and cluster C (anxious, fearful). Specifically, associations were found between low Reward Dependence and cluster A symptoms, high Novelty Seeking and cluster B symptoms, and high Harm Avoidance and cluster C symptoms.

Criticisms of Cloninger's Model. As with the FFM and the NEO PI-R, both Cloninger's theory and inventory have been challenged in a number of areas. Gana and Trouillet (2003) have argued for the importance of establishing the TCI's factorial validity given its aspirations as a clinical measure. Even more than the NEO, the TCI-R has experienced considerable difficulty withstanding scrutiny through factor analytic methods. García, Aluja, García, Escorial, and Blanch (2012) found that the TCI-R had a mean reliability coefficient of only .67, and they found little support for Cloninger's distinction between temperament and character traits. Although seven factors were extracted, the factor loadings of the various subscales did not correspond to their intended factors. In particular, this rendered two of the factors uninterpretable, suggesting that the TCI-R has poor

discriminant validity. It was also noted that Harm Avoidance and Cooperativeness appeared to be extremes on the continuum of Neuroticism within the FFM.

Farmer and Goldberg (2008a, 2008b) have leveled considerable criticism at Cloninger's theory and personality measures, including the TCI-R and its abbreviated form, the TCI-140. For instance, using both CFA and EFA they could not replicate the proposed associations between facets and domains in a large community sample (N = 727). Difficulties appeared in discriminating between Harm Avoidance and Self-Directedness, as well as Conscientiousness and Reward Dependence. Furthermore, they pointed-out that many of the basic assumptions of Cloninger's model have received only marginal support at best. Citing previous genetic and environment work on Cloninger's model, (see Gillespie, Cloninger, Heath, & Martin, 2003), they have noted that there appears to be no significant differences in the heritability of temperament or character traits, and that familial aggregation of the three character traits are not attributable to shared environment. This is in line with prior criticism (Gana & Trouillet, 2003) that Cloninger has used polemical argument to support the genetic basis of his theory of personality.

Furthermore, Farmer and Goldberg (2008a) have highlighted the mixed support for Cloninger's (1987) claims that extremes in temperament have distinct neurochemical correlates, further emphasizing that character traits have predicted outcomes with certain antidepressants (see Sato et al., 1999). Also questionable are Cloninger's (1987; Cloninger & Gilligan, 1987) hypotheses about the stimulus-response characteristics to one's environment that he ascribes to temperament traits, and the sequential nature of temperament development followed by character traits (Farmer & Goldberg, 2008a; see also Farmer, Whitehead, & Woolcock, 2007 and Constantino, Cloninger, Clarke, Hashemi, & Przybeck,

2002). Lastly, Farmer and Goldberg (2008b) have criticized Cloninger's (2008) inconsistent attribution that his model conforms to nonlinear dynamics and several untestable aspects of his personality theory (e.g., "planes of being").

Such criticisms illustrate that while the TCI-R may have a stronger theoretical foundation than the FFM, its psychometric properties are far from superior to those of more established measures, such as the NEO. To reconcile theoretical and data-driven incongruencies, Mulaik (1987) has stressed the need for follow-up, confirmatory approaches to test psychometric models following successful EFA. From this position, the fact that both respective factor structures of the NEO or the TCI are not supported by CFA is highly problematic. Nevertheless, Gana and Trouillet (2003) have summarized what they see as the three basic strengths of Cloninger's model as follows: (1) It demonstrates (predominately) adequate content validity, as represented by its basic construct of personality; (2) it demonstrates predictive validity in terms of DSM diagnoses; and (3) there are psychometric findings supporting its design. Furthermore, both Self-Transcendence and, to a lesser degree, Self-Directedness have been found to be relatively unique dimensions when compared to other personality models (García, Aluja, García, Escorial, & Blanch, 2012). This could suggest a rather large oversight in many models of personality, particularly when considering the predictive power Self-Directedness holds with personality disorders. Still, there are apparent areas of convergence with both the FFM and Cloninger's model of temperament and character.

Relations between the NEO PI-R and TCI-R. Research examining the empirical relation between the FFM as measured by Costa and McCrae's NEO and Cloninger's seven factor model has produced some evidence of consistency, as well as notable differences.

Svrakic, Whitehead, Przybeck, and Cloninger (1993) examined the utility of both models in differential diagnosis of personality disorders using unpublished data on the NEO PI and TCI. They found strong multiple correlations (R = .63-83) between the five dimensions of the NEO and the traits of the TCI, with the exception of the temperament trait Persistence (R= .36) and character trait Self-Transcendence (R= .30). While not equivalent, a later study by De Fruyt, Van De Wiele, and Van Heeringen (2000) observed commonality in all dimensions of both the TCI and NEO PI-R through bivariate correlations and a series of regression analyses. TCI dimension scores correlated significantly with one or more of the NEO factors (r = .40 or higher). Similarly, the TCI dimensions were predictive of NEO PI-R domain scores (R^2 = .29-.55) and vice versa (R^2= .23-.51).

While MacDonald and Holland (2002a) replicated many of these findings, there were notable differences observed as well. These included findings of convergence for five of the seven traits for Cloninger's model: Harm Avoidance (positive with Neuroticism, negative with Extraversion), Self-Directedness (positive with Conscientiousness and negative with Neuroticism), Cooperativeness (positive with Agreeableness), Persistence (positive with Conscientiousness), and Self-Transcendence (positive with Openness to Experience). However, MacDonald and Holland (2002a) found somewhat divergent findings than De Fruyt et al. (2000) for Novelty Seeking and Reward Dependence. While Novelty Seeking was associated with Conscientiousness, the relation with Neuroticism was much weaker. Similarly, Reward Dependence was not found to be associated with Openness to Experience, despite its significant relation with Extraversion and Agreeableness.

Potential Personality Markers of Moral Judgment and Emotion Differentiation

There is clearly shared variance among both models of personality. Still, the underlying dimensions of each are far from interchangeable and suggest rather different underlying assumptions about the constituent elements of personality. Similarly both the FFM and the seven factor model appear to have their fair share of advantages and shortcomings. This should, perhaps, be expected. After all, traits are abstract approximations and averages of an individual's behavior, response biases, and typical state of being (Cloninger, 2004). And yet for research purposes—at least at this time—they appear to be our best method for the quantitative measurement and observation of personality. As stated by McAdams (2009, p. 13), "A considerable body of research speaks to the longitudinal continuity of dispositional traits, their substantial heritability, and their ability to predict important life outcomes." With this in mind, there is potential value in examining personality traits that might be implicated in moral judgment.

Unfortunately, research on personality and moral judgment has been scarce. Dollinger and LaMartina (1998) examined the extent to which factors on the NEO predicted responses on Rest's (1979b) Defining Issues Test (DIT), a measure that was initially based on Kohlberg's model of moral development. They found that Openness to Experience served as the best predictor of post-conventional moral judgments, although this decreased somewhat when intellectual ability was taken into account. McAdams (2009), summarizing the state of research in the area, concludes that whereas agreeableness and conscientiousness are associated with the "moral personality" (as predictors of pro-social behavior), principled moral reasoning seems to be predicted best by openness to experience.

However, some research has been done on the relation among personality, moral judgment, and emotional processes. Athota, O'Connor, and Jackson (2009) conducted a study that showed emotional processes (i.e., emotional intelligence) as predictors for FFM personality traits which, in turn, predicted moral reasoning. These traits included neuroticism, openness to experience, and especially agreeableness (β = .17, .23, and .40, respectively), the latter of which could be attributed to its incorporation of empathy and general cooperation with others. However, emotional processes were studied using a self-report emotional intelligence measure; studies on emotional intelligence remain highly contentious for a variety of reasons, including the extent to which the construct contributes incrementally to already existing constructs like general intelligence and personality (Harms & Credé, 2010).

As mentioned previously, intuitive functions appear to be strongly implicated in moral judgment and reasoning. Further, emotion appears to, at the very least, serve as a moderator to moral judgment, with emotion differentiation having been shown to mitigate emotional biases to moral judgment. The available research also intimates that personality traits, such as alexithymia or openness to experience, may serve a role in moral judgment and the processing of emotional experience. However, there have been no robust findings in this area as of yet. Openness to experience has emerged as a potential personality marker of moral and emotional processes. Closer examination of this and other personality traits elucidates further the possible role personality traits may serve in the prediction of adaptive emotional processes associated in moral judgment (i.e., emotion differentiation).

Openness to experience as a marker for emotion differentiation. No other factor of the FFM is perhaps as contentious and hotly debated as Openness to Experience (Costa &

McCrae, 1992a). The factor has been conceptualized as “Culture” (Tupes and Christal, 1961; Norman, 1963) and “Intellect” (Goldberg, 1990). While relating Openness to Experience to intellect runs the risk of inappropriately confounding it with intelligence (Costa & McCrae, 1992a), there is little doubt that this factor involves divergent thinking and creativity (McCrae, 1987). Openness to experience is thought to involve such things as “imaginative daydreaming, artistic sensitivity, awareness and appreciation of emotional responses, willingness to try new activities, intellectual curiosity, and a flexible approach to moral and social values” (Roche & McConkey, 1990, p. 91; McCrae & Costa, 1983). However, MacDonald, Holland, and Holland (2005) have reviewed the various meanings attributed to the construct of “openness to experience.” They explain that the concept in the FFM perhaps is best understood as more volitional “cognitive non-commitment” or “acceptance of diversity” rather than other definitions of the concept that imply transliminality or the self-regulation of content within one’s conscious awareness. Additionally, openness to experience does not find as widespread representation among trait adjectives, with those lexical descriptors available (e.g., curious, inquisitive, etc.) really capturing only its cognitive aspects (McCrae, 1990). Incidentally, this provides the rationale to some for referring to this trait domain as Intellect (Costa & McCrae, 1992a).

Nevertheless, openness to experience has been shown to be correlated with higher ego states (i.e., greater levels of “complexity and sophistication in the organization of experience”; McCrae & Costa, 1980, p. 1180). Multiple regression analysis with a non-clinical population has shown that openness to experience scores are predictive of self-reported psychological mindedness, above and beyond the predictive power of both neuroticism and extraversion (Beitel & Cecero, 2003). Openness to experience also has been

positively associated with adaptability on cognitive tasks (Le Pine et al., 2000). Along this same line, Fiori and Antonakis (2012) have pointed-out that more open individuals tend to process information more quickly, just as more intelligent individuals do. They also suggest that individuals higher in openness are more cognitively flexible and proficient in adjusting decision strategies. Their study on selective attention and emotional stimuli concluded that, "openness predicted faster answers; these factors may facilitate information processing when dealing with emotional stimuli, especially in tasks that require ignoring distracting emotion information (p. 252)."

Furthermore, Watson and Slack (1993) found that some Openness facets (Fantasy, Aesthetics, and Feelings) were positively correlated with the Dissociative Experiences Scale (DES), although some research has not yielded this association (Groth-Marnat & Jeffs, 2002; Kwapil, Wrobel, & Pope, 2002). Self-Transcendence also has been shown to be a strong predictor of high scores on the DES (Grabe, Spitzer, & Freyberger, 1999). TCI Self-Transcendence is correlated with NEO PI-R Openness to Experience (r =.41, $p < 0.001$) and, to a lesser extent, Extraversion (r =.24-.25, $p < .001$; MacDonald & Holland, 2002a; De Fruyt et al., 2000). Despite the relation between Openness to Experience and Self-Transcendence, studies examining the NEO PI-R and TCI-R have shown that predictions from one model to the other regularly involve two or more traits, a trend that should discourage any assumptions of one-to-one correspond among traits from the two models (MacDonald & Holland, 2002a).

Perhaps most promising, the LEAS has been shown to have some associations with the construct of Openness to Experience. Lane et al. (1990) used the Openness to Experience Inventory (Coan, 1972) to test convergent validity with the LEAS, finding that the two

measures were significantly associated with one another (r[38] = .33, p <.05). However, closer examination showed that the only significant subscale association with the LEAS was with Values (r = .37, p < .05). In contrast, Ciarrochi, Caputi, and Mayer (2003) used only the Feelings facet of the Openness to Experience Scale of the NEO PI-R and nevertheless found that it had a significant positive association with the LEAS [r(87) = .29, p < .01). Regardless, it has yet to be seen how this association may be altered when the LEAS is used specifically as a measure to assess emotion differentiation (e.g., Cameron et al., 2013).

Self-Transcendence as a marker for emotion differentiation. After creating seven personality traits, Cloninger incorporated them into a complex hierarchical architecture of subsystems based on evolutionary need. Specifically, Cloninger's (2004, 2008) theory of personality includes five "planes of being" that concern adaptation to sexuality/reproduction (Sexual Plane), concepts of power and possessions that are commonplace in daily activities (Material Plane), emotional/social attachments (Emotional Plane), communication and culture (Intellectual Plane), and conceptualizations beyond human existence (Spiritual Plane). Cloninger conceptualizes these planes as evolutionarily hierarchical, while the aforementioned character traits are considered rational processes in this model that aid in adaptation in each plane of being.

Whereas Self-Directedness is suspected to measure executive functions of foresight, Cooperativeness is thought to quantify legislative functions of judgment. Cloninger (2008, p. 294) explains that, "Self-Transcendence measures the judicial function of depth of insight that allows us to know intuitively when our legislative rules apply in a particular situation." Based on this assumption, Cloninger (2004) posits that those low in Self-Transcendence tend to somaticize and display distinict personality traits such as alexithymia and

hysterical/repressive personality organization. Cloninger's definition of Self-Transcendence is therefore similar in ways to the construct of emotional intelligence (cf. Salovey & Mayer, 1995, p. 5).

García, Aluja, García, Escorial, and Blanch (2012) have acknowledged the uniqueness of Self-Transcendence, as it does not directly correspond to any of their alternative five factors. For this reason, they have also questioned its inclusion as a personality factor, per se. More likely, this criticism may be attributed to the notion that Self-Transcendence serves as a representation of human spirituality, a construct that tends to be portrayed in much psychological research as a metaphorical allergen. And yet, the FFM has been criticized for its predictive shortcomings in lieu of scales measuring spirituality as an aspect of personality (Piedmont, 2001).

That is not to say that Self-Transcendence, as measured by Cloninger, is a flawless personality construct. MacDonald and Holland (2002b) have drawn attention to potential problems with this trait, such as its poor factor structure and evidence suggesting that its expression is at least somewhat biologically and/or genetically influenced. Additionally, the clinical significance of Self-Transcendence remains unclear. It is possible that this trait has as of yet unseen implication to study of emotion differentiation and moral judgment.

Purpose of the Study

Currently, the field of moral psychology is grappling with the role that cognitive and affective processes play in moral reasoning and judgment. Since Kohlberg's (1958, 1969) work on moral development, it appears clear that rational processes alone cannot adequately account for moral judgment. While modern theories of moral reasoning recognize this, such as the social intuitionist (Haidt, 2001) and dual process models (Greene, 2007a; Greene et al.,

2001, 2004; Paxton & Greene, 2010) there is disagreement as to the degree of influence that intuition and emotion play in moral judgments. This, perhaps, is to be expected, as emotional experience remains the least understood aspect of emotional phenomena (Kang & Shaver, 2004). While personality organization incorporates the experience of affect (Malatesta, 1990, Pervin, 1993; Watson & Clark, 1992), research examining the role of personality traits in moral judgments has been rather sparse (Athota et al., 2009; Dollinger & LaMartina, 1998), with available literature suggesting that Openness is the best predictor of "principled" moral reasoning (McAdams, 2009).

Given Cloninger's (2004, 2008) understanding of affective experiences underlying Self-Transcendence (e.g., low Self-Transcendence corresponding to alexithymia), it stands to reason that this trait may be influential in the process of formulating moral judgments. This line of reasoning is reinforced substantially by recent work (Cameron et al., 2013) that suggests that moral judgment differences exist in individuals capable of differentiating between incidental and integral emotions. High self-transcendence is thought to be associated with intuition, imagination, unconventional/divergent thinking, and those who have increased faculties in ascribing "unusual meanings and imaginative connections to experiences" (Bayon, Hill, Svrakic, Przybeck, & Cloninger, 1996, p. 350). Therefore, it is worthwhile to consider undertaking a study that could evaluate whether or not Self-Transcendence predicts emotion differentiation, as previous findings show emotion differentiation as an important factor in the act of rendering a moral judgment (Cameron et al., 2013).

While the FFM is still the more accepted model of personality, popular opinion is not the basis of thorough and rigorous science. Cloninger's theory-driven model thus far has offered distinct predictive advantages, especially with its character traits. And yet, even

though the FFM is not theory-driven, openness to experience has been shown to be predicted by emotional functions (i.e., emotional intelligence), and in turn predict moral judgment (Athota et al., 2009). Additionally, Openness to Experience has been shown to be predictive in moral judgment tasks (Dollinger & LaMartina, 1998), correspond to higher ego states (McCrae & Costa, 1980), and predict higher levels of psychological mindedness (Beitel & Cecero, 2003). Therefore, it serves as a potential marker for emotion differentiation as well. The primary aim of the present study therefore is focused on the relation of emotion to moral decision making as influenced by two personality traits: Self-Transcendence and Openness to Experience.

Potential Moderators and Control Variables of the Relation of Personality, Emotion Differentiation, and Moral Decision Making

Given the aim of the present study, there are a number of tertiary variables that deserve attention. First, individual mood state was treated as a moderator variable, as emotions (e.g., incidental disgust) clearly have been shown to influence moral judgment. In fact, individual emotional complexity appears to be negatively influenced by neuroticism and greater perceived global and daily stress (Ong & Bergeman, 2003). Furthermore, while this study focuses on personality traits that may be closely related to emotion differentiation, other personality traits have been assumed to be implicated with moral judgments in general (e.g., Agreeableness, Neuroticism, Cooperativeness). Higher scores on TCI Cooperativeness are believed to be associated with advanced perspectives in moral reasoning, in line with Kohlberg's stage theory of moral development (Cloninger et al., 1993). Therefore, cooperativeness was taken into consideration as a control variable that should be associated with moral judgment irrespective of emotion differentiation. In addition to mood and

Cooperativeness, there are several variables that deserved special attention and consideration for this study.

Empathy. Spirituality (and by extension, likely aspects measured in ST) has been found to be linked with altruism and empathy (Huber & MacDonald, 2012; Koenig et al., 2007; Saroglou et al., 2005; Batson et al., 2004). Empathy has been described as "prosocial emotion that includes awareness of another's suffering and affective participation in the other's feelings" (Huber & MacDonald, 2012, p. 210). It is unsurprising, then, that it has been found to be associated with moral judgments. For example, Conway and Gawronski (2013) found that empathic concern (along with religiosity and perspective-taking) was associated with deontological tendencies. Relatedly, deontological inclinations can be induced with serotonin in individuals scoring high in trait empathy (Crockett, Clark, Hauser, & Robbins, 2010), presumably due to increased averseness in allowing harm to others (Friesdorf et al., 2015). Individuals who favor utilitarian responses also have been shown to score lower on measures of empathic concern (Gleichgerrcht & Young, 2013). However, moral reasoning should not be considered equivalent with empathy. Decety and Cowell (2014) have made a compelling argument for this. They have noted that while there are many over-lapping brain systems employed in both moral and empathic functions, such regions of the brain are not specific to either. For instance, one such region, the ventromedial prefrontal cortex, has an evolutionary history of being strongly implicated in caregiving behavior that can override other moral decisions.

Further complicating matters is the conceptualization of empathy, which varies considerably. Batson (2009) has listed as many as eight phenomena that have been described as empathy, ranging from speculation on another's thoughts and feelings to feeling another's

distress and more. The neurological underpinnings of empathy appear to involve several distinguishable facets, including emotion contagion (i.e., "affective resonance," or arousal from another's emotions), empathic concern (i.e., invested interest in the well-being of others), and cognitive empathy, which is akin to "affective perspective-taking" (Decety & Cowell, 2014, p. 337; Decety & Svetlova, 2012). Empathy appears to be a highly variable phenomena that is influenced by a number of internal and external factors (Decety & Svetlova, 2012; Singer & Lamm, 2009). Lamm, Batson, and Decety (2007) have demonstrated that empathy is dictated by both bottom-up and top-down processes. Developmentally, degree of self and other awareness in early childhood also has been associated with stronger empathic behaviors (Johnson, 1982; Nichols, Svetlova, & Brownell, 2009). Ciarrochi et al. (2003) also have found that higher empathy scores have a significant positive correlation with the LEAS [r (87) =.23, p<.05]. These findings could suggest an association between emotion differentiation and empathy, as well as ST and empathy.

Empathy appears to serve a unique role in moral judgment as well, although its specific function is far from clear at this point. Gleichgerrcht and Young (2013) have observed demographic variables (i.e., age, gender, education, religiosity, moral knowledge) to be unrelated to measures of moral judgment, in contrast to empathic concern which uniquely predicts utilitarian judgments. Interestingly, and in contrast with Conway and Gawronski's (2013) finding that perspective-taking was associated with deontological inclinations, perspective-taking also does not appear to predict moral judgments, as those with preferences for utilitarian decisions showed no significant differences with those inclined to deontological decisions (Gleichgerrcht & Young, 2013). Given these findings, empathy's importance warranted its treatment as a moderator for the relationship between

personality and moral judgment as well as the relationship between emotion differentiation and moral judgment.

Executive Function. Consistent with the dual-process theory of moral judgment, studies that have manipulated cognitive load in participants have shown impaired reaction time for (Greene et al., 2008) and reduction of utilitarian decisions (Conway & Gawronski, 2013). Similarly, utilitarian decisions appear to diminish under time pressure, implicating cognitive control in moral judgments (Suter & Hertwig, 2011). Greater working memory capacity also has been associated with greater use of utilitarian moral judgment (Moore, Clark, & Kane, 2008). Additionally, empathy has been found to have a strong positive association with effortful control (Rothbart, Ahadi, & Hershey, 1994), a temperament factor that has been shown to heavily overlap with executive functions as it "encompasses the abilities to focus attention and to activate and inhibit behavior when necessary" (Bridgett, Oddi, Laake, Murdock, & Bachmann, 2013, p. 48).

Taken together, these findings imply a role for executive functions (Diamond, 2013) in both moral judgment and empathy. Furthermore, there is a robust finding that successful emotion regulation is predicted in part by executive function strength (Schmeichel & Tang, 2015). For instance, the experience of negative affect may be regulated in part by executive functions (Bridgett et al., 2006) possibly signifying that they serve a similar role to emotion differentiation in the rendering of moral judgments. Consistent with this theory, Hinnat, Nelson, O'Brien, Keane, and Calkins (2013) found that higher scores on a measure of moral reasoning were associated with higher executive functions in children; conversely, children with lower scores on these same measures were found to have lower executive function and lower proficiency in emotion regulation.

Intelligence. Executive functions and intelligence appear to be related, albeit distinct, constructs (Ardila, Pineda, & Rosselli, 2000; Friedman, Miyake, Corley, Young, Defries, & Hewitt, 2006; Unsworth, Miller, Lakey, Young, Meeks, & Campbell, 2009). Strong positive correlations exist between measures of fluid intelligence and executive function (Diamond, 2013; Unsworth et al., 2009). While intelligence does not seem to be related to all factors underlying executive function (e.g., shifting, inhibiting), intelligence (general, fluid, and crystalized) has been shown to share 35-48% of the variance with updating (Duan, Wei, Wang, & Shi, 2010; Friedman et al., 2006).

Intelligence also appeared to be implicated in this study beyond executive function. Moral reasoning, at least as measured by the Defining Issues Test, is moderately to strongly associated with—but likely not synonymous with—higher intellectual ability (Crowson, Debacker, & Thoma, 2007; Derryberry, Wilson, Snyder, Norman, & Barger, 2005; Narvaez, 1993; Rest, 1979a; Sanders, Lubinski, & Benbow, 1995; Thoma, Narvaez, Rest, & Derryberry, 1999; Tirri & Pehkonen, 2002). Intelligence was therefore treated as a covariate and control variable given its apparent relation to executive function, moral judgment, and, possibly, emotion differentiation. For instance, significant positive associations [$r(107) = .27$, $p < .01$] have been found between scores of verbal intelligence measures and the LEAS (Ciarrochi et al., 2003). Still, the strength and stability of this association is unclear; however, it does not account for gender differences on the LEAS (Feldman Barrett et al., 2000).

Gender. Of particular note as a moderator is gender. As with moral judgment and affective functioning, gender has been shown to be implicated in personality. Costa, Terraccianco, and McCrae (2001) found modest and replicable gender differences on the NEO PI-R across 26 different cultures that were consistent with gender stereotypes. Broadly,

women appeared to have increased neuroticism and were more likely to be submissive, nurturing, and feeling-oriented. Interestingly, they further noted that these differences were less intense in collectivist cultures than in individualistic ones, such as Western societies. Costa et al. (2001) have suggested that the most plausible explanation for this is perhaps that collectivist cultures view such behavioral differences in terms of sex roles, whereas individualistic cultures attribute these differences to endogenous traits within the individual.

Gender differences also have been observed with Cloninger's temperament and Character traits. Women seem to score higher than men on Cooperativeness and in the spiritual acceptance area of Self-Transcendence (Cloninger et al., 1993). Women have been shown to score higher on Harm-Avoidance, Reward Dependence (Brändström, Richter, & Przybeck, 2001; Miettunen, Veijola, Lauronen, Kantojärvi, & Joukamaa, 2007), and Cooperativeness (García, Aluja, García, Escorial, & Blanch, 2012). Brändström, Richter, and Przybeck (2001) have called for gender- and age-specific normative data given these observed differences. And yet, meta-analytic examination (Miettunen et al., 2007) of potential sex differences in Cloninger's models did not find substantial variation in responding, supporting Hyde's (2005) theory of gender similarity. For instance, Miettunen et al. noted that women's higher scores for Harm Avoidance yielded a rather small effect, with a moderate to large effect size for Reward Dependence possibly explained by age and location.

Meta-analytic findings by Feingold (1994) showed consistent personality gender differences in the literature spanning 34 years and through tests developed across half a century. The series of four meta-analyses produced generalized findings that women typically are less assertive and lower in self-esteem, but higher in terms of anxiety, nurturing,

trust, and extraversion. Feingold noted, in particular, the differences in assertiveness and tendermindedness as perhaps indicative of men and women's respective tendency towards agency and communality. A review of 46 meta-analyses conducted by Hyde (2005) has challenged traditional claims of significant psychological differences between genders citing the gender similarities hypothesis. This hypothesis holds that, with the exception of few areas (e.g., some aspects of motor control and sexuality, and to a lesser extent aggression), no large gender differences exist. Zell, Krizan, and Teeter (2015) have claimed that there is greater support for the gender similarities hypothesis after examining 106 meta-analyses of gender differences using second-order metanalysis (i.e., metasynthesis), finding that male and female distributions had an 84% overlap with a relatively small average absolute difference between men and women (d = .21).

Nonetheless, multigroup latent variable modeling in a large US sample (N=10, 261) demonstrated extremely large sex differences in personality profiles of men and women (Del Giudice, Booth, & Irwing, 2012). Even more substantial are findings from a large (N= 17, 637) cross-cultural study of 55 countries that found women scoring higher than men on average for all of the FFM traits except Openness (Schmitt, Realo, Voracek, & Allik, 2008). Paradoxically, women gender differences were found to be larger in societies where gender equality was more likely. Taken together, these findings necessitated that gender differences should be considered in this study.

Turning to the domain of cognitive ability, the empirical evidence is inconsistent regarding the topic of general intelligence sex/gender differences (Colom & García-López, 2002). Hyde (1981) had previously analyzed the literature and concluded that gender differences in cognitive ability are small, explaining only 1-5% of the variance in the

population. Similarly, Colom and García-López (2002) compared male and females on several measures of fluid intelligence and found no consistent differences in ability, therefore concluding that systematic sex differences in intelligence was unlikely (e.g., "Using the finest available representation of fluid intelligence (The Culture-Fair Test), there is no sex difference," p. 450). However, extensive literature reviews on the subject (Halpern, 1997; Neisser et al., 1996; Nisbett et al.,2012) have found the following: (1) overall no clear sex differences emerge when looking at general intelligence; (2) females tend to show greater performance in verbal areas (e.g., fluency, memory; higher rate of dyslexia in males) as well as perception, whereas males tend to outperform in visual-spatial tasks; (3) with quantitative areas females tend to have an advantage in early years whereas males show much greater performance from puberty onwards (e.g., mechanical reasoning), some of these finding may be an artifact of the data; and (4) the cause of sex differences is not well understood, although both biological and socio-cultural factors clearly are at play (the latter of which, when controlled for, substantially reduces many sex differences).

The topic of gender differences in moral judgment and emotional experience also is unclear. Decety and Svetlova (2012) have summarized the extensive literature that points towards some observable sex differences in empathy that seem to favor females over males, albeit inconsistently based on measurement. However, it is of particular importance to note that while women have regularly been observed across measures to be more emotionally expressive than men, there are no apparent differences in their reports of experienced emotions (Kring & Gordon, 1998). In fact, Simon and Nath (2004) confirmed this in a large U.S. sample, showing no differences between genders in terms of overall frequency of emotional experience. They found that the only difference was in the frequency of self-

reported positive and negative experiences, a finding they attribute to disparities in social position (i.e., individuals in higher social positons—typically men—are more likely to report more positive emotions and vice-versa). Of particular relevance to this study is the finding that no sex differences appear when disgust is experimentally induced in participants during moral judgment tasks (Wheatley & Haidt, 2005).

Age. Lastly, age was explored as a potential moderator variable. In three large cross-sectional samples, O'Brien, Konrath, Gruhn, and Hagen (2013) found an inverse u-shaped effect between age and, respectively, perspective-taking and empathy. They observed that empathy and perspective-taking appears to peak in middle-age, declining sometime after 50-60 years of age (after 70-80 in the largest sample) possibly due to the course of cognitive functioning on the lifespan. Cartensen et al. (2000) similarly found that older individuals match younger peers in terms of affect intensity and frequency of positive emotional experiences, while also experiencing fewer negative emotions until roughly age 60. With regard to emotion differentiation, despite the finding of a negative relationship between age and the LEAS (Lane et al. 1998), emotion differentiation has been shown to be significantly and positively associated with age and not explained by personality or verbal ability (Carstensen et al., 2000).

Personality variables also appear subject to age differences. Scores on Openness to Experience appear to modestly and significantly decrease in a consistent fashion across cultures as a function of age (McCrae et al., 1999). Further longitudinal study of Openness to Experience has highlighted that Feelings, Actions, and especially Values appear to decline with age (Terracciano, McCrae, Brant, & Costa, 2005). Gutiérrez-Zotes et al. (2004) observed only a negligible interaction between age and TCI dimensions. However,

subsequent findings have established differences in TCI scores as a function of age. For example, younger individuals (up to age 30) appear to score higher on Self-Transcendence, whereas older subjects seem to score higher on Cooperativeness (Aluja, Blanch, Gallart, & Dolcet, 2010). Similar findings have been replicated in other cross-cultural samples (Brändström, Sigvardsson, Nylander, and Richter; 2008; Preiss, Kucharová, Novák, & Stepánková, 2007). Taken together, there was ample evidence to support age as a moderator variable for this study.

Hypotheses

The overall model that serves as the basis for the present study is depicted in Figure 2. Specific hypotheses for this study were as follows:

H1: Personality, emotion differentiation, incidental disgust, and cognitive abilities (i.e., executive control and general intelligence) would be predictive of performance on moral judgment tasks. Specifically, elevations in emotion differentiation, personality traits (i.e., Cooperativeness, Openness, Self-Transcendence), executive control, and intelligence would be shown to significantly diminish negative appraisals (i.e., lead to less biased appraisals) in moral judgment. Conversely, incidental disgust would be shown to significantly increase negative appraisal in moral judgment (i.e., biased moral judgment).

H2: Increases in Openness, Self-Transcendence, and Cooperativeness would lead to a significant increase in emotion differentiation, as emotion differentiation is expected to mediate the relation between personality and moral judgment given their underlying conceptual similarities (i.e., focus on intuition and inverse relationship to alexithymia in the case of Self-Transcendence; organization of emotional experience for Openness to Experience; incorporation of empathic concern for Cooperativeness).

H3: Emotion differentiation would moderate the relation between incidental disgust and moral judgment, such that elevations in emotion differentiation would diminish the effect incidental disgust has on forming negative appraisals in moral judgment. In other words, the greater the emotion differentiation, the smaller the difference between moral judgments with and without incidental disgust.

H4: Executive control also would moderate the relation between incidental disgust and moral judgment, such that elevations in executive control would diminish the influence incidental disgust has on forming negative appraisals in moral judgment. In other words, the greater the executive control, the smaller the difference between moral judgments with and without incidental disgust. Additionally, general intelligence was expected to be a significant covariate to executive control.

H5: Participant age, gender, mood, and capacity for empathy were expected to serve as general moderators for the entire model given their theoretical/conceptual relationship with all variables within the model; however, no specific predictions were made as to the direction of effects that these moderators would have on the variable relationships due to inconclusive data on previous findings with these variables as well as the model's complexity and exploratory nature.

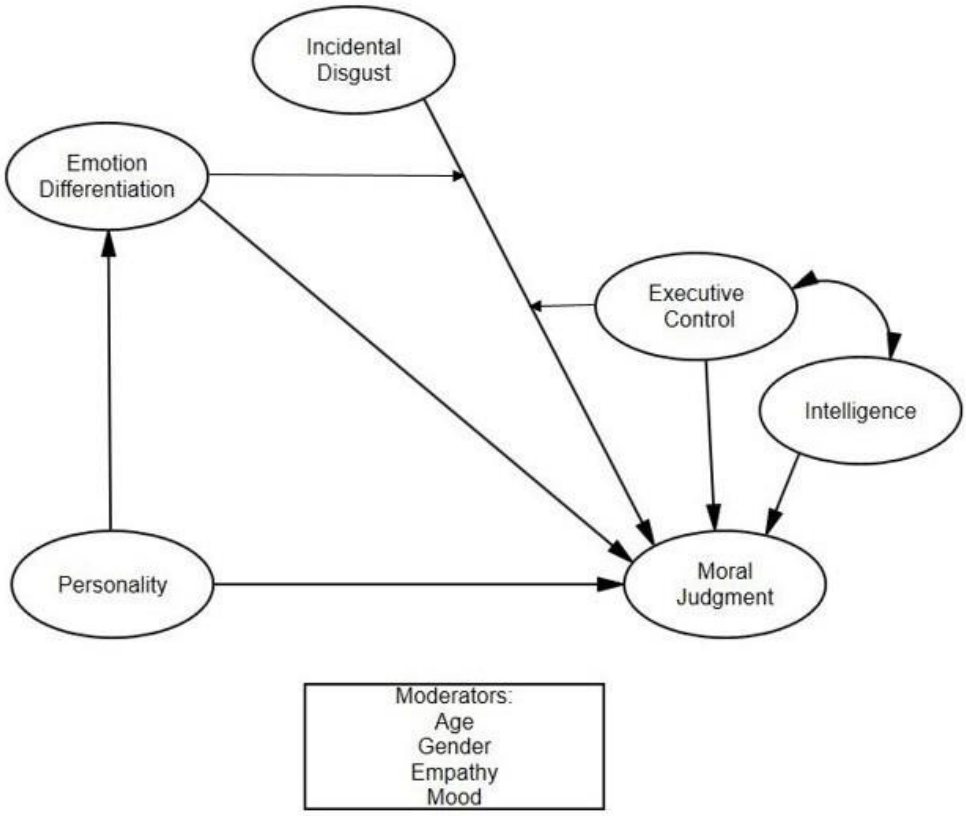

Figure 2. Conceptual Model Used in the Present Study

Significance of the Study

This dissertation has wide-ranging implications for the field of personality and individual differences, evolutionary psychology, the psychological study of spirituality, moral psychology, therapeutic treatment, and education. In a similar vein, the apparent gap in research on the relation of personality to moral judgment—and limited study on the psychological significance of Self-Transcendence in general—offer a unique opportunity to further evaluate Cloninger's model of personality structure. Findings from this study could offer support for inclusion of a spiritual dimension of personality to already existing models. Self-Transcendence is a personality trait that is not measured in many other inventories, including Zuckerman's and Eysenck's models (Zuckerman & Cloninger, 1996), and it remains absent from the FFM. Most notably, research on the role of emotion in the relation

between personality and moral reasoning is scant. This study offers an opportunity to establish how personality both directly and indirectly impacts moral judgment, presumably through emotion differentiation.

Additionally, some might argue that the role of gender in psychological functioning (i.e., moral reasoning, personality, affect) has been studied ad nauseam, but the importance of this variable must not be understated. Much of the literature on gender differences is conflicting and inconclusive. Hyde (2005) has pointed out that failing to challenge purported but misleading suggestions of gender differences, such as assertions that morally women are more care-oriented and men more justice-driven, can have significantly deleterious effects on the individual, family, and workplace. Therefore, gender was treated as a substantial moderator that has broad implications for the continuing discussion Gilligan (1982) initiated in the realm of moral development.

Moreover, if Self-Transcendence is a significant predictor of emotion differentiation (and assuming replication of findings supporting emotion differentiation as a moderator for incidental disgust's effect on moral judgment), therapeutic and educational approaches could incorporate techniques aimed at developing and strengthening this trait. While temperament is thought to entail habits and skills that are based on percepts, character is contrasted by goals and values that are based on concepts—or paraphrasing the words of Kant, character is "what people make of themselves intentionally" (Kant, 1796 as cited and quoted in Cloninger, 2004, p. 44). Cloninger's (2004) work on well-being points to high levels of each of the character traits as ideal for individual well-being. Some have submitted (Cloninger et al., 1993; see also Wilber, 1979 for therapies related to his proposed Spectrum of Consciousness) that different therapeutic schools of thought correspond directly with

increasing Self-Directedness (e.g., psychoanalysis, transactional analysis, reality therapy), Cooperativeness (e.g., humanistic/existential therapies), and Self-Transcendence (e.g., Jungian analysis, transpersonal therapies).

Finally, skepticism and critical thinking are essential aspects of education, especially in applied sciences. While increased accuracy of differentiating incidental and integral emotions might intensify existing moral judgments, it may also cultivate awareness that contributes to skepticism from a "feelings-as-information" perspective (Greifeneder et al., 2011; Cameron et al., 2013). In speaking of the importance of fully understanding the intuitive nature of our moral judgment process, Haidt (2001) has stressed that such knowledge can impact the design of effective education programs/environments, as well as improve the overall quality of moral judgment and behavior.

CHAPTER 3

Methods

Design

This study tested a directional moderation model using a within subjects repeated measures design with a cross-sectional convenience sample of university students.

Participants

Participants were gathered from the University of Detroit Mercy, Oakland University, and the general online community (e.g., www.reddit.com) via online questionnaire software (e.g., www.surveymonkey.com). All participants were asked to verify their current educational level and status in college/university. Based on previous recommendations (Garver & Mentzer, 1999; Hoelter, 1983) regarding the minimum sample size required to achieve adequate power in structural equation modeling (SEM), this study sought to obtain a minimum sample of 200 participants. The survey yielded a total sample of 475 cases that included the following self-reported genders: 172 males, 247 females, and nine "other" (transgender [n=1], gender queer [n=2], agender [n=5]). As well, 47 participants elected not to designate their genders. Fifty-six participants excluded their age, leaving a sample of 419 participants between ages 15-59 (mean [*M*] = 23.03, standard deviation [*SD*] = 5.63).

Measures and Materials

All measures and materials are provided in Appendix A.

Background Survey. A seven-item survey was created that asked participants to provide background information on the following areas: gender, age, sexual orientation, ethnic background, current grade level/status in college, social-economic status, and religious

affiliation. It was adapted from part one of the Exposure to Religious and Spiritual Beliefs Survey (ERSBS; MacDonald, 2001).

Temperament and Character Inventory (TCI; Version 1995, Revised 4-2-1996) – Cooperativeness and Self-Transcendence Scales. There are numerous versions of the Temperament and Character Inventory available. This study used version 1995a (Cloninger, 1996), a self-report measure of the seven-factor model of personality. The test in its entirety relies on 290 items, plus three validity items, to generate four temperament dimensions (Novelty Seeking, Harm Avoidance, Reward Dependence, and Persistence) and three character dimensions (Self-Directedness, Cooperativeness, and Self-Transcendence). The measure produces unstandardized raw scores based on numerically coded responses provided by the participant. While this version of the test uses a "true/false" response format, for this study the scale has been modified to include a five-point Likert scale format (1 – "definitely false," 2 – "mostly or probably false," 3 – "neither true nor false or about equally true and false," 4 – "mostly or probably true," 5 – "definitely true"). Despite the challenges to the psychometric structure of Cloninger's model (Farmer & Goldberg, 2008a, 2008b), the validity (e.g., factorial, convergent, discriminant) and reliability of the test have been supported in psychometric studies (Cloninger et al., 1993, Svrakic et al., 1993; see also Cloninger, 2008).

For the purposes of this study, only two character scales were used: Cooperativeness and Self-Transcendence. The Cooperativeness dimension contains a total of 42 items and is comprised on five subscales: C1: Social Acceptance vs. Social Intolerance, C2: Empathy vs. Social Disinterest, C3: Helpfulness vs. Unhelpfulness, C4: Compassion vs. Revengefulness, and C5: Pure-hearted Conscience vs. Self-Serving Advantage. In terms of psychometric

properties (Cloninger et al., 1993), Cooperativeness has been shown to have good inter-item consistency as a total dimension (α = .89). However, at the subscale level there is variability. Compassion vs. Revengefulness (C4) also has demonstrated good inter-item consistency (α = .86). Marginal inter-item consistency has been shown for C5 (α = .65), C1 (α = .64), and C3 (α = .63). Empathy vs. Social Disinterest (C2) has been shown to have poor inter-item consistency (α = .47).

The Self-Transcendence dimension contains a total of 51 items and is organized into five subscales as well: ST1: Self-Forgetful vs. Self-Conscious Experience, ST2: Transpersonal Identification vs. Self-Differentiation, ST3: Spiritual Acceptance vs. Rational Materialism, ST4: Enlightened vs. Objective, and ST5: Idealistic vs. Practical. As noted by MacDonald and Holland (2002b), there is a paucity of information on the psychometric properties of the TCI. This is particularly true for the Self-Transcendence dimension which has varying subscales depending on the version of the test. Based on reliability analyses conducted by MacDonald and Holland (2002b), ST has good inter-item reliability overall (α = .90) but variable inter-item reliability on its five subscales. Subscales with satisfactory-good inter-item reliability include ST3 (α = .74) and ST4 (α = .84). However, there is support for only marginal inter-item consistency on ST1 (α = .69), ST 2 (α = .69), and ST5 (α = .64).

NEO Personality Inventory Revised: Form S (NEO PI-R – Openness (O). The NEO PI-R is Costa and McCrae's (1992c) revised measure of personality based on the FFM. The measure contains 240 self-descriptive items that measure five broad dimensions (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness) under which are 30 facets distributed evenly (i.e., six facets/domain). Each item asks participants to rate the extent to which they agree or disagree with certain behaviors, attitudes, or feelings using

a five-point Likert scale (e.g., 0 = “strongly disagree” to 4 = “strongly agree”). Aggregate values of numerically coded items generate unstandardized raw scores for each domain. The inventory contains two different versions, Form S (self-report) and Form R (observer rating). All domains have high test-retest reliability, with Neuroticism, Extraversion, and Openness showing good long-term test-retest reliability. The measure has been shown to demonstrate good reliability and good construct, convergent, and divergent validity (Costa & McCrae, 1992c, 1995).

For this study, only the Openness domain was used. Like the other domains, Openness is comprised of 48 items. It contains the following facets (subscales): O1: Fantasy, O2: Aesthetics, O3: Feelings, O4: Actions, O5: Ideas, and O6: Values. The inter-item consistency for five of the six Openness facets of Form S are generally adequate (α = .66-.80), with O4: Actions having an inter-item consistency that is somewhat low (α = .58). The dimension’s facets also demonstrate adequate factorial validity (i.e., factor loadings .49-.75).

General Mental Abilities Test (GMAT). The GMAT is a 54-item multiple choice test that approximates individual intellectual ability. The test was developed by Janda, Fulk, Janda, and Wallace (1995) and measures five broad areas of intellectual ability: Analogies (12 items), Vocabulary (12 items), General Information (12 items), Mathematical Ability (12 items), and Spatial Ability (6 items). Given that the test was normed using a sample of college-aged students, a score at the 50th percentile indicates above-average cognitive abilities. Additionally, raw scores of 45 or higher likely indicate giftedness (i.e., superior range). The GMAT has evidence of criterion validity, as it has been shown to predict both grade point average and SAT scores in undergraduate students.

Barkley Deficits in Executive Functioning Scale –Short Form: Self Report (BDEFS-SF). The BDEFS-SF in a 20-item theory-based self-report scale that evaluates deficits in executive functioning (Barkley, 1997a, 1997b). It is based-off of the 89-item Long Form version of the same test. The measure uses a four-point Likert scale (Never/Rarely, Sometimes, Often, Very Often). Each of the Short Form's five subdomains correlate strongly with the respective subdomains of the Long Form (Barkley 2011): Self-Management to Time (r = .92), Self-Organization/Problem Solving (r = .92), Self-Restraint (r = .90), Self-Motivation (r = .91), and Self-Regulation of Emotion (r = .94). Excluding Self-Regulation of Emotion, all subdomains have demonstrated reliability and validity to a relatively strong degree (Barkley, 2011).

Brief Mood Introspection Scale (BMIS). Designed by Mayer and Gaschke (1988) to measure individual differences in affective states, the BMIS contains a list of 16 mood adjectives that participants rate using either a 4-point Meddis scale (XX, X, V, VV) or adapted seven-point Likert scale ("definitely don't feel" to "definitely feel"). An optional, "overall mood" item is also included for rating on a 10-point Likert scale ("very unpleasant" to "very pleasant"). The 16 mood adjectives are pairs taken from eight mood state categories: happy (happy, lively), loving (loving, caring), calm (calm, content), energetic (active, peppy), fearful/anxious (jittery, nervous), angry (grouchy, fed up), tired (tired, drowsy), and sad (gloomy, sad). The items form four subscales: Pleasant-Unpleasant, Arousal-Calm, Positive-Tired, and Negative-Relaxed. Three scales have satisfactory inter-item consistency (α = .76-.83, with α = .58 for Arousal-Calm) and the measure has adequate factorial validity (Mayer & Gascheke, 1988).

Toronto Empathy Questionnaire (TEQ). The TEQ is a 16-item self-report measure that focuses on capturing the emotional components of empathy, including emotional contagion, emotion comprehension, sympathetic physiological arousal, and con-specific altruism. Respondents are presented with personal statements and rate their agreement using a five-point Likert scale ("Never" to "Always"). The TEQ has demonstrated adequate inter-item consistency (α = .87), test-retest reliability (*r* = .81; *M* interval = 66.1 days [SD = 6.35, range = 57-84]), and convergent, concurrent, and factorial validity (Spreng, McKinnon, Mar, & Levine, 2009).

Levels of Emotional Awareness Scale (LEAS). Based on a cognitive-developmental model of emotion (Lane & Schwartz, 1987), the LEAS (Lane et al., 1990; Lane, 1991) is a measure that is designed to stimulate emotions at multiple levels of complexity. To gauge these emotional responses, 20 different open-ended scenarios are presented, all of which involve two persons. In each scenario, participants are asked to reflect and write down how they believe they would feel and how the other individual would feel. Responses are then scored separately for self and other, with scores ranging from 0-5. These scores reflect: responses that use the word "feel" but are nevertheless non-emotional thoughts (Level 0); awareness of physiological cues (Level 1); typical but improper emotional word use indicative of undifferentiated emotion (Level 2); typical one word responses indicative of differentiated emotion (Level 3); combinations of single words indicative of emotion differentiation, the net sum of which is greater than their individual constituents (Level 4); and the aforementioned combinations that also clearly differentiate emotions of self from other (Level 5). The LEAS has been shown to have adequate internal consistency (α = .75-.88) and test-retest (*r* = .67; interval: two weeks) reliability, as well as good inter-rater

reliability for scorers (r = .81-.97) and construct validity (Lane et al., 1990; Lane & Pollerman, 2002; Barchard et al., 2011). While research has provided support for the LEAS's reliability and validity, scoring can be quite challenging and certification is recommended to ensure accuracy (Watson, Musicant, Scully, & Barchard, 2011).

However, an abbreviated and adapted use of the LEAS was utilized by Cameron et al. (2013) to measure emotion differentiation. Participants are given 10 scenarios and are asked to reflect on four emotions (anger, guilt, sadness, and shame). For each scenario, these four emotions are ranked on a five-point Likert scale (1 = "not at all," 5 = "extremely"). The emotion responses among all the scenarios are then calculated as an intra-class correlation coefficient (ICC). Higher levels of emotion differentiation are inferred by a lower ICC, representative of a wider repertoire to describe one's emotional experiences (Cameron et al., 2013; Feldman Barrett, 1998; Feldman Barrett et al., 2001; Tugade et al., 2004). In contrast, poor emotion differentiation (e.g., overgeneralizing anger, guilt, sadness, and shame as "feeling bad") is thought to produce a higher ICC. As noted by Cameron et al. (2013), the ICC approach is less susceptible to response bias than more conventional means such as self-report (Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006) and it is a widely used measure of emotion differentiation.

Moral Judgment Task. A modified version of the moral reasoning task developed by Cameron et al. (2013) was used in this study. However, this study will refer to this as a moral *judgment* task, as it appears to be in line with Haidt's (2001, p. 817) definition of moral judgment (i.e., ultimately a culturally-influenced evaluation). While it is likely that reasoning is taking place, this task has no metric of evaluating the specific process by which reasoning is occurring through either definition offered by the social intuitionist (Haidt, 2001,

p. 818) or dual-process models of moral reasoning (Paxton & Greene, 2010, p. 6). The task involves the presentation of a series of 30 statements to participants in conjunction with emotionally evocative or emotionally neutral stimuli. The statements are cultural practices taken from the Human Relations Area File (HRAF, 2011) which have been shortened and modified to exclude their specific country or culture of origin. These statements describe behaviors that tend to be viewed as incongruent or unacceptable within American culture (e.g., "Kissing in public is forbidden," "Family members strangle terminally ill relatives"). Each statement (target) also is paired randomly with either a neutral or disgusting image (prime) from the International Affective Picture System (IAPS; Lang, Öhman, & Vaitl, 1988; Lang, Bradley, & Cuthbert, 1997; Lang, Bradley, & Cuthbert, 2005).

Before beginning the task, participants are told that the statements represent real, anthropologically studied practices from various cultures. They are asked then to rate the extent to which each behavior is "morally wrong" using a five-point Likert scale (1 = "not at all," 2 = "no," 3 = "neither right nor wrong," 4 = "yes," and 5 = "extremely"). Participants also are told to resist the influence of the emotionally evocative pictures. Despite this warning, pilot sampling of this task by Cameron et al. (2013) demonstrated increased strength in moral judgments [N = 40; $F(1, 39) = 5.63$, $p = .02$, $\eta^2_p = .12$.] when disgust primes were presented.

For this study the prompt for rating and corresponding Likert scale were modified in order to address framing effects that might skew the focus of moral judgment given the negative wording (i.e., "to what degree is the behavior morally *wrong*…"). Therefore, participants were asked to rate the extent to which the practice presented was absolutely *right* or *wrong* with the following scale: (1) Not at all acceptable, (2) Slightly acceptable, (3)

Somewhat acceptable/Neither right nor wrong, (4) Very acceptable, or (5) Extremely acceptable. Measured in this way, disgust primes were expected to generate lower ratings (i.e., endorsement that the practice was not acceptable) during the moral judgment task.

International Affective Picture System (IAPS). The IAPS was developed at the National Institute of Mental Health (NIMH) Center for the Study of Emotion and Attention at the University of Florida (Lang et al., 1988, 1997, 2005). This normative database serves as a standardized pool of visual stimuli for the purposes of emotion and attention-based research protocols, seeking to provide greater access and control of experimental materials while simultaneously facilitating communication and replication of these studies across research groups. The system has child and adult normative data on the pleasure, arousal, and level of dominance for each of the 1,182 pictures.

Per the protocol used by Cameron et al. (2013), neutral and disgust images were selected from emotional category norming data provided by Mikels, Fredrickson, Larkin, Lindberg, Maglio, and Reuter-Lorenz (2005a, 2005b). The category data is based on a sample of 60 participants who rated emotional labels for two sets of pictures: negative (anger, disgust, fear, sadness, undifferentiated) and positive (amusement, awe, contentment, excitement, undifferentiated). Participants were permitted to assign multiple emotion designations to a picture (although no positive/negative emotion blends were allowed) using a seven-point Likert scale (1 = “not at all,’ 7 = “a great amount”). Neutral (IAPS images 7000, 7004, 7006, 7009, 7010, 7020, 7025, 7030, 7031, 7034, 7035, 7040, 7080, 7090, 7170) and disgust images (IAPS images 1111, 1270, 1280, 1945, 2750, 3160, 7360, 7380, 8230, 9290, 9300, 9330, 9373, 9390, 9830) were randomly paired with each of the 30 statements in the moral judgment task.

Procedure

Participants were asked to complete a computerized survey through an online distribution website (www.surveymonkey.com). Psychology undergraduate students at the University of Detroit Mercy and Oakland University—and potentially other institutions as per their guidelines and procedures—were eligible for extra credit. Additionally, participants were provided the option to enter a drawing for one of three $50 Visa gift cards. Before beginning, the survey addressed the following: general purpose of the study, description of procedures, length of time expected for completion (approximately one hour), explanation and assurances of confidentiality, expected risks and potential benefits, and freedom to discontinue at any point and/or have their data destroyed/ignored. Participants were required to check a box to verify that they were 18 years of age and that they have read the consent form before they will be allowed to begin the survey.[3] As an option, subjects were asked for consent to use their data for future studies. Furthermore, contact information for the following parties was provided: (1) principal investigator and (2) the chairperson for the UDM Institutional Review Board (IRB). Participants were informed that they may contact the former for questions on the study and its findings, and either sources for information regarding suspected violation of rights and other ethical considerations.

Participants were then prompted to begin the survey proper. First they were asked to complete the Background Survey, followed by the BMIS to obtain a baseline measure of their current mood prior to the introduction of any emotionally valent primes. Participants were then prompted to complete the moral judgment task, as the majority of the

[3] NOTE: despite this requirement, some participants nevertheless reported their age as under 18, and therefore were removed. Those participants who did not report their age also were excluded. See data cleaning for more details.

questionnaires in the protocol include emotional content that could introduce uncontrolled bias.

Due to the use of online administration, Cameron et al.'s (2013) moral reasoning task was modified. Participants first were given visual instructions to: (1) read each of the following practices that are real and acceptable in various cultures, (2) rate each practice in terms of its acceptability, and (3) resist the influence of the priming stimulus. Participants were then provided with a disclaimer about the graphic nature of some items (i.e., disgust images) and reminded that they could discontinue the experiment at any time. The task then began. A statement was presented on screen with no available rating options, but instructions to click to the next screen after reading the statement. The next screen included a prime, either a neutral or disgusting image. Participants then were prompted to click to the next screen, which contained the following: the previous image, the statement that preceded this image, and options to rate the acceptability of the statement (1 = "not at all" to 5 = "extremely"). This procedure was followed for all 30 statements/primes. The modified LEAS was administered immediately after the moral judgment task to gauge the respondents' level of emotion differentiation. The participants were then administered the Cooperativeness and Self-Transcendence scales of the TCI, the Openness scale of the NEO PI-R, GMAT, BDEFS, and TEQ.

After completing the survey, participants were directed to a page for debriefing. They again were presented with the contact information of the principal investigator and UDM IRB chairperson. This page also had instructions to sign-up for a follow-up e-mail that would detail the findings of the study upon completion. The page also led to a printable extra-credit form (if applicable to the participant based upon their respective institution's policies on

research participation) and a field to enter their e-mail address for the gift card drawing. All electronic data were stored using encrypted software (e.g., DiskCryptor) that was accessible only by the principal investigator. No identifying information from any of the participants was solicited or stored. Following data collection, SPSS (Version 21) was used to organize and manage the data. Data were then transferred into Structural Equation Modeling software (e.g., AMOS, Version 21) to test the proposed path model (see Figure 2).

CHAPTER 4

Results

Data Cleaning

Prior to the completion of analyses, all data were examined to ensure their completeness as well as to evaluate response sets, including potential perseverative responding. In addition, the univariate and multivariate properties of variable scores were examined. Data cleaning proceeded stepwise, starting with identification of excessive portions of missing data. Although 475 participants initiated the study online, there was considerable variability in completeness across the various measures. Given the primacy of emotion differentiation, moral judgment, and personality traits to the study, excessive amounts of missing data in any of these core areas (i.e., approximately 30% or more of missing items on any one of these areas assessed) were immediately removed from the dataset. This diminished the dataset considerably, from 475 to 266 cases.

Next, each case was surveyed to verify requirements for participation in the study, specifically consent, age, and current enrollment in higher education. Five cases were removed either due to not reporting current age or otherwise reporting an age younger than 18 years or older, as per consent (N = 261). Twenty-seven participants were removed due to the fact that they were not currently enrolled in some form of higher education as outlined as a requirement in the consent form (N = 234). Systematic errors were then searched for, specifically with regard to problematic individual responses (e.g., perseveration) and any errors in measurement which might yield biased and/or inaccurate response sets. This resulted in two alterations to the dataset. First, an additional case was removed due to evidence of perseverative responding on the NEO PI-R Openness scale (N = 233). Second,

and more unfortunately, on the GMAT there was evidence of large portions of missing data as well as highly inconsistent response patterns; given that inclusion of the GMAT would lead to large amounts of additional missing data and considerable imputation across each of its four subtests, the measure was considered unreliable and therefore dropped. Consequently, the dataset at this point contained a total of 233 cases consisting of the following: demographic information, BMIS, the moral judgment task, LEAS, TCI Cooperativeness and Self-Transcendence scales, NEO PI-R Openness scale, BDEFS, and TEQ. No data for these measures were found to be out of range.

The principal measures (moral judgment task, LEAS, TCI Cooperativeness and Self-Transcendence, NEO PI-R Openness) were then examined for any remaining missing data and scored per test authors and aforementioned protocols (if applicable). For the moral judgment task, imputation was required for three cases which were missing under 10% of their data. Imputation for this task was done using neutral responses (i.e., representing "somewhat acceptable"). Behaviors corresponding to the neutral and disgust primes, respectively, were added to produce total scores for both conditions per participant. Imputation also was necessary for each of the personality trait scales: Cooperativeness (13 cases), Self-Transcendence (21 cases), and Openness (20 cases). All missing data was under 10% per participant, with imputation conducted with neutral responses on each scale (i.e., "neither true nor false or about equally true and false" for TCI; "neutral" with NEO PI-R). All personality measures were recoded per their respective protocols and subscales were totaled into raw scores.

For the LEAS, imputation was necessary for 13 cases. This was done using sample means for the missing item. All imputed cases were not missing more than 10% of their data.

Scoring the LEAS was somewhat problematic. As per the protocol used by Cameron et al. (2013), intra-class correlation coefficients (ICCs) were calculated for each participant. However, this method yielded several negative ICCs. Bartko (1976) has suggested that one can assume zero reliability in the case of a negative ICC. However, Müller and Büttner (1994, p. 2471) have noted that, "some estimators may be negative, whereas their corresponding parameters are strictly positive. How such negative values should be interpreted is quite unclear, and the suggestion to redefine them as zero does not really solve the problem." Furthermore, for one case an ICC could not be calculated suggesting either no variance amongst its data or perfect agreement amongst ratings (Bartko, 1976). To ensure uniformity of case inclusion in subsequent analyses with SPSS and AMOS, this case was removed from the dataset (N = 232).

Balancing the ambiguity associated with negative ICCs with the necessity for fidelity to the initial data analysis plan based upon the design outlined by Cameron et al. (2013), an additional emotion differentiation metric was calculated in conjunction with the ICC method. Each of the four emotions (anger, sadness, guilt, shame) provided as rating options on the LEAS were assigned a numerical weight based upon the number of responses rated as "2" ("Slightly") or higher on the five-point Likert scale. For instance, a response on a question yielding a response of "2" or higher on one or fewer emotions would generate a weighted score of "0." In contrast, a response of "2" or higher on two emotions would produce a score of "1," and so forth to a maximum of "3" (i.e., ratings or "2" or higher on all four emotions). These weighted scores were then totaled, providing a score ranging from 0-30. Based on this calculation, higher scores hypothetically signified greater emotion differentiation.

The remaining two measures in the battery, the BDEFS and TEQ, posed additional cases of extensive missing data. Of the 232 cases remaining, 38 cases had completely absent data on the BDEFS. With regard to the TEQ, 39 cases had completely absent data, 38 of which were the same cases missing data on the BDEFS. To ensure as much consistency and symmetry of variables as possible in subsequent data analyses, these 39 cases were removed from the dataset. An additional 12 cases were missing up to 10% of data on the BDEFS, requiring imputation. This was done using the mean item response for each participant separately. Two additional cases required imputation on the TEQ, as they were missing up to 20% of data. Imputation on this measure was done using neutral responses.

Reliabilities and Descriptive Statistics

Following data cleaning, descriptive statistics (means, standard deviations, minimum and maximum scores) and reliability coefficients (i.e., Cronbach's alpha) were calculated for all variables included in the study which are measured with a psychometric questionnaire (with the exception of the LEAS which uses ICC). The final sample contained 193 cases. The mean age for the sample was 23.10 years (SD = 6.04, Min = 18, Max = 59). The sample included 133 self-reported females and 56 self-reported males. Four participants reported their gender as "other" (agender = 3, transgender = 1). Frequencies for the remaining demographic variables—ethnicity, sexual orientation, religious affiliation, income, and mood—are provided in Table 5. Descriptive statistics for the core variables of the study are provided in Table 6.

Table 5

Frequencies for Demographic Variables

Ethnicity*		Religious Affiliation*	
African American	4	None	118
Asian	10	Catholicism	37
Latino/Hispanic	7	Christianity	29
Caucasian/European Descent	153	Orthodoxy	2
Multi-Racial	13	Judaism	1
Middle Eastern	3	Agnostic	1
European	1	Islam	1
Filipino	1	Buddhism	1
		Paganism	1
		Other	2

Sexual Orientation		Income*	
Heterosexual	142	Less Than $20,000	48
Gay/Lesbian	10	$21,000 – $50,000	59
Bisexual	30	$51,000 – $100,000	42
Asexual	3	Greater Than $100,000	43
Pansexual	2		
Queer	2		
Bi-curious	1		
Demi-sexual	1		
Grey-Asexual	1		
Other	1		

Note. *One case did not report information on this variable

Table 6.

Descriptive Statistics for Core Variables of Study

	M	*SD*	*Min*	*Max*	*α*
BMIS Overall Mood	14.28	4.74	2	21	
TCI Cooperativeness	161.00	18.42	100	197	.89
TCI Self-Transcendence	144.05	39.18	67	241	.96
NEO PI-R Openness	167.02	18.34	121	213	.85
TEQ Total	60.86	9.13	36	80	.89
BDEFS-SF Summary Score	41.05	10.49	21	72	.89
Moral Judgment (N)	21.09	12.59	15	75	
Moral Judgment (D)	24.41	11.51	15	74	
Incidental Disgust (Proxy)	-3.32	4.05	-17	15	
LEAS Anger Total	18.99	4.70	10	34	
LEAS Guilty Total	17.04	4.76	10	35	
LEAS Sadness Total	20.03	5.28	10	40	
LEAS Shame Total	18.26	4.95	10	36	
LEAS Alternative Score (Weighted Sum)	9.32	4.89	0	23	

	M (κ)	*SD* (κ)	*Min* (κ)	*Max* (κ)
LEAS Intra-Class Correlation Coefficient	.58	.27	-.62	.92

Note. BMIS = Brief Mood Introspection Scale; TCI = Temperament and Character Inventory; NEO PI-R = NEO Personality Inventory Revised; TEQ = Toronto Empathy Questionnaire; BDEFS-SF = Barkley Deficits in Executive Functioning Scale – Short Form; Moral Judgment (N) = Moral Judgment Neutral Prime Total; Moral Judgment (D) = Moral Judgment Disgust Prime Total; LEAS = Levels of Emotional Awareness Scale.

Simple Bivariate Analyses

Bivariate correlations. In order to explore how the variables were generally related, bivariate correlations were calculated with all relevant variables. Prior to this analysis, gender was recoded as a binary variable (1 = male, 2 = female), excluding "other" designations and therefore eliminating five cases from analysis while running this variable. Subsequent analyses required a single variable to approximate the independent variable of incidental

disgust created with the IAPS primes. Given the design of this study, a pure indicator of incidental disgust was not possible. Therefore, a proxy score was calculated by subtracting each participants' raw total ratings during the disgust condition from the raw total ratings during the neutral condition. Given that it was predicted that the neutral condition would yield higher ratings than the disgust condition (i.e., the disgust primes were predicted to influence participants to find behaviors less acceptable), the incidental disgust score was expected to be predominantly positive and correspond to the total magnitude of effect of the disgust primes per participant. This proxy disgust score, in addition to the respective totals for the neutral and disgust conditions, was included in the correlational analysis. Table 7 provides bivariate correlations for all relevant study variables. Ethnicity, sexual orientation, and income were not included given that they were not the primary focus of the present study. Although religion was not a primary variable of interest, it was included in the bivariate correlational analysis given its potential relationship with other study variables (e.g., Self-Transcendence). Religious affiliation was treated as a dichotomous variable (1 = "no," 2 = "yes").

All three personality variables were positively and significantly correlated with one another: Cooperativeness and Self-Transcendence, $r(193) = .39$, $p < .001$; Cooperativeness and Openness $r(193) = .39$, $p < .001$; and Self-Transcendence and Openness $r(193) = .29$, $p < .001$. Furthermore, all personality variables had a significant positive correlation with empathy [Cooperativeness, $r(193) = .66$, $p < .001$, Openness, $r(193) = .43$, $p < .001$, Self-Transcendence, $r(193) = .28$, $p < .001$]. Interestingly, LEAS Anger was significantly correlated with all personality variables: negatively for Openness, $r(193) = -.22$, $p =$, .002, and Cooperativeness, $r(193) = -.26$, $p < .001$, but positively in the case of Self-

Transcendence, $r(193) = .16$, $p = .03$. While these were the only significant correlations shared by all personality traits, a number of other significant correlations among the personality variables warrant attention.

Self-Transcendence had a strong negative relationship with religious affiliation, $r(193) = -.55$, $p < .001$, as did Openness, $r(193) = -.19$, $p = .008$. Contrary to the literature, women also appeared to score significantly lower on Self-Transcendence, $r(189) = -.20$, $p = .007$. However, consistent with previous findings, women scored significantly higher on Cooperativeness, $r(189) = .16$, $p = .02$. Similar to LEAS Anger, Self-Transcendence was significantly and positively associated with LEAS Sadness, $r(193) = .29$, $p < .001$, LEAS Guilty, $r(193) = .21$, $p = .003$, and LEAS Shame, $r(193) = .16$, $p = .03$. Self-Transcendence had no significant associations with either moral judgment condition. However, Cooperativeness and Openness were significantly and negatively associated with both moral judgment conditions: Cooperativeness-Moral Judgment Neutral, $r(193) = -.21$, $p = .004$, Cooperativeness-Moral Judgment Disgust, $r(193) = -.23$, $p < .001$; Openness-Moral Judgment Neutral, $r(193) = -.22$, $p = .002$, Openness-Moral Judgment Disgust, $r(193) = -.17$, $p = .02$. Lastly, of the personality variables only Openness had a significant correlation to the incidental disgust proxy score, $r(193) = -.21$, $p = .003$. The implications of this association are discussed in the subsequent hypothesis-driven statistics section.

As mentioned previously, two separate scores were used to quantify emotion differentiation: the ICC method utilized by Cameron et al. (2013) and an alternative weighted score. Higher scores for the ICC method are thought to be associated with less emotion differentiation (Feldman Barrett et al., 2001; Tugade et al., 2004), whereas the opposite was expected for the alternative score. Both scores were inherently highly and significantly

correlated with all LEAS emotion total scores (i.e., .26-.42 for the ICC score, .50-.81 for the alternative score). While higher ICC score (lower emotion differentiation) was significantly correlated with executive dysfunction, $r(193) = .20$, $p = .005$, higher alternative scores (i.e., hypothesized to represent higher emotion differentiation) also were found to be significantly correlated with executive dysfunction, $r(193) = .30$, $p < .001$. The correlation between the two emotion differentiation scores, $r(193) = .45$, $p < .001$, confirms what the executive dysfunction correlations suggest: the two scores are convergent but conceptually distinct metrics. In light of this finding, the alternative score was dropped from all subsequent analyses in favor of the established use of the ICC method for quantifying emotion differentiation. LEAS emotions were all significantly intercorrelated with one another [$r(193) = .36$-$.81$, $p < .001$]. Furthermore, executive dysfunction had significant positive associations with LEAS Shame, $r(193) = .40$, $p < .001$, LEAS Guilty, $r(193) = .35$, $p < .001$, and LEAS Sadness, $r(193) = .29$, $p < .001$. While LEAS Anger was not significantly correlated with executive dysfunction, it was the only LEAS emotion to have a significant (negative) association with empathy, $r(193) = -.17$, $p = .02$.

Both moral judgment conditions were highly correlated, as would be expected, $r(193) = .95$, $p < .001$. Emotion differentiation was significantly and negatively correlated with the moral judgment neutral condition, $r(193) = -.16$, $p = .02$, as well as the moral judgment disgust condition, $r(193) = -.17$, $p = .02$. This suggests that with greater emotion differentiation, the overall disapproval of culturally taboo practices decreases. Furthermore, empathy had a significantly negative association with both the neutral, $r(193) = -.16$, $p = .03$, and disgust conditions, $r(193) = -.17$, $p = .02$. Interestingly, only the neutral condition had a significant association with the incidental disgust proxy score, $r(193) = .42$, $p < .001$. Again,

the implications of this finding are discussed in the subsequent hypothesis-driven statistics section.

A few final significant correlations also were found. Younger individuals were shown to have lower executive function ability [$r(193) = -.21$, $p = .004$], report greater feelings of shame [$r(193) = -.15$, $p = .04$], be more impacted by disgust primes [$r(193) = -.15$, $p = .04$], and be less religious [$r(193) = .15$, $p = .04$]. Less religious individuals also reported significantly greater sadness, $r(193) = -.24$, $p = .001$, and anger, $r(193) = -.18$, $p = .01$. Lastly, greater executive dysfunction significantly corresponded to poorer overall mood, $r(193) = -.28$, $p < .001$.

Following analysis of these initial bivariate correlations, interactions were taken into account. Interaction variables were included in the correlational analysis in anticipation of mediator and moderator effects as outlined in hypotheses two through five. Interaction variables were created by multiplying variables together based on suspected interaction effects (e.g., moderators with each variable of interest; the incidental disgust proxy with the personality variables). Variables were centered prior to generating their cross-product, as this has been shown to improve interpretation and address issues of multicollinearity (Afshartous & Preston, 2011). Non-essential variables were dropped from these analyses. Religious affiliation was dropped as it was not a primary study variable. Similarly, LEAS total scores were not included as the LEAS was used as a means of calculating the emotion differentiation ICC (which was included). Given the volume of variables, analysis of bivariate correlations among interaction variables was divided into two parts. First, correlations between interaction variables and only primary study variables were created.

These results are presented in Table 8. Next, correlations between only interaction variables were calculated. These results are presented in Tables 9a and 9b.

Table 7

Bivariate Correlations for Relevant Study Variables

	Gen	Age	Rel	MO	CO	ST	O	AN	GU	SA	SH	Mn	Md	DP	EM	EX	ED
Gen	-	.06	-.08	-.07	**.16**	**.20***	.09	-.03	-.01	.12	.02	-.10	-.08	-.08	.14	-.01	.09
Age	-	-	**.15**	.10	.12	-.02	.11	-.02	-.13	.02	**-.15**	-.05	-.01	**-.15**	.13	**-.21***	-.09
Rel	-	-	-	-.11	-.13	**-.55†**	**-.19***	**-.18**	-.10	**-.24***	-.03	.01	.03	-.06	-.02	-.04	.00
MO	-	-	-	-	.09	.07	-.04	.01	-.11	-.02	-.11	.14	.11	.13	.10	**-.28†**	.00
CO	-	-	-	-	-	**.39†**	**.39†**	**-.26†**	.01	.02	-.06	**-.21***	**-.23***	.02	**.66†**	-.12	-.03
ST	-	-	-	-	-	-	**.29†**	**.16**	**.21***	**.29†**	**.16**	-.02	-.01	-.03	**.28†**	.13	.04
O	-	-	-	-	-	-	-	**-.22***	.05	-.01	.03	**-.22***	**-.17**	**-.21***	**.43†**	.06	.01
AN	-	-	-	-	-	-	-	-	**.41†**	**.45†**	**.36†**	.11	.11	.01	**-.17**	.13	**.26†**
GU	-	-	-	-	-	-	-	-	-	**.65†**	**.81†**	-.04	-.02	-.06	-.03	**.35†**	**.42†**
SA	-	-	-	-	-	-	-	-	-	-	**.66†**	-.08	-.08	-.04	.01	**.29†**	**.37†**
SH	-	-	-	-	-	-	-	-	-	-	-	-.06	-.03	-.12	-.02	**.40†**	**.42†**
Mn	-	-	-	-	-	-	-	-	-	-	-	-	**.95†**	**.42†**	**-.16**	-.03	**-.16**
Md	-	-	-	-	-	-	-	-	-	-	-	-	-	.10	**-.17**	-.03	**-.17**
DP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-.01	.00	-.03
EM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-.02	-.08
EX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**.20***
ED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EDa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note. Gen = Gender; Rel = Religious Affiliation; MO = BMIS Overall Mood; CO = Cooperativeness; ST = Self-Transcendence; O = Openness; AN = LEAS Anger Total; GU = LEAS Guilty Total; SA = LEAS Sadness Total; SH = LEAS Shame Total; Mn = Moral Judgment Neutral Condition Total Score; Md = Moral Judgment Disgust Condition Total Score; DP = Incidental Disgust Proxy Score; EM = TEQ Total; EX = BDEFS-SF Summary Score; ED = Emotion Differentiation ICC; EDa = Emotion Differentiation Alternative Score.
Gender = (1) male, (2) female; Religious = (1) no, (2) = yes.; Correlation coefficients in bold typeface significant at $p < .05$; *$p < .01$; †$p < .001$

Table 8

Bivariate Correlations between Primary Study Variables and Interaction Variables

	Gen	Age	MO	CO	ST	O	Mn	Md	DP	EM	EX	ED
GCO	.13	.10	.09	**.97†**	**.38†**	**.35†**	**-.18**	**-.21***	.04	**.63†**	-.08	-.05
GST	**.15**	-.03	.06	**.37†**	**.97†**	**.28†**	-.04	-.03	-.05	**.27†**	.12	.05
GO	.07	.09	-.02	**.36†**	**.30†**	**.96†**	**-.18**	-.13	**-.19***	**.40†**	.08	.01
GED	.07	-.12	.02	-.05	.05	.01	-.09	-.10	.03	-.20	**.22***	**.96†**
GEX	-.01	**-.20***	**-.27†**	-.08	.12	.08	-.03	-.04	.02	-.02	**.97†**	**.20***
ACO	-.01	**.34†**	.01	-.07	-.07	-.07	-.02	-.03	.01	-.10	-.03	.03
AST	-.01	**.36†**	.02	-.06	.04	.00	-.04	-.01	-.11	-.08	-.09	.00
AO	-.08	-.09	.02	-.07	.00	-.05	.01	.01	.02	-.04	.02	.05
AED	-.10	-.10	.03	.03	.00	.04	.02	.02	.02	.04	.07	.05
AEX	.01	**-.53†**	-.02	-.03	.10	.02	.04	.06	-.04	-.01	-.01	.07
MOCO	.03	.01	**.18**	.08	.01	-.03	-.08	-.09	.01	.10	-.06	-.01
MOST	.02	.03	.12	.01	.04	-.03	-.04	-.04	.00	.09	.01	-.07
MOO	.05	.02	.07	-.03	-.04	**.15**	-.04	-.03	-.05	.03	-.01	-.09
MOED	.06	.03	-.03	-.01	-.08	-.09	-.07	-.08	.03	.02	-.10	.11
MOEX	.02	-.03	**.17**	-.06	.01	-.01	.02	.00	.05	-.03	.04	-.09
EMCO	-.05	-.08	.08	**-.25†**	-.02	-.05	.06	.03	.10	**-.19***	-.12	-.02
EMST	.04	-.08	.09	-.03	.14	**.18**	-.01	-.04	.07	.07	-.04	.05
EMO	**-.15**	-.03	.02	-.06	**.18**	.08	.12	.08	.12	.00	.13	-.03
EMED	-.10	.03	.01	-.03	.05	-.04	**.24***	**.22***	.12	.13	**.15**	.03
EMEX	.02	-.01	-.03	-.12	-.04	.12	-.05	-.06	-.01	.03	**.16†**	.14
EDEX	-.01	.07	-.09	**.22***	.07	.12	-.03	-.03	.00	**.15**	-.03	**-.39†**
DPCO	.11	.01	.01	.07	-.03	.05	**-.28†**	**-.20***	**-.28†**	.13	-.02	.08
DPST	-.05	-.13	.00	-.02	-.01	.02	**-.16**	-.13	-.12	.08	.00	.07
DPO	.08	.02	-.05	.05	.02	**.19***	**-.31†**	**-.31†**	-.09	.14	.04	.06

Note. Gen = Gender; MO = Mood; CO = Cooperativeness; ST = Self-Transcendence; O = Openness; Mn = Moral Judgment Neutral Condition Total Score; Md = Moral Judgment Disgust Condition Total Score; DP = Incidental Disgust Proxy Score; EM = TEQ Total; EX = BDEFS-SF Summary Score; ED = Emotion Differentiation ICC; GCO = Gender x Cooperativeness; GST = Gender x Self-Transcendence; GO = Gender x Openness; GED = Gender x Emotion Differentiation ICC; GEX = Gender x BDEFS-SF Summary Score; ACO = Age x Cooperativeness; AST = Age x Self-Transcendence; AO = Age x Openness; AED = Age x Emotion Differentiation ICC; AEX = Age x BDEFS-SF Summary Score; MOCO = BMIS Overall Mood x Cooperativeness; MOST = BMIS Overall Mood x Self-Transcendence; MOO = BMIS Overall Mood x Openness; MOED = BMIS Overall Mood x Emotion Differentiation ICC; MOEX = BMIS Overall Mood x BDEFS-SF Summary Score; EMCO = TEQ Total x Cooperativeness; EMST = TEQ Total x Self-Transcendence; EMO = TEQ Total x Openness; EMED = TEQ Total x Emotion Differentiation ICC; EMEX = TEQ Total x BDEFS-SF Summary Score; EDEX = Emotion Differentiation ICC x BDEFS-SF Summary Score; DPCO = Incidental Disgust Proxy Score x Cooperativeness; DPST = Incidental Disgust Proxy Score x Self-Transcendence; DPO = Incidental Disgust Proxy Score x Openness.
Gender = (1) male, (2) = female.
Correlation coefficients in bold typeface significant at $p < .05$; *$p < .01$; †$p < .001$

Table 9a

Bivariate Correlations between Interaction Variables

	GCO	GST	GO	GED	GEX	ACO	AST	AO	AED	AEX	MOCO	MOST
GCO	-	**.38†**	**.35†**	-.06	-.07	-.04	-.04	-.0	.06	-.04	.07	.01
GST	-	-	**.30†**	.05	.12	-.06	.08	.00	.01	-.09	.01	.02
GO	-	-	-	.02	.10	-.05	.01	.00	.06	.03	-.05	-.02
GED	-	-	-	-	**.22***	.06	.00	.06	.14	.07	-.03	-.07
GEX	-	-	-	-	-	-.05	-.09	.03	.07	.02	-.05	-.02
ACO	-	-	-	-	-	-	**.34†**	.01	-.03	**-.40†**	.04	-.06
AST	-	-	-	-	-	-	-	.02	-.03	**-.36†**	-.04	.08
AO	-	-	-	-	-	-	-	-	-.08	**.29†**	-.08	..06
AED	-	-	-	-	-	-	-	-	-	**.15**	-.04	-.01
AEX	-	-	-	-	-	-	-	-	-	-	-.05	-.07
MOCO	-	-	-	-	-	-	-	-	-	-	-	**.46†**
MOST	-	-	-	-	-	-	-	-	-	-	-	-
MOO	-	-	-	-	-	-	-	-	-	-	-	-
MOED	-	-	-	-	-	-	-	-	-	-	-	-
MOEX	-	-	-	-	-	-	-	-	-	-	-	-
EMCO	-	-	-	-	-	-	-	-	-	-	-	-
EMST	-	-	-	-	-	-	-	-	-	-	-	-
EMO	-	-	-	-	-	-	-	-	-	-	-	-
EMED	-	-	-	-	-	-	-	-	-	-	-	-
EMEX	-	-	-	-	-	-	-	-	-	-	-	-
EDEX	-	-	-	-	-	-	-	-	-	-	-	-
DPCO	-	-	-	-	-	-	-	-	-	-	-	-
DPST	-	-	-	-	-	-	-	-	-	-	-	-
DPO	-	-	-	-	-	-	-	-	-	-	-	-

Note. GCO = Gender x Cooperativeness; GST = Gender x Self-Transcendence; GO = Gender x Openness; GED = Gender x Emotion Differentiation ICC; GEX = Gender x BDEFS-SF Summary Score; ACO = Age x Cooperativeness; AST = Age x Self-Transcendence; AO = Age x Openness; AED = Age x Emotion Differentiation ICC; AEX = Age x BDEFS-SF Summary Score; MOCO = BMIS Overall Mood x Cooperativeness; MOST = BMIS Overall Mood x Self-Transcendence; MOO = BMIS Overall Mood x Openness; MOED = BMIS Overall Mood x Emotion Differentiation ICC; MOEX = BMIS Overall Mood x BDEFS-SF Summary Score; EMCO = TEQ Total x Cooperativeness; EMST = TEQ Total x Self-Transcendence; EMO = TEQ Total x Openness; EMED = TEQ Total x Emotion Differentiation ICC; EMEX = TEQ Total x BDEFS-SF Summary Score; EDEX = Emotion Differentiation ICC x BDEFS-SF Summary Score; DPCO = Incidental Disgust Proxy Score x Cooperativeness; DPST = Incidental Disgust Proxy Score x Self-Transcendence; DPO = Incidental Disgust Proxy Score x Openness.
Gender = (1) male, (2) female.
Correlation coefficients in bold typeface significant at $p < .05$; *$p < .01$; †$p < .001$

Table 9b

Bivariate Correlations between Interaction Variables

	MOO	MOED	MOEX	EMCO	EMST	EMO	EMED	EMEX	EDEX	DPCO	DPST	DPO
GCO	-.05	-.02	-.04	**-.23***	.01	-.02	-.01	-.14	**.23***	.04	-.01	.03
GST	**-.02**	-.08	-.01	-.01	**.19***	**.20***	.03	-.03	.08	-.01	-.01	.03
GO	**.16**	-.11	.03	-.01	**.23***	.14	-.01	**.15**	.12	.02	.01	**.18**
GED	-.11	.05	-.12	-.02	.02	-.02	.14	**.16**	**-.36†**	.04	.05	.02
GEX	.02	-.12	.02	-.13	-.03	.14	**.16**	**.22***	-.01	-.02	-.01	.03
ACO	-.06	-.05	-.04	.11	**-.15**	.13	-.03	-.01	.02	-.09	-.09	-.13
AST	-.05	-.01	-.08	-.08	-.02	-.02	-.08	.04	.01	-.08	-.14	-.09
AO	.10	-.05	.06	.10	-.06	.12	.04	-.10	-.01	**-.16**	-.10	**-.18**
AED	-.05	-.04	.03	.02	-.06	.06	**.17**	.05	-.12	-.07	-.01	.02
AEX	.02	.05	.10	.10	.09	-.02	.04	.10	-.08	-.01	-.02	-.10
MOCO	**.44†**	-.02	**-.15**	.14	.13	.02	-.01	**-.17**	.05	**-16**	**.21***	**.16**
MOST	**.28†**	.08	.10	.09	**.16**	.05	.01	.00	-.01	**.19***	**.33†**	**.19***
MOO	-	.04	.09	.07	09	.13	-.07	-.08	.11	**.15**	**.18**	**.18**
MOED	-	-	**.37†**	-.02	.00	-.07	-.05	.06	-.09	.00	-.02	.00
MOEX	-	-	-	.00	.07	.04	.04	**.16**	.01	.08	.00	.10
EMCO	-	-	-	-	**.59†**	**.45†**	**-.15**	.12	-.02	.06	.12	.02
EMST	-	-	-	-	-	**.33†**	-.05	**.27†**	-.04	.11	.11	.12
EMO	-	-	-	-	-	-	-.09	**.15**	.02	-.13	.07	-.02
EMED	-	-	-	-	-	-	-	.13	**-.21***	-.04	.03	.06
EMEX	-	-	-	-	-	-	-	-	**-.20***	.03	.06	.02
EDEX	-	-	-	-	-	-	-	-	-	.06	-.05	.01
DPCO	-	-	-	-	-	-	-	-	-	-	**.48†**	**.44†**
DPST	-	-	-	-	-	-	-	-	-	-	-	**.48†**
DPO	-	-	-	-	-	-	-	-	-	-	-	-

Note. GCO = Gender x Cooperativeness; GST = Gender x Self-Transcendence; GO = Gender x Openness; GED = Gender x Emotion Differentiation ICC; GEX = Gender x BDEFS-SF Summary Score; ACO = Age x Cooperativeness; AST = Age x Self-Transcendence; AO = Age x Openness; AED = Age x Emotion Differentiation ICC; AEX = Age x BDEFS-SF Summary Score; MOCO = BMIS Overall Mood x Cooperativeness; MOST = BMIS Overall Mood x Self-Transcendence; MOO = BMIS Overall Mood x Openness; MOED = BMIS Overall Mood x Emotion Differentiation ICC; MOEX = BMIS Overall Mood x BDEFS-SF Summary Score; EMCO = TEQ Total x Cooperativeness; EMST = TEQ Total x Self-Transcendence; EMO = TEQ Total x Openness; EMED = TEQ Total x Emotion Differentiation ICC; EMEX = TEQ Total x BDEFS-SF Summary Score; EDEX = Emotion Differentiation ICC x BDEFS-SF Summary Score; DPCO = Incidental Disgust Proxy Score x Cooperativeness; DPST = Incidental Disgust Proxy Score x Self-Transcendence; DPO = Incidental Disgust Proxy Score x Openness.
Gender = (1) male, (2) female.
Correlation coefficients in bold typeface significant at $p < .05$; *$p < .01$; †$p < .001$

Univariate ANOVAS. One-way ANOVAs were used in order to get a preliminary sense of whether or not the primary variables of the study (i.e., personality, emotion differentiation, incidental disgust [proxy], and moral judgment) significantly vary as a function of other secondary variables (i.e., age, gender, mood, empathy, executive function). To do this, these secondary variables were transformed from being continuous to discrete,

groups consisting of: young versus old, male versus female reported gender, more positive vs. poorer mood, high versus low empathy, and high vs. low executive function. Each were individually treated as independent variables with the remaining variables of interest used as continuous, dependent variables. As a part of running these analyses, homogeneity of variance was evaluated using a Levene's test. When significant, robust tests of significance were used in place of *F* statistic test. These ANOVAs were sought to evaluate initial evidence supporting a potential moderator effect among variables in the hypothesized model, specifically for hypotheses three and five.

The continuous moderator variables used as IV's were transformed into categorical variables using the median split method. Cases below the median were aggregated into the "low" group with cases including and above the median composing the "high" group. Each moderator variable was transformed using the median-split method with the exception of gender and age. Gender was categorically organized based upon male/female self-report, with the "other" category dropped (eliminating four cases from analysis with this variable). While age also was transformed, asymmetry in the data rendered a true median split problematic; therefore, a more even division of cases was performed with ages 18-21 composing the "low" group and ages 21 and older composing the "high" group (despite a median age of 21). Furthermore, it is important to note that high executive function corresponded to lows scores on the BDEFS-SF, a measure of executive dysfunction.

First, one-way between subjects ANOVAs were conducted to compare the effect of age on all dependent variables: Cooperativeness, Self-Transcendence, Openness, incidental disgust (proxy), the moral judgment neutral condition, the moral judgment disgust condition, and emotion differentiation. Results from all six analyses are presented in Table 10. Levene's

test indicated that the assumption of homogeneity of variance was maintained. There was a significant effect of age on Self-Transcendence, $F(1, 191) = 5.85$, $p = .02$, $\eta^2 = .03$, and incidental disgust (proxy), $F(1, 191) = 5.91$, $p = .02$, $\eta^2 = .03$. For Self-Transcendence, the mean score for younger participants ($M = 151.41$, $SD = 38.86$) was significantly higher than scores for older participants ($M = 137.89$, $SD = 38.56$). For incidental disgust, the mean score for younger participants ($M = -2.56$, $SD = 3.51$) was significantly lower than scores for older participants ($M = -3.96$, $SD = 4.37$), suggesting that younger participants were less afflicted by disgust primes.

Table 10

One-Way ANOVAs for Age

	M	*SD*	*F* [df]	*Sig*	η^2
Cooperativeness			[(1, 191) = 2.33]	.13	.01
Younger	158.80	19.43			
Older	162.85	17.41			
Self-Transcendence			[(1, 191) = 5.85]	.02*	.03
Younger	151.41	38.86			
Older	137.89	38.56			
Openness			[(1, 191) = 4.03]	.05	.02
Younger	164.15	18.24			
Older	169.43	18.17			
Incidental Disgust (Proxy)			[(1, 191) = 5.91]	.02*	.03
Younger	-2.56	3.51			
Older	-3.96	4.37			
Moral Judgment – Neutral			[(1, 191) = .07]	.79	.00
Younger	21.35	12.67			
Older	20.88	12.58			
Moral Judgment – Disgust			[(1, 191) = .31]	.58	.00
Younger	23.91	11.62			
Older	24.84	11.45			
Emotion Differentiation			[(1, 191) = .80]	.37	.00
Younger	.60	.28			
Older	.57	.27			

Note. *$p<.05$

Next, one-way between subjects ANOVAs were conducted to compare the effect of gender on the same dependent variables. Heterogeneity of variance was not indicated for any

of the ANOVAs per Levene's test of homogeneity of variance. The results on all ANOVAs for gender are provided in Table 11. There was a significant effect of gender on Cooperativeness, $F(1, 187) = 5.20$, $p = .02$, $\eta^2 = .03$, and Self-Transcendence, $F(1, 187) = 7.44$, $p = .007$, $\eta^2 = .04$. For Cooperativeness, the mean score for self-reported females ($M = 163.21$, $SD = 18.34$) was significantly higher than mean scores for self-reported males ($M = 156.57$, $SD = 18.12$). Similarly, for Self-Transcendence the mean scores for self-reported females ($M = 149.62$, $SD = 39.74$) was significantly higher than mean scores for self-reported males ($M = 132.80$, $SD = 36.13$).

Table 11

One-Way ANOVAs for Gender

	M	*SD*	*F* [df]	*Sig*	η^2
Cooperativeness			[(1, 187) = 5.20]	.02*	.03
Male	156.57	18.12			
Female	163.21	18.34			
Self-Transcendence			[(1, 187) = 7.44]	<.01**	.04
Male	132.80	36.13			
Female	149.62	39.74			
Openness			[(1, 187) = 1.41]	.24	.01
Male	164.52	21.08			
Female	168.02	17.32			
Incidental Disgust (Proxy)			[(1, 187) = 1.24]	.27	.01
Male	-2.79	4.43			
Female	-3.51	3.93			
Moral Judgment – Neutral			[(1, 187) = 2.00]	.16	.01
Male	23.21	14.21			
Female	20.36	11.96			
Moral Judgment – Disgust			[(1, 187) = 1.33]	.25	.01
Male	26.00	12.32			
Female	23.87	11.28			
Emotion Differentiation			[(1, 187) = 1.44]	.23	.01
Male	.55	.32			
Female	.60	.25			

Note. *p<.05; **p<.01

One-way between subjects ANOVAs then were conducted to compare the effect of mood on the dependent variables, as shown in Table 12. Homogeneity of variance was indicated by Levene's test for Cooperativeness, Self-Transcendence, incidental disgust, and

emotion differentiation; they did not significantly vary as a function of mood. However, Levene's test of homogeneity of variances was significant for the effect of mood on both moral judgment conditions as well as Openness, indicating that the assumption of homogeneity of variances was violated for these variables. Given the violation of this assumption for these dependent variables, a corrected *F* statistic was calculated assuming heterogeneity of variance using the Welch statistic. This showed that neither Openness nor the moral judgment disgust condition varied as a function of mood; however, there was a significant effect for mood on the moral judgment neutral condition, $F(1, 179.45) = 4.17$, $p = .04$, $\eta^2 = .02$. For the moral judgment neutral condition, the mean score for participants with poorer mood ($M = 19.10$, $SD = 7.81$) was significantly lower than scores for participants with greater mood ($M = 22.47$, $SD = 14.92$). This suggests that participants with poorer moods generally rated culturally taboo practices as more unacceptable when presented with the neutral primes than did those with more positively elevated mood.

Table 12

One-Way ANOVAs for Mood

	M	*SD*	*F* [df]	*Sig*	η^2
Cooperativeness			[(1, 191) = .75]	.39	.00
Poorer Mood	159.62	17.63			
Greater Mood	161.96	18.97			
Self-Transcendence			[(1, 191) = 1.06]	.30	.01
Poorer Mood	140.56	37.54			
Greater Mood	146.47	40.27			
Openness			[(1, 185.55) = .00]	.96	.00
Poorer Mood	166.95	16.21			
Greater Mood	167.07	19.76			
Incidental Disgust (Proxy)			[(1, 191) = 1.66]	.20	.01
Poorer Mood	-3.77	3.98			
Greater Mood	-3.01	4.09			
Moral Judgment – Neutral			[(1, 179.45) = 10.15] †	.04*	.02
Poorer Mood	19.10	7.81			
Greater Mood	22.47	14.92			
Moral Judgment – Disgust			[(1, 185.56) = 2.89] †	.09	.01
Poorer Mood	22.87	7.87			
Greater Mood	25.48	13.39			
Emotion Differentiation			[(1, 191) = 1.64]	.20	.01
Poorer Mood	.55	.28			
Greater Mood	.60	.27			

Note. †Homogeneity of variance violated per Levene's Test; *F* Statistic substituted for Welch's Statistic.
*$p < .05$

Next, empathy was treated as an independent variable in a series of one-way between subjects ANOVAs with all dependent variables. Levene's test for homogeneity of variances was significant for Cooperativeness and both moral reasoning conditions, indicating that the assumption of homogeneity of variance was violated. Therefore, the *F* statistic for these variables was replaced with a corrected statistic (i.e., Welch's statistic). Results for all ANOVAs featuring empathy as an independent variable are presented in Table 13. There was a significant effect for empathy on all personality variables: Cooperativeness, $F(1, 172.43) = 60.96$, $p < .001$, $\eta^2 = .25$, Openness, $F(1, 191) = 27.26$, $p < .001$, $\eta^2 = .12$, and Self-Transcendence, $F(1, 191) = 6.93$, $p = .009$, $\eta^2 = .04$. The mean score for Cooperativeness for those with lower empathy ($M = 151.34$, $SD = 17.79$) was significantly less than the mean

score for those with higher empathy (*M* = 169.62, *SD* = 14.28), likely due to the underlying prosocial nature of both variables. This pattern was consistent (albeit less substantial) for the remaining two personality variables. For both Openness and Self-Transcendence, low empathy scorers produced significantly lower scores for both traits (*M* = 160.18, *SD* = 16.33, *M* = 136.31, *SD* = 35.87, respectively) than high empathy scorers (*M* = 173.13, *SD* = 17.95 for Openness; *M* = 150.96, *SD* = 40. 86 for Self-Transcendence). Taken together, these findings are consistent with the notion that greater trait Openness, Self-Transcendence, and especially Cooperativeness correspond to greater levels of empathy.

Furthermore, there was a significant effect for empathy on both the moral judgment neutral $F(1, 150.17) = 8.02$, $p = .004$, $\eta^2 = .04$, and disgust conditions, $F(1, 166.50) = 8.02$, $p < .001$, $\eta^2 = .04$. For both conditions, scores were significantly greater for those with lower empathy (*M* = 23.82, *SD* = 14.89 for neutral; *M* = 26.89, *SD* = 12.85 for disgust) over those with higher empathy (*M* = 18.66, *SD* = 9.55 for neutral; *M* = 22.21, *SD* = 9.70 for disgust). In other words, participants scoring higher on the empathy measure generally found culturally taboo practices to be less acceptable.

Table 13

One-Way ANOVAs for Empathy

	M	*SD*	*F* [df]	*Sig*	η^2
Cooperativeness			[(1, 172.43) = 60.96]†	<.001***	.25
Low Empathy	151.34	17.79			
High Empathy	169.62	14.28			
Self-Transcendence			[(1, 191) = 6.93]	<.01**	.04
Low Empathy	136.31	35.87			
High Empathy	150.96	40.86			
Openness			[(1, 191) = 27.26]	<.001***	.12
Low Empathy	160.18	16.33			
High Empathy	173.13	17.95			
Incidental Disgust (Proxy)			[(1, 191) = .68]	.41	.00
Low Empathy	-3.07	4.67			
High Empathy	-3.55	3.42			
Moral Judgment – Neutral			[(1, 150.17) = 8.02] †	<.01**	.04
Low Empathy	23.82	14.89			
High Empathy	18.66	9.55			
Moral Judgment – Disgust			[(1, 166.50) = 8.02] †	<.01**	.04
Low Empathy	26.89	12.85			
High Empathy	22.21	9.70			
Emotion Differentiation			[(1, 191) = .04]	.84	.00
Low Empathy	.59	.29			
High Empathy	.58	.26			

Note. †Homogeneity of variance violated per Levene's Test; *F* Statistic substituted for Welch's Statistic.
***p* < .01; ****p* < .001

Lastly, executive dysfunction was used as an independent variable in a series of one-way between subjects ANOVAs with the aforementioned dependent variables. Homogeneity of variance was found for all variables except emotion differentiation, per Levene's test. Welch's test was the corrected test used in place of the *F* statistic in this instance. As shown in Table 14, this was the only significant ANOVA, showing a significant effect for executive dysfunction on emotion differentiation, $F(1, 172.76) = 4.42$, $p = .04$, $\eta^2 = .02$. For this effect, those with less executive dysfunction produced significantly lower LEAS ICC scores ($M = .54$, $SD = .31$) than those with higher executive dysfunction ($M = .62$, $SD = .22$). Put differently, this means that those with higher executive function ability appeared to have greater emotion differentiation than those with lower executive function.

Table 14

One-Way ANOVAs for Executive Dysfunction

	M	*SD*	*F* [df]	*Sig*	η^2
Cooperativeness			[(1, 191) = 2.49]	.12	.01
Low Dysfunction	163.09	19.74			
High Dysfunction	158.93	16.87			
Self-Transcendence			[(1, 191) = 1.08]	.30	.01
Low Dysfunction	141.10	39.51			
High Dysfunction	146.97	38.83			
Openness			[(1, 191) = .04]	.84	.00
Low Dysfunction	166.75	18.21			
High Dysfunction	167.29	18.57			
Incidental Disgust (Proxy)			[(1, 191) = .06]	.80	.00
Low Dysfunction	-3.40	3.88			
High Dysfunction	-3.25	4.23			
Moral Judgment – Neutral			[(1, 191) = .47]	.49	.00
Low Dysfunction	20.47	13.04			
High Dysfunction	21.71	12.17			
Moral Judgment – Disgust			[(1, 191) = .44]	.51	.00
Low Dysfunction	23.86	11.79			
High Dysfunction	24.96	11.25			
Emotion Differentiation			[(1, 172.76) = 4.42] †	.04*	.02
Low Dysfunction	.54	.31			
High Dysfunction	.62	.22			

Note. †Homogeneity of variance violated per Levene's Test; *F* Statistic substituted for Welch's Statistic.
*$p < .05$

Hypothesis-Driven Statistics

Prior to testing the conceptual model in its entirety through path analysis, each of the five hypotheses were evaluated individually. Relevant preliminary analyses (see above) were examined in concert with appropriate statistics for each prediction. Each hypothesis is addressed step-wise below before the evaluation of the full model.

H1: Personality, emotion differentiation, incidental disgust, and cognitive abilities (i.e., executive control and general intelligence) would be predictive of performance on moral judgment tasks. Specifically, elevations in emotion differentiation, personality traits (i.e., Cooperativeness, Openness, Self-Transcendence), executive control, and intelligence would be shown to significantly diminish negative

appraisals (i.e., lead to less biased appraisals) in moral judgment. Conversely, incidental disgust would be shown to significantly increase negative appraisal in moral judgment (i.e., biased moral judgment). For the first part of this hypothesis, aforementioned correlations between personality variables, emotion differentiation, and executive control (note: intelligence could not be included in any analyses as it was dropped due to inconsistent/missing data), and the moral judgment conditions were evaluated. Additionally, two standard multiple regressions were conducted, one with the moral judgment neutral condition as the DV and the other with the moral judgment disgust condition as the DV. For both, personality variables, emotion differentiation, and executive control were used as predictors. It was expected that most correlations would be significant and negative, with the exception of the moral judgment variables as well as the relation between emotion differentiation and executive control (lower LEAS ICC is thought to represent greater emotion differentiation and the BDEFS-SF measures executive *dysfunction*). Both regressions overall were expected to be significant, with each predictor being significant as well. It was anticipated that personality predictors would be negative, whereas executive control and emotion differentiation would be positive.

While Cooperativeness and Openness had a significant and negative correlation with both moral judgment conditions, Self-Transcendence did not. Nor did the personality variables have any significant correlations with executive control or emotion differentiation. The moral judgment conditions were highly and positively associated with one another, and they were both significantly and negatively correlated with emotion differentiation. Executive dysfunction had only one significant correlation, a negative association with emotion differentiation.

Significant regression models were found for both the moral judgment neutral condition, $F(5, 187) = 4.32$, $p = .001$, $R = .32$, $R^2 = .10$, and the moral judgment disgust condition, $F(5, 187) = 5.40$, $p = .001$, $R = .32$, $R^2 = .10$. For the neutral condition, three of five predictors were significant: Cooperativeness (B = -.13, $\beta = -.19$, $p = .02$, $sr^2 = .03$), Openness (B = -.12, $\beta = -.18$, $p = .02$, $sr^2 = .03$), and emotion differentiation (B = -7.70, $\beta = -.17$, $p = .02$, $sr^2 = .03$). Results for this model are displayed in Table 15. Cooperativeness, Openness, and emotion differentiation each uniquely contribute 30% towards the total explained variance (R^2) for the moral judgment neutral condition.

Table 15

Standard Regression of Personality Variables, Emotion Differentiation, and Executive Dysfunction on Moral Judgment – Neutral

Variables	*B*	*SE B*	*β*	sr^2
Cooperativeness	-.13*	.06	-.19	.03*
Self-Transcendence	.04	.03	.11	.01
Openness	-.12*	.05	-.18	.03*
Emotion Differentiation	-7.70*	3.26	-.17	.03*
Executive Dysfunction	-.03	.09	-.02	.00
				$R^2 = .10$ [a]
				Adjusted $R^2 = .08$
				$R = .32$**

Note. [a] Unique variability = .08; shared variability = .02
*$p < .05$; **$p < .01$

For the disgust condition, only two of the five predictors were significant: Cooperativeness (B = -.16, $\beta = -.25$, $p = .002$, $sr^2 = .05$) and emotion differentiation (B = -7.21, $\beta = -.17$, $p = .02$, $sr^2 = .03$). Results for the overall model, including each predictor, are presented in Table 16. Cooperativeness and emotion differentiation uniquely contributed 50% and 30% to the total variance of the moral judgment disgust scores, respectively. While these regressions do not directly compare predictors between conditions, taken together there are no meaningful differences between the two consistently significant predictors (i.e.,

Cooperativeness and emotion differentiation) for either moral judgment condition. However, this comparison is explored further in evaluation of the overall path model (see below).

Table 16

Standard Regression of Personality Variables, Emotion Differentiation, and Executive Dysfunction on Moral Judgment – Disgust

Variables	*B*	*SE B*	*β*	sr^2
Cooperativeness	-.16**	.0*	-.25	.05**
Self-Transcendence	.04	.02	.13	.01
Openness	-.06	.05	-.10	.01
Emotion Differentiation	-7.21*	2.98	-.17	.03*
Executive Dysfunction	-.04	.08	-.04	.00
				R^2 = .10 [a]
				Adjusted R^2 = .08
				R = .32**

Note. [a] Unique variability = .08; shared variability = .02
*p < .05; **p < .01

For the second part of this hypothesis, the moral judgment task was evaluated in terms of the effectiveness of the incidental disgust primes. To do this, a paired samples t-test was conducted using the total scores from the moral judgment task for the neutral and disgust prime items, respectively. As stated previously, the moral judgment conditions had a strong, positive, and significant correlation with one another, $r(193) = .95$, $p < .001$. The total mean for moral judgment ratings under the disgust condition ($M = 24.41$) was found to be higher than the total mean under the neutral condition ($M = 21.09$), a finding which was significant [$t_{192} = -11.39$, $p < .001$; $M_{diff} = -3.32$, 95% CI (-3.90, -2.75)]. An effect size ($d = -.85$) was calculated for this test using an online calculator[4] that used the average standard deviation from both means while correcting for their dependence per Morris and Deshon (2002). This indicated a large effect (Cohen, 1988) for disgust primes, supporting the notion that the disgust primes succeeded in influencing participants. However, the direction of this effect

[4] See http://www.cognitiveflexibility.org/effectsize/

was contrary to predictions; higher ratings on the moral judgment task are indicative of greater acceptance of cultural taboos yet participants appeared more likely to condemn culturally taboo practices when no disgust prime was introduced.

Taken together, the correlational, standard regression, and paired samples t-test findings had important implications on subsequent analyses. The correlations and standard regressions did not wholly support this hypothesis, raising doubts about the overall conceptual model. However, this hypothesis was not concerned with interaction effects, and so subsequent analysis of the remaining hypotheses (which explore interaction effects) could clarify these findings further by intimating non-linear relationships to moral judgment. While the outcome for the paired samples t-test examining the effect of incidental disgust on the moral judgment task could be interpreted as also undermining the overall conceptual model of the study, this aspect of the hypothesis was supported, but in an unexpected way. Therefore, subsequent analyses proceeded from the supported assumption that the disgust primes influenced the severity of moral judgments, as indicated by the finding of a large effect for tasks paired with these primes. However, implications based on the direction of these findings are explored in greater detail in the discussion.

Proceeding to the remaining hypotheses, the paired samples t-test results suggested that the impact of the disgust primes could be represented by the magnitude of difference between the neutral and disgust total scores. This finding aids the interpretation of the aforementioned correlations with the incidental disgust proxy score, a negative value that was calculated by subtracting the moral judgment disgust condition total score from the moral judgment neutral condition total score: incidental disgust appears to have a significant

positive association with Openness, $r(193) = -.21$, $p = .003$, and a significant negative correlation to the moral judgement neutral condition total score, $r(193) = .42$, $p < .001$.

H2: Increases in Openness, Self-Transcendence, and Cooperativeness would lead to a significant increase in emotion differentiation, as emotion differentiation is expected to mediate the relation between personality and moral judgment given their underlying conceptual similarities (i.e., focus on intuition and inverse relationship to alexithymia in the case of Self-Transcendence; organization of emotional experience for Openness to Experience; incorporation of empathic concern for Cooperativeness). To evaluate this hypothesis, relevant correlations were examined and the following analyses were conducted. First, a standard multiple regression was completed with personality variables serving as predictors and emotion differentiation as the outcome variable. It was expected that the overall model would be significant and that each predictor would be significant and negative, as lower LEAS ICC scores are thought to correspond to greater emotion differentiation. Next, partial correlations were examined between the personality variables and moral judgment conditions, controlling for emotion differentiation. It was anticipated that controlling for emotion differentiation would significantly decrease the correlation between the personality traits and moral judgment conditions. Lastly, two hierarchical regressions were completed, one with the moral judgment neutral condition as the outcome variable, the other with the moral judgment disgust condition as the outcome variable. For both hierarchical regressions, emotion differentiation was entered in the first step and all three personality variables were entered in the second step. With these regressions, only the first step was expected to be significant, as would be expected if emotion differentiation was mediating the relation between personality and moral judgment.

Proceeding stepwise, correlations between personality variables and emotion differentiation were examined. While the personality variables were all significantly and positively correlated with one another, there were no significant associations found between any of the personality variables and emotion differentiation. This was contrary to expectations and certainly undermined the conceptual model.

Next the standard multiple regression was completed with emotion differentiation as the DV and the personality variables serving as IVs, as depicted in Table 17. The overall regression model was nonsignificant, $F(3, 189) = .30$, $p = .83$, $R = .07$, $R^2 = .05$. Furthermore, none of the personality variables were significantly predictive of emotion differentiation.

Table 17

Standard Regression of Personality Variables on Emotion Differentiation

Variables	*B*	*SE B*	*β*	*sr*^{2}
Cooperativeness	-.00	.00	-.06	.00
Self-Transcendence	.00	.00	.06	.00
Openness	.00	.00	.02	.00
				$R^2 = .01$[a]
				Adjusted $R^2 = -.01$
				$R = .07$

Note. [a] Unique variability = .00; shared variability = .00

Next, partial correlations were calculated for the personality and moral judgment condition variables, controlling for emotion differentiation. These correlations are provided in full in Table 18. As can be seen, controlling for emotion differentiation did not substantially alter any of the correlations between personality and emotion differentiation variables, as all previously significant variables maintained their significance, and vice versa.

Table 18

Relations among Personality and Moral Judgment Variables – Comparisons between Bivariate and Partial Correlations Controlling for Emotion Differentiation

	MJn	MJd	CO	ST	O
MJn [a]	-	.95***	-.21**	-.02	-.22**
MJd [a]	-	-	-.23**	-.01	-.17
CO [a]	-	-	-	.39***	.39***
ST [a]	-	-	-	-	.29***
O [a]	-	-	-	-	-
MJn	-	.95***	-.22**	-.02	-.22**
MJd	-	-	-.24**	-.01	-.17*
CO	-	-	-	.39***	.39***
ST	-	-	-	-	.29***
O	-	-	-	-	-

Note. [a]Bivariate correlations; MJn = Moral Judgment neutral condition total score; MJd = Moral Judgment disgust condition total score; CO = Cooperativeness; ST = Self-Transcendence; O = Openness.
*$p < .05$; **$p < .01$; ***$p < .001$

Following the partial correlational analysis, the two hierarchical regressions were completed. For the first hierarchical regression, the moral judgment neutral condition was treated as the dependent variable, with emotion differentiation entered in step one and the personality variables entered for step two. The results for this hierarchical regression are presented in Table 19, including unstandardized regression weights (*B*), their intercept (*SE B*), standardized regression weights (β), semipartial correlations (sr^2), change in R^2 at each step (ΔR^2), and *R*, R^2, and adjusted R^2 for the overall model. The first step of the regressions accounted for 3% of the variance for the moral judgment neutral condition and produced an overall significant regression model, $F(1, 191) = 5.21$, $p = .02$. Introduction of the personality variables at step two increased significance of the model, $F(4, 188) = 5.40$, $p < .001$. Together personality variables accounted for an additional 6% of the variance for the moral judgment neutral condition. Overall all four variables explained 9% of the total variance for the moral judgment neutral condition.

Table 19

Hierarchical Regression of Emotion Differentiation and Personality on Moral Judgment – Neutral

Block	Variables	*B*	*SE B*	*β*	sr^2	ΔR^2
1*	Emotion Differentiation	-7.51*	3.29	-.16	.03*	.03*
2***	Cooperativeness	-.13*	.05	-.19	.03*	
	Self-Transcendence	.04	.02	.11	.01	
	Openness	-.12*	.05	-.18	.03*	.06**
						$R^2 = .10$
						Adjusted $R^2 = .08$
						$R = .32^{***}$

Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

Lastly, the same hierarchical regression was then completed again, except that the dependent variable was replaced with the moral judgment disgust condition. The results from this hierarchical regression are presented in Table 20. As before, emotion differentiation in the first step was significant, $F(1, 191) = 5.48$, $p = .02$, accounting for 3% of the variance explained for the moral judgment disgust condition. Also like the previous hierarchical regression, the model's significance increased with the introduction of the personality variables, $F(4, 188) = 5.39$, $p < .001$. These variables contributed an additional 7% to the total explained variance. Together, all four variables explained 10% of the variance for the moral judgment disgust condition.

Table 20

Hierarchical Regression of Emotion Differentiation and Personality on Moral Judgment – Disgust

Block	Variables	*B*	*SE B*	*β*	sr^2	ΔR^2
1*	Emotion Differentiation	-7.03*	3.00	-.17	.03*	.03*
2***	Cooperativeness	-.15**	.05	-.25	.05**	
	Self-Transcendence	.04	.02	.12	.01	
	Openness	-.07	.05	-.10	.01	.07**
						$R^2 = .10$
						Adjusted $R^2 = .08$
						$R = .32^{***}$

Note. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

In summary, the results from these analyses provide little support for this hypothesis. Contrary to expectations, personality variables were not significantly and negatively associated with emotion differentiation, nor did the partial correlations intimate a mediating effect for emotion differentiation in the associations between the personality and moral judgment variables. While emotion differentiation and personality variables contributed significantly and incrementally to the moral judgment variables, overall these findings cast doubt on the proposed conceptual model. However, the hierarchical regressions nevertheless support the notion that emotion differentiation and personality variables are predictive of moral judgment. For moral judgments without incidental disgust, emotion differentiation, Cooperativeness, and Openness were all significant predictors, whereas only emotion differentiation and Cooperativeness served as significant predictors of moral judgment paired with incidental disgust. Lastly, it is important to note that, as with the first hypothesis, these analyses do not take into consideration any interaction effects that could suggest non-linear relationships among the study variables.

H3: Emotion differentiation would moderate the relation between incidental disgust and moral judgment, such that elevations in emotion differentiation would diminish the effect incidental disgust has on forming negative appraisals in moral judgment. In other words, the greater the emotion differentiation, the smaller the difference between moral judgments with and without incidental disgust. To test this hypothesis, a split-plot ANOVA was conducted. The moral judgment conditions (disgust, neutral) served as the within-subjects DV, while emotion differentiation was transformed via median-split method to be used as the between-subjects IV. A significant main effect was found for the two moral judgment conditions, $F(1, 191) = 129.18$, MSE = 8.24, $p < .001$, η_p^2

= .40. However, no significant main effect was found for emotion differentiation, $F(1, 191) = 3.64$, MSE = 278.89, $p = .06$, $\eta_p^2 = .02$. Finally, the interaction of the two factors was not significant, $F(1, 191) < 1$, MSE = 8.24, $p = .06$, $\eta_p^2 = .00$. Overall, this analysis failed to support the hypothesis, making the prospect of emotion differentiation serving its expected role in the final path model dubious.

H4: Executive control also would moderate the relation between incidental disgust and moral judgment, such that elevations in executive control would diminish the influence incidental disgust has on forming negative appraisals in moral judgment. In other words, the greater the executive control, the smaller the difference between moral judgments with and without incidental disgust. Additionally, general intelligence was expected to be a significant covariate to executive control. Unfortunately, the latter part of this hypothesis could not be tested, as a metric of general intelligence was not available after the exclusion of the GMAT data (again due to missing/inconsistent responses). However, the principle part of this hypothesis was tested similar to hypothesis three. A split-plot was completed again with the moral judgment conditions serving as the within-subjects DV, but this time executive dysfunction was transformed via median-split method for use as the between-subjects IV. A significant main effect was found for the two moral judgment conditions, $F(1, 191) = 129.15$, MSE = 8.24, $p < .001$, $\eta_p^2 = .40$. However, as with emotion differentiation, no significant main effect was found for executive dysfunction, $F(1, 191) = .47$, MSE = 283.51, $p = .50$, $\eta_p^2 = .00$. The interaction of the two factors also was not significant, $F(1, 191) < 1$, MSE = 8.24, $p = .80$, $\eta_p^2 = .00$. Overall, this analysis failed to support the hypothesis, adding further doubt on the overall path model, particularly with regard to executive control.

H5: Participant age, gender, mood, and capacity for empathy were expected to serve as general moderators for the entire model given their theoretical/conceptual relationship with all variables within the model; however, no specific predictions were made as to the direction of effects that these moderators would have on the variable relationships due to inconclusive data on previous findings with these variables as well as the model's complexity and exploratory nature. To test the final hypothesis, correlations between the interaction variables and primary study variables that were previously generated were evaluated. It was anticipated that there would be a high volume of significant correlations between interaction variables and the primary study variables. Following this evaluation, a series of three hierarchical regressions were completed. The first hierarchical regression treated emotion differentiations as the outcome variable. The following variables were then entered in sequential blocks: (1) age and gender, (2) overall mood, (3) empathy, (4) executive dysfunction, (5) incidental disgust (proxy), (6) personality variables, and (7) all 24 interaction variables. For the second hierarchical regression, the outcome variable was the moral judgment neutral condition. The following variables were then entered in sequential blocks: (1) age and gender, (2) overall mood, (3) empathy, (4) executive dysfunction, (5) emotion differentiation, (6) personality variables, and (7) all 24 interaction variables. The final hierarchical regression was identical to the second, except that the moral judgment disgust condition was used as the outcome variable. For all three hierarchical regressions, it was expected that most of the interaction variables would serve as significant predictors for their respective outcome variables above and beyond preceding steps.

Turning first to the correlational analysis, a number of relevant significant associations were found among the interaction variables and the primary variables of interest for the study, possibly pointing to interaction effects for the overall model. With regard to the personality variables, Cooperativeness had significant positive correlations with the following interaction variables: gender x Self-Transcendence, $r(189) = .37$, $p < .001$, gender x Openness, $r(189) = .36$, $p < .001$, emotion differentiation x executive dysfunction $r(193) = .22$, $p = .002$. Self-Transcendence had significant positive correlations with gender x Cooperativeness, $r(190) = .38$, $p < .001$, gender x Openness, $r(189) = .30$, $p < .001$, and empathy x Openness, $r(193) = .18$, $p = .01$. With Openness, significant positive associations were found with gender x Cooperativeness, $r(190) = .35$, $p < .001$, gender x Self-Transcendence, $r(189) = .28$, $p < .001$, and empathy x Self-Transcendence, $r(193) = .18$, $p = .01$.

The moral judgment variables also had a number of significant relevant correlations with interaction variables. The moral judgment neutral condition was significantly and negatively associated with gender x Cooperativeness, $r(190) = -.18$, $p = .01$, gender x Openness, $r(189) = -.18$, $p = .01$, and incidental disgust x Cooperativeness, $r(193) = -.28$, $p < .001$. The moral judgment neutral condition also was significantly and positively correlated with empathy x emotion differentiation, $r(193) = .24$, $p = .001$. The moral judgment disgust condition was significantly and negatively associated with gender x Cooperativeness, $r(190) = -.21$, $p = .003$, and incidental disgust x Cooperativeness, $r(193) = -.20$, $p = .005$. It also was significantly and positively correlated with empathy x emotion differentiation, $r(193) = .22$, $p = .003$.

Emotion differentiation only had one relevant significant association with an interaction variable, a positive correlation with gender x executive dysfunction, $r(189) = .20$, $p = .006$. Similarly, the incidental disgust proxy had one relevant significant correlation, a negative association with gender x Openness, $r(189) = -.19$, $p < .008$. However, executive dysfunction was significantly and positively associated with gender x emotion differentiation, $r(189) = .22$, $p = .003$, and empathy x emotion differentiation, $r(193) = .15$, $p = .03$.

Moderator variables also had significant correlations with interaction variables. Empathy was positively and significantly associated with the following interaction variables: gender x Cooperativeness, $r(190) = .63$, $p < .001$, gender x Self-Transcendence, $r(189) = .27$, $p < .001$, gender x Openness, $r(189) = .40$, $p < .001$, and emotion differentiation x executive dysfunction, $r(193) = .15$, $p = .04$. Age had a significant negative association with gender x executive dysfunction, $r(189) = -.20$, $p = .006$. Gender had a significant negative correlation with empathy x Openness, $r(189) = -.15$, $p = .04$. Lastly, mood was negatively and significantly correlated with gender x executive dysfunction, $r(189) = -.27$, $p < .001$.

Next, to understand whether or not interaction effects were influencing the primary study variables, the aforementioned hierarchical regressions were completed. Results for the first hierarchical regression, which treated emotion differentiation as the dependent variable, are presented in Table 21 [including unstandardized regression weights (*B*), intercepts (*SE B*), standardized regression weights (β), semipartial correlations (sr^2), ΔR^2, and overall model R, R^2, and adjusted R^2]. In step one, age and gender together accounted for only 2% of the variance for emotion differentiation, yielding a nonsignificant overall regression model, $F(2, 186) = 1.54$, $p = .22$. Similarly, step two also produced a nonsignificant model, $F(3, 185) =$

1.05, $p = .37$, with mood contributing only an additional <1% to the total variance explaining emotion differentiation. The model remained nonsignificant at step three, $F(4, 184) = 1.05p = .38$, with 1% of the variance towards emotion differentiation being explained by empathy. The model became significant with the introduction of executive dysfunction at step four, $F(5, 183) = 2.63$, $p = .03$, which contributed 4% explained variance to emotion differentiation. Although the model remained significant at step five, $F(6, 182) = 2.25$, $p = .04$, incidental disgust did not significantly improve the model (i.e., increasing explained variance for emotion differentiation by <1%). Together, personality variables had a negligible contribution (<1%) to the total explained variance for emotion differentiation, rendering the model nonsignificant overall, $F(9, 179) = 1.52$, $p = .15$.

The final step introduced all 24 interaction variables, leading the model to become significant again, $F(33, 155) = 81.58$, $p < .001$. In total, the interaction terms added 63% to the total explained variance. In particular, gender x emotion differentiation accounted for the largest portion of the variance explained (62%). Other significant interaction terms included empathy x emotion differentiation (1%), emotion differentiation x executive dysfunction (<1%), age x emotion differentiation (<1%), mood x emotion differentiation (<1%), and mood x self-transcendence (<1%). To better understand these significant interaction variables, plots were generated to visually depict their relationship with one another. Figures 3-8 show the interactions between age x emotion differentiation, gender x emotion differentiation, mood x self-transcendence, mood x emotion differentiation, empathy x emotion differentiation, and emotion differentiation x executive dysfunction. All figures display uncorrected interaction plots.

Table 21

Hierarchical Regression of Age, Gender, Mood, Empathy, Executive Dysfunction, Incidental Disgust (proxy), Personality Variables, and Interaction Variables on Emotion Differentiation

Block	Variables	*B*	*SE B*	*β*	sr^2	ΔR^2
1	Age	.00	.00	-.09	.01	
	Gender	.06	.04	.09	.01	.02
2	Overall Mood	.00	.00	.02	.00	.00
3	Empathy	.00	.00	-.08	.01	.01
4*	Executive Dysfunction	.01**	.00	.23	.04**	.04**
5*	Incidental Disgust (Proxy)	.00	.01	-.05	.00	.00
6	Cooperativeness	.00	.00	.05	.00	
	Self-Transcendence	.00	.00	.00	.00	
	Openness	.00	.00	.02	.00	.00
7***	Age x Cooperativeness	.00	.00	-.03	.00	
	Age x Self-Transcendence	.00	.00	.00	.00	
	Age x Openness	.00	.00	-.01	.00	
	Age x Emotion Differentiation	-.01**	.00	-.07	.00**	
	Age x Executive Dysfunction	.00	.00	.02	.00	
	Gender x Cooperativeness	.00	.00	.04	.00	
	Gender x Self-Transcendence	.00	.00	-.12	.00	
	Gender x Openness	.00	.00	.11	.00	
	Gender x Emotion Differentiation	.58***	.01	.96	.62***	
	Gender x Executive Dysfunction	.00	.00	-.13	.00	
	Mood x Cooperativeness	.00	.00	.03	.00	
	Mood x Self-Transcendence	.00*	.00	-.05	.00*	
	Mood x Openness	.00	.00	.01	.00	
	Mood x Emotion Differentiation	.01*	.00	.05	.00*	
	Mood x Executive Dysfunction	.00	.00	.00	.00	
	Empathy x Cooperativeness	.00	.00	.00	.00	
	Empathy x Self-Transcendence	.00	.00	.02	.00	
	Empathy x Openness	.00	.00	-.01	.00	
	Empathy x Emotion Differentiation	-.01***	.00	-.11	.01***	
	Empathy x Executive Dysfunction	.00	.00	-.02	.00	
	Emotion Differentiation x Executive Dysfunction	-.01**	.00	-.08	.00**	
	Disgust x Cooperativeness	.00	.00	.00	.00	
	Disgust x Self-Transcendence	.00	.00	.01	.00	
	Disgust x Openness	.00	.00	.03	.00	.63***
						R^2 = .95
						Adjusted R^2 = .93
						R = .97***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

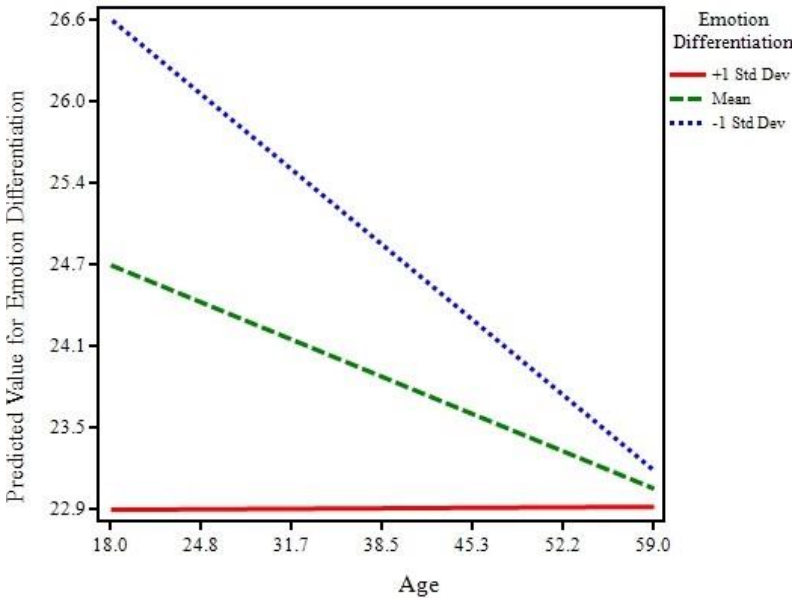

Figure 3. Interaction between Age and Emotion Differentiation for the Predicted Value for Emotion Differentiation

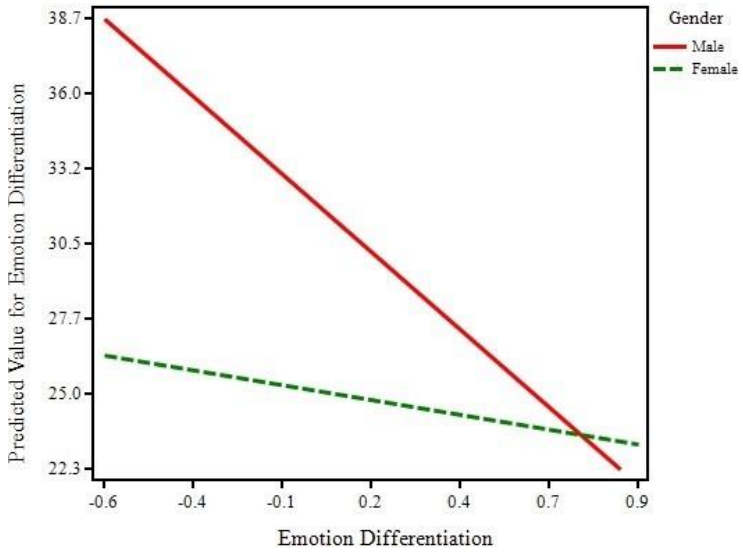

Figure 4. Interaction between Gender and Emotion Differentiation for the Predicted Value for Emotion Differentiation. Greater emotion differentiation represented by lower scores.

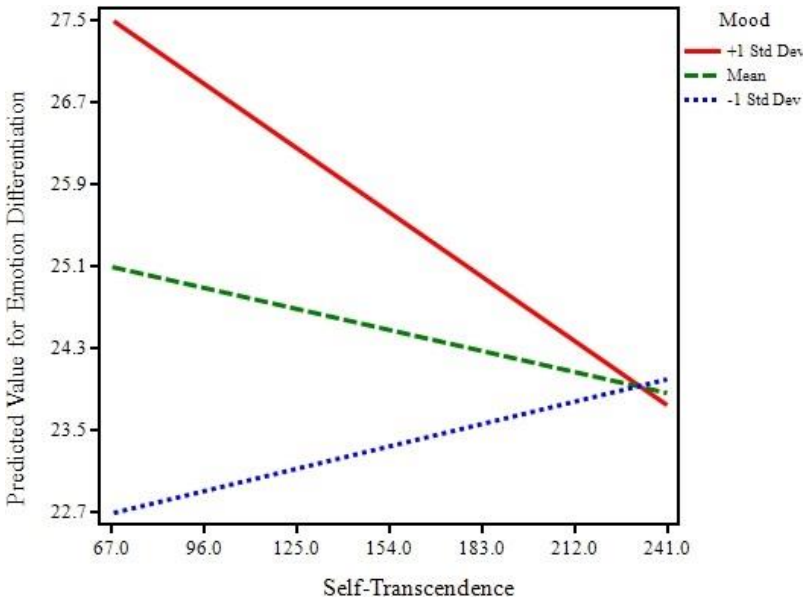

Figure 5. Interaction between Mood and Self-Transcendence for the Predicted Value for Emotion Differentiation

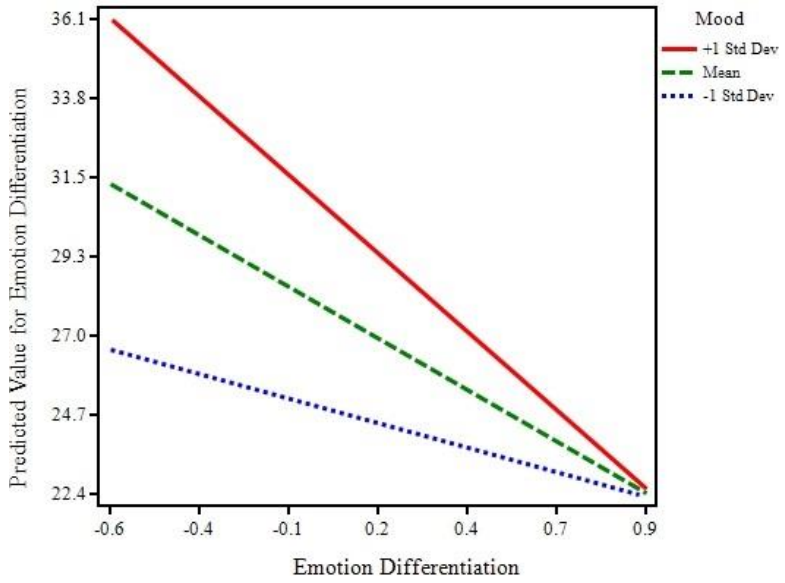

Figure 6. Interaction between Mood and Emotion Differentiation for the Predicted Value for Emotion Differentiation. Greater emotion differentiation represented by lower scores.

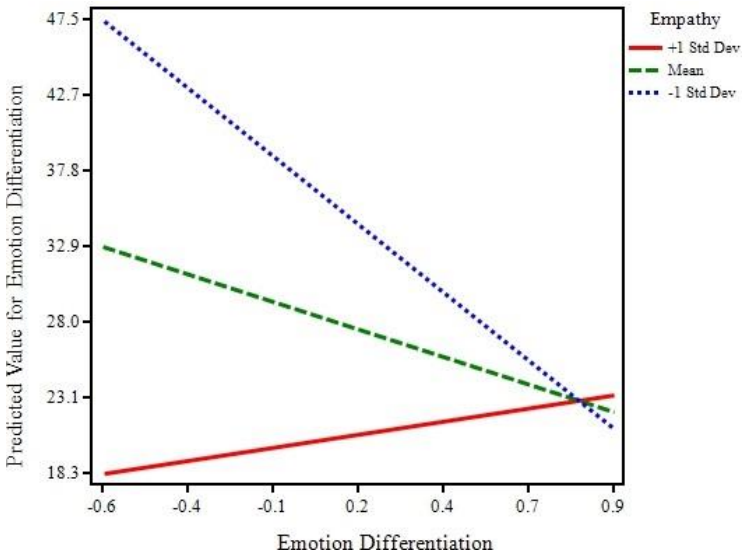

Figure 7. Interaction between Empathy and Emotion Differentiation for the Predicted Value for Emotion Differentiation. Greater emotion differentiation represented by lower scores.

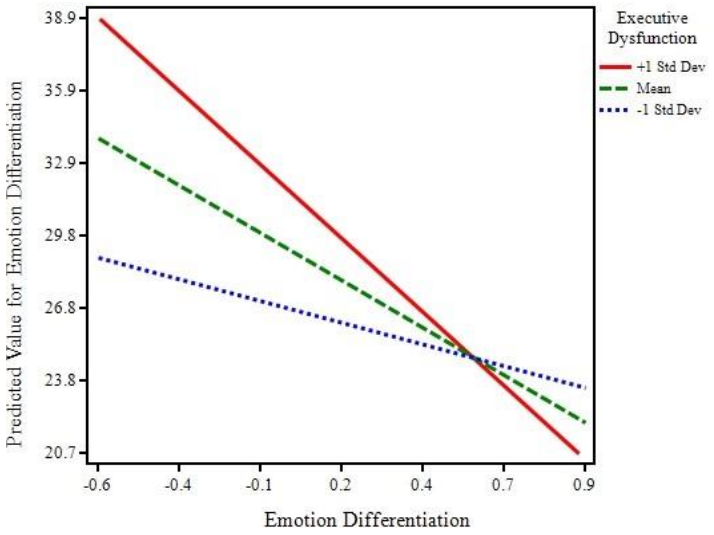

Figure 8. Interaction between Emotion Differentiation and Executive Dysfunction for the Predicted Value for Emotion Differentiation. Greater emotion differentiation represented by lower scores.

Next, the second hierarchical regression was completed using the moral judgment neutral condition as the dependent variable. Additionally, the fifth step, which previously had

been incidental disgust, was replaced with emotion differentiation. Results for this regression are displayed in Table 22. Age and gender together in step one accounted for 1% of the total explained variance for the moral judgment neutral condition, yielding a nonsignificant model, $F(2, 186) = 1.29$, $p = .28$. The model remained nonsignificant in step two, $F(3, 185) = 1.99$, $p = .12$, with mood adding 2% to the total variance explained. Step three yielded a significant model, $F(4, 184) = 2.86$, $p = .03$. Empathy contributed 3% towards the total explained variance for the moral judgment neutral condition. The model only bordered significance at step four, $F(5, 183) = 2.27$, $p = .05$, and executive dysfunction added <1% to the total explained variance. However, at step five the model was rendered significant again, $F(6, 182) = 3.02$, $p = .008$, with the introduction of emotion differentiation adding an additional 3% to the explained total variance. Personality variables together added 4% to the total explained variance for the moral judgment neutral condition at step six, and the model remained significant, $F(9, 179) = 2.95$, $p = .003$.

All 24 interaction variables were introduced in the final step, yielding a significant model, $F(33, 155) = 2.45$, $p < .001$. Together the interaction terms added 15% to the total explained variance for the moral judgment neutral condition. Significant interaction terms that contributed the most explained variance included incidental disgust x Openness (3%), empathy x emotion differentiation (3%), age x Openness (2%), and gender x emotion differentiation (2%). As with the previous hierarchical regression, Figures 9-12 visually depict these significant interaction variables. All figures display uncorrected interaction plots. While the interaction between age and Openness was significant for the moral judgment neutral condition, Figure 9 shows that there was, in fact, no interaction.

Table 22

Hierarchical Regression of Age, Gender, Mood, Empathy, Executive Dysfunction, Emotion Differentiation, Personality Variables, and Interaction Variables on Moral Judgment - Neutral

Block	Variables	*B*	*SE B*	*β*	sr^2	ΔR^2
1	Age	-.12	.15	-.06	.00	
	Gender	-2.77	2.02	-.10	.01	.01
2	Overall Mood	.36	.20	.13	.02	.02
3*	Empathy	-.24*	.10	-.17	.03*	.03*
4	Executive Dysfunction	-.01	.09	-.01	.00	.00
5**	Emotion Differentiation	-8.55*	3.38	-.19	.03*	.03*
6**	Cooperativeness	-13	.07	-.19	.02	
	Self-Transcendence	.03	.03	.10	.01	.04
	Openness	-.11	.06	-.15	.02	
7***	Age x Cooperativeness	-.01	.01	-.09	.01	
	Age x Self-Transcendence	.00	.00	.01	.00	
	Age x Openness	-.02*	.01	-.17	.02*	
	Age x Emotion Differentiation	-.65	.57	-.09	.00	
	Age x Executive Dysfunction	.01	.02	.04	.00	
	Gender x Cooperativeness	.13	.13	.33	.00	
	Gender x Self-Transcendence	-.11	.06	-.59	.01	
	Gender x Openness	.08	.11	.19	.00	
	Gender x Emotion Differentiation	15.59*	7.62	.56	.02*	
	Gender x Executive Dysfunction	.10	.21	.14	.00	
	Mood x Cooperativeness	-.01	.01	-.09	.00	
	Mood x Self-Transcendence	.00	.01	.02	.00	
	Mood x Openness	.01	.01	.07	.00	
	Mood x Emotion Differentiation	-.24	.80	-.02	.00	
	Mood x Executive Dysfunction	.01	.02	.02	.00	
	Empathy x Cooperativeness	.00	.01	.05	.00	
	Empathy x Self-Transcendence	.00	.00	-.01	.00	
	Empathy x Openness	.01	.01	.12	.01	
	Empathy x Emotion Differentiation	1.09**	.41	.22	.03**	
	Empathy x Executive Dysfunction	-.02	.01	-.14	.01	
	Emotion Differentiation x Executive Dysfunction	.05	.33	.01	.00	
	Disgust x Cooperativeness	-.02	.02	-.13	.01	
	Disgust x Self-Transcendence	.00	.01	.01	.00	
	Disgust x Openness	-.04**	.02	-.23	.03**	.15***
						R^2 = .34
						Adjusted R^2 = .20
						R = .59***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

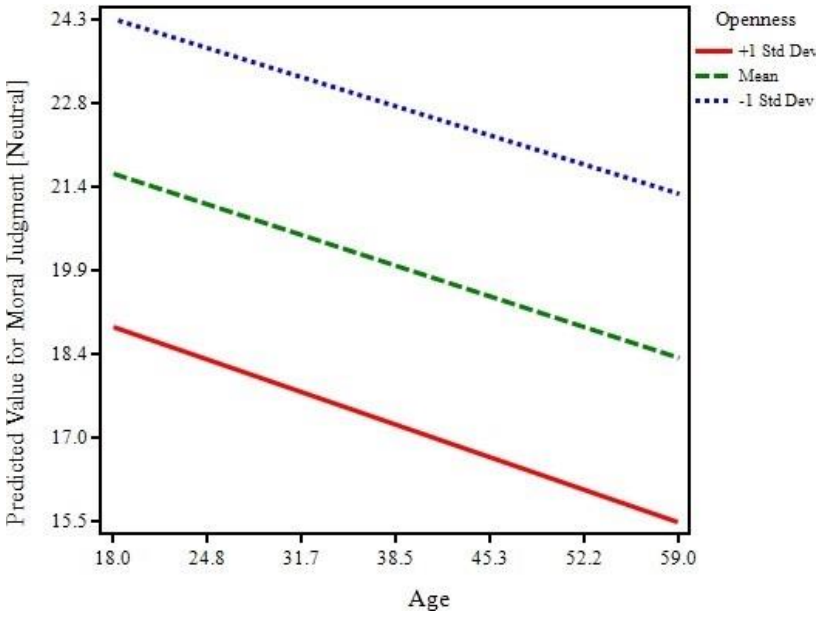

Figure 9. Effects of Age and Openness for the Predicted Value for Moral Judgment [Neutral]

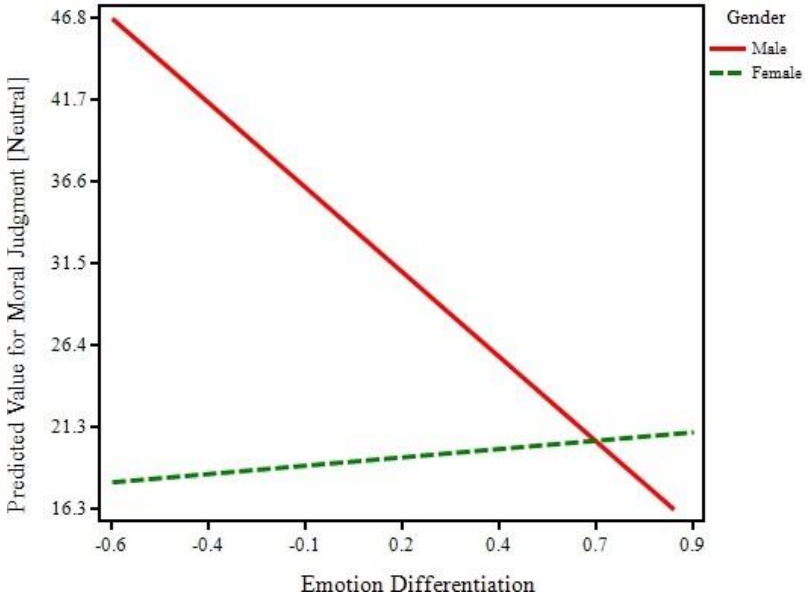

Figure 10. Interaction between Gender and Emotion Differentiation for the Predicted Value for Moral Judgment [Neutral]. Greater emotion differentiation represented by lower scores.

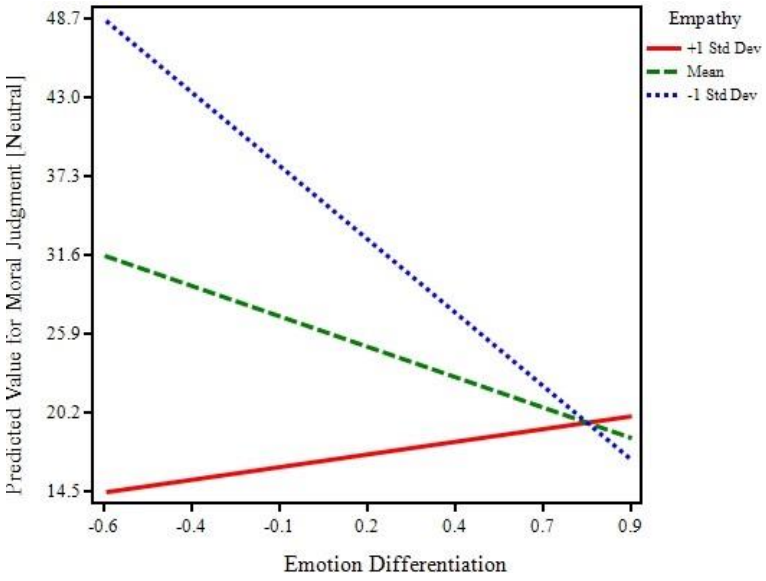

Figure 11. Interaction between Empathy and Emotion Differentiation for the Predicted Value for Moral Judgment [Neutral]. Greater emotion differentiation represented by lower scores.

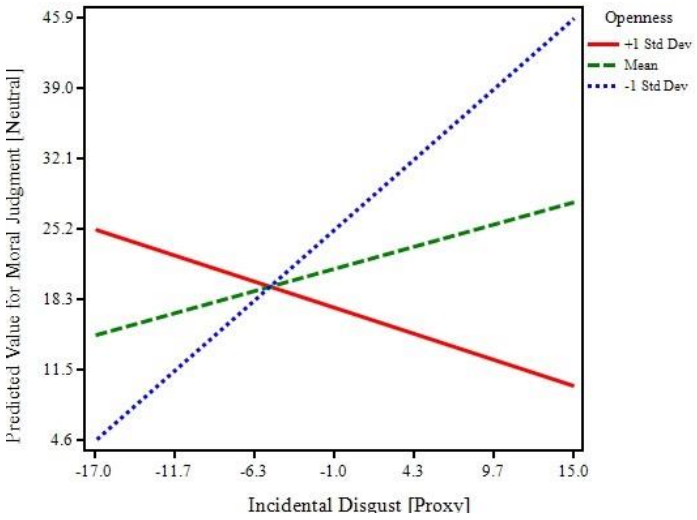

Figure 12. Interaction between Incidental Disgust [Proxy] and Openness for the Predicted Value for Moral Judgment [Neutral]. Greater disgust represented by lower scores.

The third and final hierarchical regression was identical to the second, except that the moral judgment disgust condition was used as the dependent variable. Results for this analysis are displayed in full in Table 23. Step one did not produce a significant model, $F(2, 186) = .66$, $p = .52$, and age and gender contributed only 1% to the total explained variance

for the moral judgment disgust condition. Likewise, mood did not significantly improve the model, $F(3, 185) = 1.04$, $p = .37$, contributing 1% to the total explained variance. The model approached significance at step three, $F(4, 184) = 2.40$, $p = .05$, with empathy adding 3% to the total explained variance. Executive dysfunction contributed <1% to the total explained variance for the moral judgment disgust condition, with the model remaining nonsignificant, $F(5, 183) = 1.91$, $p = .10$. The model reached significance at step five, $F(6, 182) = 2.70$, $p = .02$, with emotion differentiation adding 3% to the explained variance. The model increased in significance with the introduction of the three personality variables, $F(9, 179) = 2.71$, $p = .006$, which in total added 4% to the explained variance.

Step seven introduced the 24 interaction variables, which together explained 16% of the total variance for the moral judgment disgust condition. As well, the model remained significant, $F(33, 155) = 2.08$, $p = .002$. Interaction variables that significantly contributed to the total explained variance included: incidental disgust x Openness (5%), empathy x emotion differentiation (3%), and age x Openness (2%). Figures 13-15 depict these interactions visually. All figures display uncorrected interaction plots. As with the previous hierarchical regression, Figure 13 shows that age x Openness, despite its significance in predicting the moral judgment disgust condition, demonstrated no interaction.

Table 23

Hierarchical Regression of Age, Gender, Mood, Empathy, Executive Dysfunction, Emotion Differentiation, Personality Variables, and Interaction Variables on Moral Judgment - Disgust

Block	Variables	*B*	*SE B*	*β*	sr^2	ΔR^2
1	Age	-.01	.14	-.01	.00	
	Gender	-2.12	1.86	-.08	.01	.01
2	Overall Mood	.24	.18	.10	.01	.02
3	Empathy	-.24*	.09	-.19	.03*	.03*
4	Executive Dysfunction	-.01	.08	-.01	.00	.00
5*	Emotion Differentiation	-7.85*	3.11	-.19	.03*	.03*
6**	Cooperativeness	-.15*	.06	-.24	.03*	
	Self-Transcendence	.03	.02	.12	.01	.04
	Openness	-.05	.05	-.08	.01	
7**	Age x Cooperativeness	-.01	.01	-.10	.01	
	Age x Self-Transcendence	.00	.00	.04	.00	
	Age x Openness	-.02*	.01	-.18	.02*	
	Age x Emotion Differentiation	-.48	.53	-.07	.00	
	Age x Executive Dysfunction	.02	.02	.12	.01	
	Gender x Cooperativeness	.08	.13	.23	.00	
	Gender x Self-Transcendence	-.08	.06	-.46	.01	
	Gender x Openness	.09	.11	.24	.00	
	Gender x Emotion Differentiation	9.68	7.15	.38	.01	
	Gender x Executive Dysfunction	.02	.20	.03	.00	
	Mood x Cooperativeness	-.01	.01	-.08	.00	
	Mood x Self-Transcendence	.00	.01	-.03	.00	
	Mood x Openness	.01	.01	.06	.00	
	Mood x Emotion Differentiation	-.40	.75	-.04	.00	
	Mood x Executive Dysfunction	.00	.02	.01	.00	
	Empathy x Cooperativeness	.00	.01	.01	.00	
	Empathy x Self-Transcendence	.00	.00	-.04	.00	
	Empathy x Openness	.01	.01	.11	.01	
	Empathy x Emotion Differentiation	.99*	.38	.22	.03*	
	Empathy x Executive Dysfunction	-.02	.01	-.14	.01	
	Emotion Differentiation x Executive Dysfunction	.03	.31	.01	.00	
	Disgust x Cooperativeness	-.01	.01	-.04	.00	
	Disgust x Self-Transcendence	.00	.01	.04	.00	
	Disgust x Openness	-.05**	.01	-.29	.05**	.16*
						$R^2 = .31$
						Adjusted $R^2 = .16$
						$R = .55^{**}$

Note. $p < .05$; ** $p < .01$; *** $p < .001$

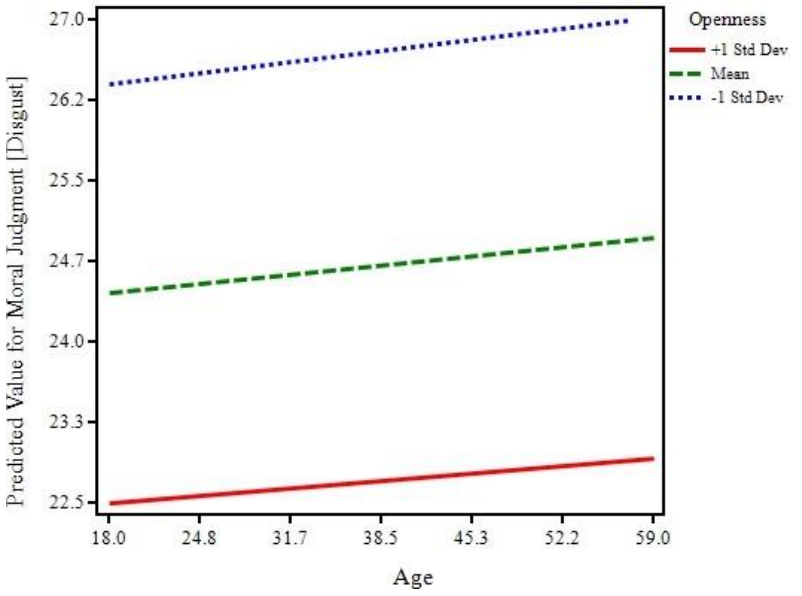

Figure 13. Effects of Age and Openness for the Predicted Value for Moral Judgment [Disgust]

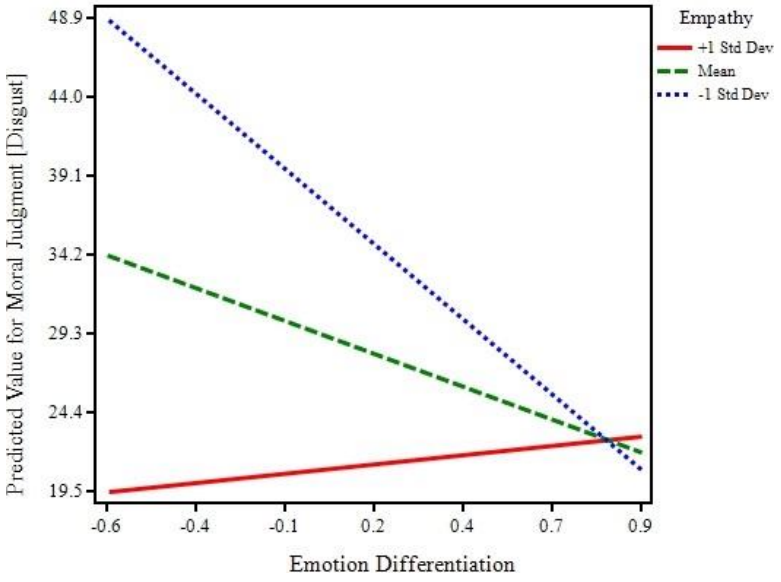

Figure 14. Interaction between Empathy and Emotion Differentiation for the Predicted Value for Moral Judgment [Disgust]. Greater emotion differentiation represented by lower scores.

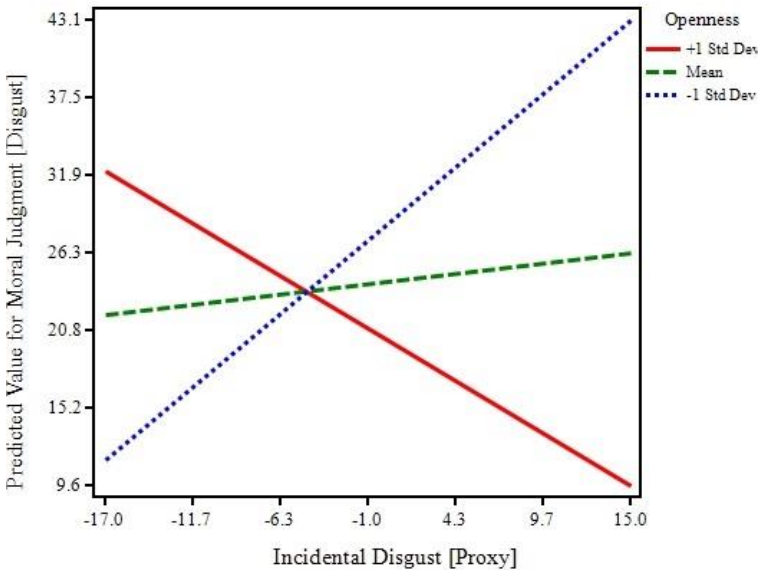

Figure 15. Interaction between Incidental Disgust [Proxy] and Openness for the Predicted Value for Moral Judgment [Disgust]. Greater disgust is depicted by lower scores.

In summary, there was inconsistent support for this hypothesis. While there were a number of significant correlations among interaction variables and the primary study variables (particularly the moral judgment variables), these were not as widespread as anticipated. Furthermore, certain interaction variables did predict outcome variables above and beyond the primary study variables; however, these were relatively few in number.

Evaluation of the Full Model. As a final set of statistics, path analysis was used to test the components of the proposed directional model. Proceeding stepwise, the model without proposed overall moderators (i.e., all hypotheses except five) was run and evaluated in terms of significance of parameter estimates and overall model fit statistics. Therefore, the following observed variables were used: Cooperativeness (raw total score), Self-Transcendence (raw total score), Openness (raw total score), emotion differentiation (ICC score), the moral judgment neutral condition (total score), the moral judgment disgust condition (total score), and executive dysfunction (BDEFS-SF raw total score). Given the

overlapping content error for the moral judgment conditions, error variances for these variances were permitted to covary. Furthermore, conceptual relatedness among all three personality variables justified allowing these variables to covary in the model. The conceptual model represented in Figure 2 (see Chapter 2) was reconfigured into Figure 16 for analysis in AMOS.

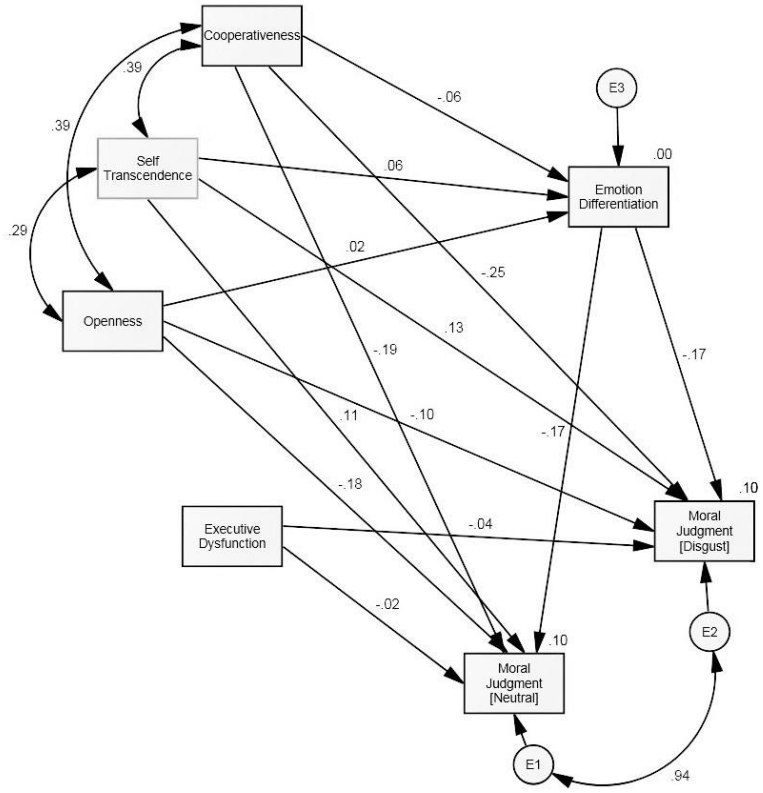

Figure 16. Path Analysis for Main Model. Testing predicted paths outlined in hypotheses one through four.

Model fit statistics are provided in Table 24, with path coefficients (i.e., standardized regression weights) presented in Figure 16. The path model produced significant unstandardized regression weights for only five paths: Openness—moral judgment [neutral], Cooperativeness— moral judgment [neutral], Cooperativeness—moral judgment [disgust],

emotion differentiation— moral judgment [neutral], and emotion differentiation— moral judgment [disgust]. These paths were all significant at $p < .05$, with the exception of Cooperativeness—moral judgment [disgust] ($p < .01$). Consistent with the regressions completed in evaluating the first hypothesis, there was no substantial evidence of a moderating effect for emotion differentiation on the relation between incidental disgust and moral judgment. Standardized beta weights for both conditions are the same, contradicting findings from Cameron et al. (2013).

Model fit statistics were used to evaluate the adequacy of fit for the model (Byrne, 2001). Examination of model fit statistics yielded inconsistent support for the model [$\chi^2 = 18.38$; $df = 4$, $p = .001$, $\chi^2/df = 4.59$, Goodness of Fit Index (GFI) = .98, Adjusted Goodness of Fit Index (AGI) = .82, Normed Fit Index (NFI) = .97, Tucker-Lewis Index (TLI) = .86, Root Mean Square Error of Approximation (RMSEA) = .14]. Whereas model fit statistics—GFI, NFI, Incremental Fit Index (IFI), Comparative Fit Index (CFI), and Standard Root Mean Square Residual (SRMR)—were generally good, the majority of hypothesized paths were not significant. Furthermore, overall model indices were not adequeate (e.g., significant chi-square, suboptimal RFI, TLI, and RMSEA).

Table 24

Model Fit Statistics for Path Analysis

χ^2	18.38*
df	4
X^2 */df*	4.59
GFI	.98
AGFI	.82
NFI	.97
RFI	.83
IFI	.97
TLI	.86
CFI	.97
SRMR	.05
RMSEA	.14 (90% CI, .08, .20, $p < .01$)

Note. GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit Index, NFI = Normed Fit Index, RFI = Relative Fit Index, IFI = Incremental Fit Index, TLI = Tucker-Lewis Index, CFI = Comparative Fit Index, SRMR = Standard Root Mean Square Residual, RMSEA = Root Mean Square Error of Approximation

*$p < .01$

The necessary data cleaning greatly reduced the final sample of the study, making evaluation of hypothesized overall moderation effects of the model (i.e., hypothesis five) problematic. Further, the evidence of extensive model mis-fit undermined subsequent testing of moderator effects on the model, specifically multi-group tests of model invariance examining the fit of the model as a function of gender, age, empathy, and mood. Nevertheless, model specification was sought to elucidate which variables might contribute most significantly to ameliorating the effects of incidental disgust on moral judgments.

Post-Hoc Analysis: Respecified Model. Given the problematic nature of the original model, non-significant paths were identified and removed, specifically: Self-Transcendence—emotion differentiation, Self-Transcendence—moral judgment [neutral], Self-Transcendence—moral judgment [disgust], Openness—emotion differentiation,

Openness—moral judgment [disgust], executive dysfunction—moral judgment [neutral], executive dysfunction—moral judgment [disgust], and Cooperativeness—emotion differentiation. Figure 17 depicts the respecified model, including standardized regression weights.

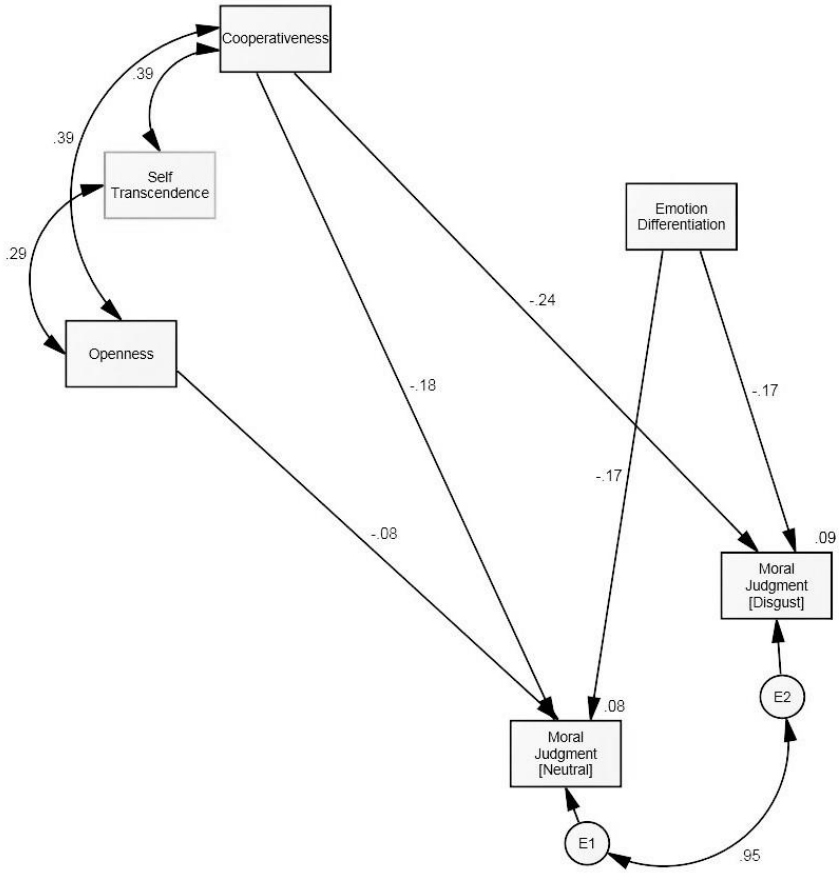

Figure 17. Path Analysis for Re-specified Model. Subsequent path analysis was sought to provide further information on inadequacy of predicted model and avenues for further research.

All regression weights for the resepecified model were statistically significant at p <.05, with Openness—moral judgment [neutral] and Cooperativeness—moral judgment [neutral] being significant at p <.01. Model fit statistics also were substantially improved (χ^2 = 4.73; df = 6, p = .79, χ^2/df = .79, Goodness of Fit Index = .99, Adjusted Goodness of Fit

Index = .97, Normed Fit Index = .99, Tucker-Lewis Index = 1.00, Root Mean Square Error of Approximation = .00). Table 25 contains all relevant model fit statistics.

Table 25

Model Fit Statistics for Revised Path Analysis

χ^2	4.73
df	6
X^2 */df*	.79
GFI	.99
AGFI	.97
NFI	.99
RFI	.98
IFI	1.00
TLI	1.00
CFI	1.00
SRMR	.03
RMSEA	.00 (90% CI, .00, .08, p = .80)

Note. GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit Index, NFI = Normed Fit Index, RFI = Relative Fit Index, IFI = Incremental Fit Index, TLI = Tucker-Lewis Index, CFI = Comparative Fit Index, SRMR = Standard Root Mean Square Residual, RMSEA = Root Mean Square Error of Approximation

CHAPTER 5

Discussion

This study sought to examine the direct effects of select personality traits, emotion differentiation, and incidental disgust on moral judgment. Additionally, indirect effects of personality on moral judgment were examined through the former's effect on emotion differentiation and incidental disgust. These hypothesized effects also were compared with other relevant psychological variables, principally cognitive ability; while it was planned that this would include both executive function and general intelligence, the latter was dropped due to incomplete and/or missing data from participants. Lastly, all aforementioned variables and hypothesized relationships were explored in light of potential moderator variables such as self-reported gender, age, empathy, and mood. Each of the five hypotheses were explored with a variety of statistical analyses before culminating in a path analysis testing the overall proposed model.

Summary of Findings

Hypothesis 1. The first hypothesis was that a number of variables would predict the degree to which emotional bias influences moral judgments, namely: select personality traits (i.e., greater presence of Cooperativeness, Self-Transcendence, and Openness), higher ability in distinguishing between one's emotions, absence of disgust incidental to the situation, and greater cognitive aptitude (i.e., higher executive function ability and overall general intelligence). Only partial support was found for this hypothesis. Although all personality variables were expected to negatively correlate with moral judgment, this was not the case for Self-Transcendence. Furthermore, the personality variables did not significantly correlate with either executive function or, more critically, emotion differentiation. However, greater

emotion differentiation was found to be significantly associated with moral judgment and executive function. Openness also was found to correspond to greater experiences of incidental disgust in participants.

More importantly, though, were standard regression findings evaluating the predictive power of variables on moral judgment. Regardless of the presence of incidental disgust, Cooperativeness and emotion differentiation emerged as significant predictors of moral judgment. Openness, however, appeared to predict moral judgment only when there was no outside emotional bias (i.e., during neutral primes only). It is possible that the predictive ability of Openness for moral judgment reflects a level of cognitive flexibility; however, such flexibility appears to be mitigated by incidental disgust (as shown in the correlational analyses, as well as subsequent hierarchical regressions and the respecified path model discussed below). Neither Self-Transcendence nor executive function were found to be predictive of moral judgment. Regardless of significance, only Cooperativeness and Openness functioned as predictors in the expected direction (i.e., negative). While significant, emotion differentiation served as a negative rather than positive predictor, as did executive dysfunction. Similarly, the effect of Self-Transcendence (again while nonsignificant) was in a positive rather than negative direction.

Closer examination of emotion differentiation revealed interesting findings. Cameron et al. (2013) reported that emotion differentiation moderated the relation between incidental disgust and moral judgment. This expectation was outlined in this hypothesis, but was not supported. If such a moderation effect had been present, the regressions would have shown one of the following for emotion differentiation: (1) significance in one but not the other regression, (2) significance in both regressions but in opposite directions, or (3) substantially

differing effect sizes (i.e., β or sr^2) for the two regressions. Further complicating matters is the way in which incidental disgust acted upon the moral judgment task.

The biasing effect of incidental disgust on moral judgment was produced in a similar vein as the experiment conducted by Cameron et al (2013). The direction of this effect, however, was perplexing. This study used the moral judgment task employed by Cameron and colleagues, albeit in modified form. The two tasks differed in several ways. First, their experiment consisted of 30 trials that randomly paired neutral and disgust primes, whereas this study used 30 trials that were evenly divided and consistently paired with either prime (15 neutral, 15 disgust). Second, their experiment presented stimuli in a tightly controlled and timely manner: (1) primes were first displayed and remained during an entire trial, (2) the cultural practice appeared overlaid on the prime after 100 ms before disappearing at 2500 ms, and 3) following the disappearance of the cultural practice the rating system and prompt for evaluation appeared under the prime. In contrast, this study could not mimic this level of control given the use of online data-gathering software. After initial instructions, on each trial participants were presented with a given prime and allowed to control the length of time that they could view it in isolation. Once proceeding from that point, participants were presented with the same prime, the culturally taboo practice, as well as the prompt and rating scale for their judgment.

Also relevant is the fact that the rating scales differed. Cameron et al. (2013, p. 721) included a prompt that asked participants, “to what degree is the behavior morally wrong regardless of the culture in which it is practiced,” as well as a rating scale ranging from “Not at all” (1) to “Extremely” (5). Conversely, this study instead asked participants to, “Please read each statement and rate the extent to which you believe it is absolutely right or wrong”

using a rating scale intended to minimize framing effects: “Not at all acceptable” (1) to “Extremely acceptable” (5). A pilot sample conducted by Cameron et al. (2013, p. 721) found that, “disgust primes increased the strength of moral judgments…$F(1, 39) = 5.63$, $p = .02$, $\eta_p^2 = .12$,” meaning moral judgments paired with disgust primes were ranked higher than when paired with neutral ones. Given this finding, the opposite was expected with this study’s scale, as lower rankings were thought to represent endorsement of the practices being less acceptable or “wrong.”

And yet, while an effect was found in this study, the opposite appeared to occur. Participants rated culturally taboo practices paired with disgust primes higher, whereas judgments during the presentation of the neutral primes were rated lower (i.e., trending towards “Not at all acceptable”). One possible explanation for this could be that participants were over-compensating in their attempts to resist prime influence. Before proceeding to the task—and consistent with the protocol by Cameron et al. (2013)—participants were presented with the following prompt: “During this task you also will be presented with a series of images. You may find some of the images disturbing. Try not to let these images influence your opinions about the cultural practices.” Assuming that most participants actively tried to resist the influence of the disgust primes, this could have resulted in the counter-intuitive direction of effect; however, it should be noted that this would not necessarily be consistent with research studying such effect trends. Primes and targets presented in quick succession seem to mitigate subjects’ awareness and resulting resistance to a research protocol’s attempts to introduce bias (Payne et al., 2005). Unfortunately, this study could not regulate the length of exposure participants had in viewing primes. But while it is true that past research has shown that when subjects are made aware of affective cues,

misattribution decreases (Lambie, 2007; Murphy & Zajonc, 1993; Oikawa et al., 2011; Schwartz & Clore, 1983, 1996, 2007; Tesser, 2000), this is not to say that the *opposite* effect has been shown to emerge for the majority of a sample. In fact, research examining affect misattribution procedures (AMP) suggests that only when time is taken to *explicitly* evaluate primes does the corresponding affect cease to carry-over into subsequent evaluations (see Oikawa et al., 2011).

An alternative and perhaps more likely explanation for this particular phenomenon could be attributed to the composition of the cultural practices used. Each of the practices contain a *subject* (on whom the practice is centered), an *action* (something done to or by the subject), and a stated or inferred *moral principle* to justify the action (a value or authority). The actions typically (but not always) involve either a rite of passage, a punishment for perceived transgression, or an out-group targeted offense. An example can illustrate this further. The first practice that was presented to the participants was, "An unmarried woman who has sex may be murdered by her family." In this practice, the *subject* would be the "unmarried woman," the *action* would be "may be murdered," and the *moral principle* is a violation of values held by the family (inferred through the words "unmarried" and "family"). This practice was paired with a neutral prime, and the vast majority of participants (88.6%) found it to be "Not at all acceptable." The likely explanation for this evaluation is that the action was deemed reprehensible and/or the moral justification untenable.

In contrast, a more divisive practice was, "Thieves have their hands cut off." This item was paired with a disgust prime and yielded the following distribution of responses: "Not at all acceptable" (64.2%), "Slightly acceptable" (18.7%), "Somewhat acceptable/Neither right nor wrong" (8.8%), "Very acceptable" (6.2%), and "Extremely

acceptable" (2.1%). In this practice, the subject would be "thieves," the action "hands cut off," and the moral justification that stealing is wrong (inferred from the word "thief" but also "hands," as the method through which the violation is committed is taken away as punishment). Assuming that the disgust prime is at least partially responsible for the variability in responses, what could be the explanation behind this?

The expectation was that incidental disgust would yield harsher evaluation for these cultural practices by acting on the reprehensible nature of the *actions*. However, with the aforementioned structure of the practices in mind (*subject, action, moral principle*), it is possible that the disgust primes did in fact trigger harsher evaluation, but of the *subject* or of the violated *moral principle,* rather than the *action*. Using the above example, the moral justification for cutting-off the hands of thieves appears to be that violations of the law deserve stern punishments. It could be that the prime incited greater disgust at the subject (the thief) rather than the act (hands cut off), as the subject is inherently tied to the moral violation (i.e., a thief is someone who violates).

This also could explain one of the most contentious items: "Pregnant women have sex with other men to have healthier babies." Again, this item was paired with a disgust prime and yielded the following distribution of responses: "Not at all acceptable" (33.7%), "Slightly acceptable" (20.7%), "Somewhat acceptable/Neither right nor wrong" (37.8%), "Very acceptable" (5.2%), and "Extremely acceptable" (2.6%). In this practice, the subject would be "pregnant women," the action "sex with other men," and the moral justification "to have healthier babies." Sex with other men appears to be justified by the belief that this will preserve the health of children. It could be that the prime incited disgust in different ways to different participants. For instance, the disgust prime could have influenced feelings tied to:

a) the subject and/or action (i.e., a pregnant woman having sex with a man other than the father of the child), or 2) the threat of violating the principle (i.e., the health of children is cherished).

In summary, there was mixed support for this hypothesis. Only Cooperativeness and emotion differentiation emerged as significant predictors of moral judgment. While Openness predicted moral judgment when free from incidental disgust primes, a significant and positive association was found between incidental disgust and this trait, and Openness did not emerge as a significant predictor of moral judgment paired with disgust primes. Intriguingly, it appears that incidental disgust did influence moral judgments, although the way in which this occurred appears to be quite nuanced and less straight-forward than may be assumed.

Hypothesis 2. The second prediction was that emotion differentiation would mediate the relation between personality and moral judgment. More specifically, all three personality variables were expected to correlate significantly and positively to emotion differentiation, with significant correlations between personality variables and moral judgment diminishing when emotion differentiation was taken into account. Furthermore, the predictive power of these personality variables on moral judgment (regardless of the presence of incidental disgust) was expected to disappear once emotion differentiation was accounted for statistically.

There was little support for this hypothesis. There were no significant correlations between personality variables and emotion differentiation, and personality traits did not significantly predict emotion differentiation. Partial correlations did not suggest that emotion differentiation accounted for any substantial portion of the variance between personality and

moral judgment. However, personality traits and emotion differentiation did incrementally and significantly predict moral judgment. Cooperativeness, Self-Transcendence, Openness, and emotion differentiation together accounted for 9% of the total explained variance for the prediction of moral judgment free from incidental disgust, and 10% of the total explained variance when moral judgment tasks which incidental disgust was introduced. However, this finding did not support the hypothesis overall, as only emotion differentiation was expected to be a significant predictor if it was, in fact, a mediator between personality and moral judgment.

Hypothesis 3. Next, it was expected that emotion differentiation would moderate the impact incidental disgust has on moral judgment, so that increased emotion differentiation would diminish the extent to which differences exist in moral judgments with versus without incidental disgust. Participants were categorized as either a "high emotion differentiator" or "low emotion differentiator" based on median-split. A split-plot ANOVA supported the first hypothesis in so far as a significant difference was found between moral judgments paired with neutral vs. disgust primes. However, no significant difference was found between the two emotion differentiation groups, nor was an interaction between emotion differentiation and moral judgment substantiated.

Hypothesis 4. It further was predicted that cognitive ability would serve a similar role to emotion differentiation in moderating the effect of incidental disgust on moral judgment. Regrettably, the general intelligence aspect of this hypothesis had to be abandoned due to poverty of data gathered from the GMAT. However, ample executive function data was obtained through the BDEFS-SF Summary Score. Initial univariate analyses (one-way ANOVAs) showed that those with higher executive function ability appeared to have greater

emotion differentiation than those with lower executive function. And yet, similar to the third hypothesis, split-plot ANOVA substantiated the main effect of moral judgment conditions while also finding that no significant difference existed between those with greater vs. poorer executive function ability. Further, there was no significant interaction between executive function and moral judgment. In summary, neither emotion differentiation nor executive function appeared to have a significant moderating role in the relation between incidental disgust and moral judgment.

Hypothesis 5. The final prediction concerned moderators to the overall proposed conceptual model (see Figure 2). Specific predictions in terms of direction and strength of moderation effect were not made given the varying findings with these variables as well as the model's complexity. Instead, age, gender, mood, and empathy were expected to serve as general moderators for all variables included in the proposed model (personality, emotion differentiation, moral judgment, incidental disgust, and executive function).

This hypothesis received only modest support. Initial univariate analyses suggested that the moderator variables were influencing many of the primary variables of the study. For instance, age appeared to have a significant effect on Self-Transcendence and incidental disgust, with younger participants showing less response to disgust primes (i.e., lower incidental disgust proxy absolute value) and having higher mean scores on Self-Transcendence than older participants. Gender appeared to impact Cooperativeness and Self-Transcendence, with women having higher mean scores for both over men. Mood appeared to impact only the moral judgment neutral condition, so that those with more negative mood generally rated culturally taboo practices as less acceptable in the presence of neutral primes than those reporting more positive mood. Lastly, empathy appeared to have an effect on

personality and moral judgment. Lower empathy generated lower mean scores for Cooperativeness, Openness, and Self-Transcendence, whereas those with higher empathy generally found culturally taboo practices to be less acceptable regardless of the presence of incidental disgust.

Correlations among primary study variables and interaction terms were less promising. Despite several significant correlations, the breadth of these was substantially lacking compared to predictions. The most substantial findings were that interaction variables containing gender appeared to be the most consistently involved in significant associations between interaction and primary study variables. While empathy and emotion differentiation also appeared in several of the significant associations between interaction and primary variables, these were much less widespread than with gender. With regard to moral judgment (irrespective of incidental disgust), the only consistent significant associations between it and interaction variables were gender x Cooperativeness, incidental disgust x Cooperativeness, and empathy x emotion differentiation; incidental disgust x Openness only was significant for moral judgments paired with neutral primes. Additionally, emotion differentiation, empathy, and executive function appeared to have numerous significant interactions with one another.

Furthermore, only a handful of interaction variables significantly improved prediction of emotion differentiation and moral judgment (irrespective of incidental disgust) above and beyond the predictive power of primary study variables. Unsurprisingly, interaction terms most predictive of emotion differentiation were generated using emotion differentiation. This was particularly the case for gender x emotion differentiation (which accounted for 64.2% of the total explained variance for emotion differentiation), where male participants with greater

emotion differentiation were significantly greater predictors. Closer examination of the other significant interaction terms revealed the greatest predictors for emotion differentiation: (1) greater emotion differentiators of younger age, (2) men with greater emotion differentiation ability, (3) those with better overall mood and lower trait Self-Transcendence, (4) those with greater overall mood and greater emotion differentiation ability, (5) less empathic individuals with greater emotion differentiation, and (6) greater executive function capacity in those with greater emotion differentiation ability.

Significant interaction terms regressed on moral judgment free of incidental disgust yielded these best predictors: (1) those young and lower in trait Openness, (2) men with greater emotion differentiation ability, (3) less empathic individuals with greater emotion differentiation ability, and (4) those lower in trait Openness experiencing less incidental disgust. Those significant interaction terms regressed on moral judgment presented with incidental disgust yielded the following as best predictors: (1) lower trait Openness in older individuals, (2) less empathic individuals with greater emotion differentiation ability, and (3) those lower in trait Openness who experience less incidental disgust.

It could be argued that the first hierarchical regression for this hypothesis "over-fit" the data given the rather large R^2, sample size, and number of variables included in the analysis. Tabachnick and Fidell (2013, p. 11) have explained that,

> …With overfitting, the solution is very good; so good, in fact, that it is unlikely to generalize to a population. Overfitting occurs when too many variables are included in an analysis relative to the sample size. With smaller samples, very few variables can be analyzed. Generally, a research should include only a limited number of uncorrelated variables in each analysis, fewer with smaller samples. (p. 11)

The remaining hierarchical regressions produced smaller R^2 statistics, suggesting that overfitting was less of a concern for these analyses. An alternative explanation for the large R^2 in the first hierarchical regression likely could be attributable to the fact that several interaction terms used in the regression were cross-products of the dependent variable. If this was the case, this would introduce criterion contamination and render any findings from the analysis dubious.

Overall Model. This study's proposed conceptual model was not substantially supported. The first four hypotheses encapsulated the primary components of the original conceptual model, which did not achieve established path analytic benchmarks for acceptable model fit. This paucity of support, as well as limitations of statistical power, rendered moderation analysis infeasible. The path model also supported findings from the regression analyses completed for evaluation of the first hypothesis: moderation between incidental disgust on moral judgment by emotion differentiation was not supported by path coefficients. Considering this in conjunction with the perplexing effect of disgust primes on moral judgment, all that can be concluded is that emotion differentiation had a significant effect on moral judgment regardless of the presence of incidental disgust.

Exploratory model revision, however, did yield interesting findings germane to further research. Specifically, the model showed that Cooperativeness could be a meaningful predictor of moral judgment, in line with Cloninger's conceptualization of the trait (Cloninger et al., 1993). The model also showed that emotion differentiation predicted moral judgment, regardless of incidental disgust. Openness was meaningful as a predictor of moral judgment, but it was not allowed to predict moral judgment under the influence of incidental disgust given previous findings showing this to not be the case. At risk of committing the

Texas Sharp-Shooter Fallacy, this data should not be over-interpreted, as it was created based on the findings of the originally hypothesized model, and it could easily be argued that the model "over-fits" the data. Therefore, while these findings could serve as informative for future research protocols, any meaningful interpretations from the re-specified model pend replication with a different, larger sample, ideally with less correlated variables.

Implications and Areas of Future Research

The proposed conceptual model of the study was not supported, but nevertheless there were intriguing findings. Crucial questions emerge about the study of emotion differentiation, the state of moral judgment research, and personality assessment. Numerous implications warrant attention, as explored below.

Implications for Research. The intra-class correlation coefficient method employed in the study of emotion differentiation/emotional granularity (Cameron et al., 2013; Feldman Barrett, 1998; Feldman Barrett et al., 2001; Lindquist & Feldman Barrett, 2008; Tugade et al., 2004) appears logical in its underlying method, at least at face value: those with less categorical precision and/or insight into their emotional experience should report a more limited range of affective labels and intensity ratings. However, this is where the methodology of the observer likely impinges upon the experience of the observed. The method in which this phenomenon is quantified introduces bias that influences the observer. In the experiment completed by Cameron et al. (2013), for instance, merely prompting participants with emotional choices introduces possibilities that might otherwise not be present. Imagine an individual who might not consider his own anger without being prompted directly to consider this (in fact, this is one of the most basic interventions employed in most schools of psychotherapy!). Furthermore, the discrete selection of affective

options is equally problematic. Perhaps a participant appears to be a “poor” emotion differentiator when prompted about feelings of anger, sadness, shame, and guilt, as they report only subtle gradations of each; however, if asked unfettered, they might assess a plethora of emotional labels such as apprehension, envy, annoyance, embarrassment, surprise, relief, and so forth. This is one clear advantage the unmodified LEAS has over the adapted version used by Cameron et al. (2013). Of course, this must be balanced with practical considerations, as scoring the LEAS requires considerable time and expertise (Watson et al., 2011).

However, there is another, perhaps more critical issue regarding the quantification of emotion differentiation: the very method by which emotion differentiation scores are calculated across studies is unclear. Sometimes this seems to be done by calculating correlations among several emotional experiences over time per person (e.g., Feldman Barrett, 1998; Feldman Barrett et al, 2001). However, Cameron et al. (2013) also have calculated emotion differentiation through the ICC method, citing Tugade, Fredrickson, & Feldman Barrett (2004). Tugade et al. (p. 11) in turn have referred to using “average intraclass correlations (ICCs),” then referring to Shrout and Fleiss (1979). The problem with this is that Shrout and Fleiss describe no less than six different ways of calculating ICCs. In summary, it is unclear exactly how emotion differentiaton is being calculated across research methodologies. While Feldman Barrett (1998) and colleagues (Feldmann Barrett et al., 2001) provide details on their approach, it appears that this exact method is not being used uniformly (cf. Cameron et al., 2013; Tugade et al., 2004) and further, that various methods may be used but nevertheless not clearly disclosed. This is a serious concern, as warned by Bartko (1979).

A further critique of the ICC method involves the manner in which the data are interpreted. One problem presented in the analysis of ICC data is the management of negative ICCs. There is concern regarding the reliability of such data (Bartko, 1976), as well as debate in terms of how best to approach solving this issue (Müller & Büttner, 1994). While log transformation can no doubt improve visualization and interpretation of skewed data, the resultant findings from this practice are questionable in their applicability to the original data (Feng et al., 2014). For this reason—and unlike Cameron et al. (2013)—negative ICC data was not log transformed. One attempt to side-step this issue was to create an alternative measure of emotion differentiation using numerical weights. However, correlational analysis suggested that while these measures were convergent, they did not appear to be concurrent measures of emotion differentiation. This is a considerable dilemma for future emotion differentiation research, one that needs to be addressed in order to better integrate antecedent findings with the growing literature on this construct.

Although this study followed the protocol used by Cameron et al. (2013) in adapting the LEAS with fixed emotions and ICC method, this was not the way in which the LEAS was intended to be used. There are serious methodological concerns regarding the construct validity of the ICC as a measure of emotion differentiation. For instance, does emotion differentiation reliably and robustly demonstrate the effect on incidental emotions (disgust) that others claim it does? Cameron et al., in their pilot study, found that disgust primes do in fact increase moral judgment strength, even when participants are warned about this effect. However, it is questionable whether or not their data analytic techniques showed a meaningful interaction between emotion differentiation and incidental disgust. They reported using a “linear mixed model with autoregressive covariance structure” (p. 721) and stated

that this showed a “significant” effect, even though they reported this at p = .05. There is no question that more replications are needed before it can be reliably assumed that a meaningful effect is taking place.

In summary, the way in which both moral judgment and emotional complexity are studied deserves close re-evaluation. For instance, Kelly and Hutson-Comeaux (1999) have shown how stereotyping can be a factor in emotion-focused self-report measures, particularly when specificity and context are not taken into consideration. This could inform some gender differences that have been observed in emotion differentiation research, similar in the way apparent gender differences in moral judgment research has continued to evolve. If the construct is to be taken seriously, it is time to evaluate how emotion differentiation is studied. While the construct appears to have some support (Feldman Barrett, 1998; Feldman Barrett et al., 2001; Lindquist & Feldman Barrett, 2008), it seems far from clear how it should be measured.

The second implication to research concerns is the area of moral judgment. Although moral judgment research design has evolved since Kohlberg, there are widespread concerns in the way that moral judgment is assessed. For instance, this study showed that incidental disgust does seem to influence moral judgment tasks. However, the way in which this occurs is murky at best, as disgust primes did not function precisely as predicted. This highlights the importance of careful and deliberative research design in the study of evaluative judgments, something that is clearly prey to all kinds of outside influences.

More broadly, the field of moral psychology is plagued by problems in its fundamental assumptions. Krebs and Denton (2005, p. 646- 647) perhaps summarize this issue most succinctly: “If you invite people to play the role of philosopher, they will, and

some will play it better than others. However, people rarely play this role in their everyday lives because they rarely pursue philosophical goals." The artificial nature of many moral judgment scenarios show this, as seemingly minor premises in scenarios incrementally inhibit behaviors to such an extent that ecological validity is violated. The moral judgment scenario, such as the Trolley Problem and its variants, illustrates this point. Giving a person the scenario of selecting one of two unappealing choices does not necessarily capture their behavior outside the research protocol, as it assumes that a person is functioning by a set of pre-determined rules that may not be agreed-upon. These include rules—be they implicit or explicit—such as, "there is no way of signaling to those about to be killed," "you have knowledge that makes you morally accountable" (e.g., what will happen when you use a switch; how to stop a train with a human body), "I feel [x] about this person." What if a person, faced in a variant of the Trolley Problem dilemma, chose to try and save all parties rather than deliberating on which difficult decision to make? What if a scenario has personal relevance to one participant but not the other (e.g., Clopton & Sorrell, 1993)?

Friesdorf et al. (2015) have highlighted that experiments rarely match their measurement of moral judgment to their conceptual understanding of it. Haidt and Björklund (2010) have even accused the field of moral psychology of focusing narrowly on select moral issues, namely reciprocity and justice/rights, in contrast to moral intuitions of boundaries and loyalty, respect or authority, and purity or sanctity. In short, too often the conclusions of moral judgment research are offered before adequately evaluating the appropriateness of the methodology used in deriving the findings.

Lastly, this study highlights potential issues in personality research. Even the most basic univariate analyses employed in this study do not seem to support the theoretical

assumptions made by Cloninger for the dimension of Self-Transcendence. Cloninger (2008) has suggested that those low in trait Self-Transcendence are subject to somaticizing, display alexithymia, and show impairment in intuitive understanding of their sensory experiences. Surely if this was the case, Self-Transcendence should have emerged as equally meaningful, if not more so, than the other two personality traits used in this study. The absence of such findings may well suggest an error on Cloninger's part that was explicitly warned by McAdams (1995): the temperament and character model may be attempting a hierarchical integration of trait theory with more ideographic aspects of personality theory, such as personal concerns and one's own life narrative. The TCI offers a relatively face-valid comprehensive model of personality that attempts to synthesize the complexities of biology and human psychology. However, the empirical literature offers a mixed and convoluted picture for its current structure. In the case of Self-Transcendence, the lack of correspondence to the FFM could support the notion offered by García et al. (2012) that Self-Transcendence is not a bona fide personality factor.

And yet, the FFM has been criticized for its predictive shortcomings in lieu of scales measuring spirituality as an aspect of personality (Piedmont, 2001). On the surface, it would seem that the FFM offers a parsimonious understanding for personality. Lindquist and Barrett (2008) have suggested that superordinate nomethetic tendencies to classifying one's emotions may strip an individual from understanding and communicating the complexity of their experience. One need look no farther than the Neuroticism factor to see the inherent dangers in subsuming complex and multi-faceted emotional experiences within one domain of individual differences.

Perhaps this also is true for Openness to Experience. Openness is thought to represent organizational complexity of one's experiences (McCrae & Costa, 1980), has been shown to predict psychological mindedness (Beitel & Cecero, 2003), and even has been found to be associated with the LEAS (Ciarrochi, Caputi, and Mayer, 2003; Lane et al., 1990). Therefore, equally confusing to the finding that there is a lack of association between Self-Transcendence and emotion differentiation was the finding that there is a lack of association between Openness and emotion differentiation. This could support the various criticisms of the FFM; cursory glance suggests an empirically validated model of personality. Closer inspection reveals subtle but potentially devastating flaws: it is atheoretical, lacks consensual understanding of its underlying dimensions, and is the product of malleable data analytic procedures that can reveal rather varied results (Block, 2010).

McAdams (1995) has drawn attention to the double-edged sword of trait theory, namely its focus on non-conditional comparisons. His proposed conceptualization of personality could be helpful to future researchers. Specifically, he differentiates between dispositional traits (Level I), personal concerns (i.e., coping mechanisms, beliefs, goals, etc.; Level II), and one's own personal myth or life-narrative (Level III). Of note is his stance that these levels do not necessarily conform to a structured hierarchy. While McAdams concedes that an unconscious attribution to personality may warrant an additional designation (i.e., a proposal for a Level IV), it is more likely that each aspect of personality categorization contains conscious and unconscious aspects. Indeed, it would hardly be necessary to retrieve collateral ratings on trait measures of personality if there was not a certain element of unconscious awareness to one's own traits. Given the already elusive nature of emotional and

moral processes, limiting ambiguity in trait personality ratings could be accomplished (at least in part) by including collateral ratings.

Clinical and Psychoeducational Implications. The clinical implications of this study are quite important, and tied closely with the research implications, particularly with regard to emotion differentiation and personality. This study's conceptual model highlighted the importance of personality and emotion differentiation in the way value-based decisions are made at the mercy of incidental factors such as emotional information that is not integral to a specific decision-making scenario. Cameron et al. (2013) have shown that emotion differentiation could serve an important role in mitigating the biasing effects of incidental disgust. This study sought to replicate this important finding while also expanding the understanding of those psychological factors underlying emotion differentiation. To do so opens-up interventions in clinical and non-clinical settings.

For instance, according to Cloninger (1994, 2008; Cloninger et al., 1993, 1997), character traits are less "fixed" and more subject to change than temperament traits. This means that any character traits underlying or at least influencing emotion differentiation could be targeted by interventions in order to maximize an individual's ability to attend to their own emotional complexity. Conversely, it may be a simpler and more effective strategy to effect change in one's social environment rather than trying to shape thinking, if the underlying assumption holds that a great portion of our behavior is driven by nonconscious, automatic processes (Haidt, 2010). In this study, none of the personality traits were found to have significant predictive power for emotion differentiation. This was perhaps the most shocking finding of the study, the importance of which cannot be overstated.

Cameron et al. (2013), in their second experiment, attempted to cultivate emotion differentiation in participants, in comparison to a control condition. They concluded that the training condition (i.e., those who were "taught" to better differentiate their emotions) discounted the incidental disgust that was introduced to their tasks, in contrast with the control group. However, a number of caveats are worth considering. Data was negatively skewed and therefore log-transformed. Secondly, the moral judgments made by the control group were weaker than the training group. Cameron et al. (p. 723) speculated that, "It is possible that participants in the training condition made stronger moral judgments because they had to make more emotion judgments during the training exercise than the control group did, leading to increased negative mood." In fact, though, participants were told to introspect in a "less-nuanced way." Overall, this served as a poor control condition, as it offered a prime for intentionally narrow emotion differentiation. Furthermore, the two groups' rating scales were different. A better control condition would have been to give only neutral instructions with no guidance one way or another on how to distinguish emotions, in conjunction with equivalent metrics of assessment. Third, no main effect was found for the disgust prime. And lastly, while an interaction was found between group and prime, the control group made "marginally stronger" (p.723), but still *nonsignificant*, moral judgments as a result of the disgust prime. These findings are underwhelming, and could easily be attributed to type I error, especially given the respective designs of the control and training groups.

The findings from this study, when taken in concert with those of Cameron et al. (2013), raise this critical issue: what *is* emotion differentiation? Is it a trait? Is it a skill? Perhaps it could even be a component of another construct like empathy or theory of mind.

With regard to the former, results from this study show that empathy and emotion differentiation may be related, but are not equivalent (at least as measured). Further research that includes theory of mind could be more promising, as it appears to overlap in part with empathy and shares similar neural pathways with self-awareness (Decety & Svetlova, 2012). It would be interesting to see whether or not interventions that temporarily bolster theory of mind (e.g., reading nonfiction; see Kidd & Castano, 2013) would have similar effects on emotion differentiation. If emotion differentiation is a skill, this could explain in part why the personality traits used in this study were not significant predictors. Alternatively, if emotion differentiation is a separate trait or ability rather than a skill, it is of little wonder why a brief training session yielded unremarkable results. This is a critical question, as adequate understanding of a construct is a necessity for the generation of meaningful and effective interventions. After all, biased interpretation of information is thought to be one of the chief contributors to psychopathology (Beck, 1976; Ellis, 2001), as is the presence and persistence of nonconscious emotion information (Shedler, 2010).

Furthermore, understanding the function and underlying factors influencing the cultivation of emotion differentiation holds great psychoeducational potential. The degree to which we have the ability to shape a person's conscious awareness of their emotional complexity would have a drastic impact on models of moral judgment, specifically the social intuitionist model. Currently, Haidt (2001) and the social intuitionists assert that only through rigorous, atypical mental effort, can intuitions be surpassed. Haidt has critiqued the use of purely logical arguments to try and alter the opinions and beliefs of others. However, he suggests an alternative approach: "If one can get the other person to see the issue in a new way, perhaps by reframing a problem to trigger new intuitions, then one can influence others

with one's words…using metaphors and visual images more than prepositional logic…" (p. 823). Furthermore, Haidt has suggested that moral judgments might be best influenced by encouraging individuals to converse with wise and open-minded figures in their lives who might trigger conflictual intuitions through discourse. The murkiness of this type of intervention obviously presents numerous challenges, such as defining what constitutes someone as "wise" or "open-minded," and more importantly motivating a person to seek-out someone who will challenge their beliefs.

This area of research offers an alternative. In an era where overt prejudice is often dwarfed by covert or more seditious biases and stereotypes (e.g., "microaggressions," see Sue et al., 2007), educational programs could benefit tremendously from research examining ways of mitigating irrelevant emotional information from the process of making value judgments. Furthermore, there are a plethora of misleading, unscientific, and outright harmful practices masquerading as legitimate (Beyerstein, 2001; Lilienfeld, 2007; Singh & Ernst, 2008). Strengthening emotion differentiation could help safe-guard the public from harmful advertising practices and bolster the scientific community's efforts in combating *emotionally effective*, but *scientifically unsupported* claims and corresponding interventions. Programs strengthening emotion differentiation could further bolster more analytic thinking, which has been associated with moral evaluations less prone to emotional influence and shown to increase skepticism in paranormal and conspiratorial matters (Pennycook, Fugelsang, Koehler, 2015).

Limitations

Several limitations to this study deserve mention. A number of methodological limitations apply to online surveys and psychological research in general, and studies with

moral judgment as the focus in particular. Reips (2000, 2002a, 2002b) has noted numerous advantages and disadvantages with online psychological research. For instance, several pitfalls of conventional or laboratory research can be mitigated, such as experimenter bias and demand characteristics. Relatedly, many studies conducted online show increases in size and diversity of sample (and consequently statistical power); as well, such studies can show increased ecological validity, as the experiment is coming to the participant rather than the other way around. Nevertheless, a number of disadvantages also emerge. While participants may show increased voluntariness, this must be weighed against self-selection bias. The absence of the experimenter does seem to reduce experimenter bias, albeit with the consequence of removing a potential resource to the participants for these like clarification of instructions and comprehension of questions/tasks. Experimenter bias, however, still finds expression through the design of a study, regardless of whether or not it is online. One of the most curious problems involves participant motivation. Intriguingly, despite the fact that participants vary in their degree of motivation, those with lower motivation often will continue to participate in a given research protocol which subsequently can lead to contamination of the data that can effect interpretation of the IV(s).

Perhaps the most overtly germane disadvantage noted by Reips (2000, 2002a, 2002b; Musch & Reips, 2000) is attrition. Musch and Reips (2000) found that online experiments' attrition level ranges from 1-87% leading to a 34% average. For this study, 59% of the data (i.e., 282 out of 475 cases) was removed. It is important to keep in mind, though, that this figure represents not only drop-out from the study, but also: incompleteness of data, failure to meet the study's inclusion criteria, and perseverative, inconsistent or otherwise problematic responding. While this is unquestionably suboptimal, Rieps (2002a) also has noted evidence

supporing the accuracy of complete data sets gathered through online distribution (e.g., Voracek, Stieger, & Gindl, 2001).

The ramifications for this loss of data were nevertheless evident in several ways, perhaps most crucially in the loss of the GMAT, which impacted hypotheses four and five as well as the evaluation of the overall conceptual model. Further, though, was the effect the sample size had on the statistical power of several analyses used. There were several underpowered analyses in this study due to the ratio or participants to predictors. This was particularly the case for the hierarchical regressions that utilized interaction terms, as the most basic rules of thumb for regression suggest a minimum of 15 cases/predictor for adequate analysis (Park & Dudycha, 1974). This also was true for the analysis of the overall model. While the model's inadequacy did not necessitate inclusion of moderators, the sample size nevertheless would have prohibited analysis of the moderated path model. Missing data across the data set also led to imputation of one kind or another for all variables in the study. It is exceedingly rare for there to be no missing data in a psychological study, and any effort to address the issue inevitably brings with it disadvantages (e.g., listwise deletion; Dong & Peng, 2013).

The characteristics of the final sample also limit generalizability. It was clear at the study's inception that the sample used would not be representative of the greater population, as only those currently enrolled in higher education were recruited. However, participants in this study were not necessarily an accurate cross-sample of those in higher education. The majority of participants were predictably between the ages of 18-30 (89.6%) and from households making less than $100,000 annually (77.6%). However, the sample also was comprised predominantly of more self-reported females (68.9%), those of "caucasian" or

"European descent" (79.3%), and individuals not identifying as religious (61.1%). Furthermore, sexual orientation also was likely more diverse than many higher education programs, as only 73.6% of participants identified as heterosexual. Furthermore, with age as a moderator variable, it would be more ideal to have a wider and more evenly distributed age range of participants. This is difficult to obtain through online data gathering, and the inclusion criteria for this study also likely hampered diversity in age (i.e., higher education enrollment).

With regard to the moral judgment component of this study, one drawback of the design was the elusive nature in measuring incidental disgust. To cope with this, a proxy score was created based on the difference between the total moral judgment ratings of the moral judgment neutral and disgust conditions. As a proxy score, this metric inherently lacked specificity and sensitvity, as it is based on the assumption that differences in performance on these tasks truly represents the intended effect of disgust incidental to the situation and not caused by other factors (i.e., statistical chance, qualitative differences in the degree to which individual scenarios triggers disgust reactions, etc.).

Furthermore, this study did not replicate the controlled timing employed by Cameron et al. (2013). It could be argued that participants varied in how long they attended to the disgust primes, influencing the intended effect of the disgust primes. This is another drawback to online research, as log data often remains ambiguous, masking potentially slower response times caused by the participant or their computer (Reips, 2002a). Therefore, it is conceivable that deviations in the time spent on a given moral judgment task and/or prime could have increased or decreased the effect of the incidental disgust primes. In addition to time of presentation of disgust prime, is the issue of the disgust primes themselves. It is

possible that the potential effect of incidental disgust primes could be increased if more emotionally evocative disgust primes are utilized. The IAPS provides a plethora of images that could be entertained for future research.

There also is the concern about group differences in samples that agree to participate in online vs. more traditional research methodologies. For instance, online users, on average, have achieved higher levels of education and SES (Reips, 2000). Joinson (1999) compared online vs. pen and paper questionnaires, finding that online participants reported slightly higher on self-esteem while also reporting less influence to social desirability and social anxiety.

More pertinent to this study is the fact that personality differences also have been identified between participants in online research. Buchanan and Reips (2001) found that Mac users were significantly higher on Openness (M =28.04, SD = 4.93) that PC users (M = 25-84, SD = 4.94), $t(1738) = 4.60$, $p < .001$). This is relevant to the issue of self-selection, as volunteers have been shown to score higher on Openness, Agreeableness, and—to a lesser extent—Extraversion than non-volunteers (Dollinger & Leong, 1993). Therefore, consideration should be given to the remedies to such pitfalls put forth by Reips (2002a). For instance, any full or partial replication of this study should consider techniques to reduce dropout, including: highlighting the demands on participants as close as possible to the beginning of the study/research (*high hurdle*); inquiring about the motivation and commitment of each participant and emphasizing its necessity to data gathering (*seriousness check*); and incorporating an orientation period/trial period at the beginning of the online research to provide ample time for participants to evaluate their commitment to completing the protocol (*warm-up*). Additionally, concerns about self-selection can be addressed using

the *multiple site entry technique* (Repis, 2000, 2002a), whereby placement of web experiment links across multiple, diverse websites can be used to compare gathered data for bias.

Conclusion

This study's proposed model of personality, emotion differentiation, and moral judgment was not supported. Incidental disgust did influence participants' evaluations on moral judgment tasks, although in a way that creates more questions than answers. Of the three personality traits included, only Cooperativeness emerged as a consistent predictor of moral judgment, with Openness' predictive power being mitigated by incidental disgust. Furthermore, there was no evidence to suggest that emotion differentiation serves as a mediator between personality and moral judgment, nor as a moderator between incidental disgust and moral judgment. While emotion differentiation predicted moral judgment, executive function did not. And though there were some indications of influence from pertinent moderator variables (gender, age, mood, and empathy), limitations of the sample—in conjunction with inconsistent support for the proposed model—limited meaningful analysis of these effects.

The findings from this study highlight the current status of research is all three content areas. We are far from having a complete grasp of personality and individual differences. Emotion differentiation, while promising as a construct, has numerous methodological and conceptual hurdles to cross before any meaningful conclusions can be made regarding its role in evaluative processes like moral judgment. Lastly, and perhaps most sobering, is the status of research in the area of moral psychology. Narrow research protocols lacking ecological validity and/or based upon incomplete assumptions about moral

processes far too often lead to misleading results. Consequently, these results can be rife with flawed interpretations that can have drastic social ramifications.

Finally, this study used an online research design with several advantages and disadvantages. While there are ways in which drawbacks to online data gathering can be reduced, the delicate nature of observing and measuring emotional and moral phenomena in individuals should be at the forefront of any researcher looking to contribute to these areas. Numerous biases and confounding variables may prove too pervasive for online data gathering to draw any more than theoretical considerations on these areas, albeit to the benefit of more tightly controlled research. Emerging designs in the areas of emotional functioning and moral processes would surely benefit from using more traditional approaches to data gathering that utilize innovative protocols, most likely involving some degree of deception to mask the variables of interest.

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APPENDIX A: Measures and Materials

Background Survey

Please provide responses to the following questions:

1. GENDER (Please check one):

___ Female
___ Male
___Other (please specify):_____

2. AGE (in years): _____

3. SEXUAL ORIENTATION (Please check one):

___ Heterosexual
___ Gay/Lesbian
___ Bisexual
___Other (please specify):_____

4. ETHNIC BACKGROUND (Please check one of the following response options to indicate your ethnic background):

___ African or African American
___ Asian (e.g., Chinese, Japanese, Indian)
___ Aboriginal (e.g., American Indian)
___ Latino/Hispanic (not of European Descent)
___ Caucasian of European Descent
___ Multi-Racial
___ Other (Please specify): _____

5. EDUCATION (Are you currently enrolled in college/post-high school education?):

___ No
___ Yes (please specify grade level):_____

6. HOUSEHOLD INCOME (Please check one of the following response options to indicate your annual household income level)

___ Less than $20,000 ___ $51,000-$100,000
___ $21,000-$50,000 ___ More than $100,000

7. RELIGIOUS AFFILIATION (Do you identify with a religion or religious group?):

___ No
___ Yes (please specify):_____

Temperament and Character Inventory (TCI)

In this questionnaire you will find statements people might use to describe their attitudes, opinions, interests and other personal feelings.

Read each statement carefully, but don't spend too much time deciding on the answer. Record your responses on spaces provided. For a response of True, record the number 1. For a response of false, record the number 0.

Please answer every statement, even if you are not completely sure of the answer.

Remember there are no right or wrong answers -- just describe your own personal opinions and feelings. Read the statement and decide which choice best describes you. Try to describe yourself the way you usually or generally act and feel, not just how you are feeling right now.

Each statement can be answered in the following way:

1=Definitely False
2=Mostly or Probably False
3=Neither True nor False or Equally True and False
4=Mostly or Probably True
5= Definitely True

Cooperativeness Dimension

C1- Social Acceptance vs. Social Intolerance

7. I can usually accept other people as they are, even when they are very different from me

23.* I generally don't like people who have different ideas from me

69.* I have no patience with people who don't accept my views

125. I often learn a lot from people

172.* It is hard for me to tolerate people who are different from me

189. It is usually easy for me to like people who have different values from me

198.* People involved with me have to learn how to do things my way

244. I usually respect the opinions of others

C2- Empathy vs. Social Disinterest

36. I often consider another person's feelings as much as my own

70.* I don't seem to understand most people very well

104. People will usually tell me how they feel

142.* I don't think it is possible for one person to share feelings with someone else who hasn't had the same

194. I usually try to imagine myself "in other people's shoes", so I can really understand them

229. I often try to put aside my own judgments so that I can better understand what other people are experiencing

263.* I wish other people didn't talk as much as they do

C3- Helpfulness vs. Unhelpfulness

14. I like to help find a solution to problems so that everyone comes out ahead

68.* I usually try to get just what I want for myself because it is not possible to satisfy everyone anyway

91. I like to be of service to others

123. I like to share what I have learned with other people

127.* Most people I know look out only for themselves, no matter who else gets hurt

180. I try to cooperate with others as much as possible

217.* Members of a team rarely get their fair share

252.* It is usually foolish to promote the success of other people

C4- Compassion vs. Revengefulness

10.* I enjoy getting revenge on people who hurt me

47.* It gives me pleasure to see my enemies suffer

82.* When someone hurts me in any way, I usually try to get even

110. I try to be considerate of other people's feelings, even when they have been unfair to me in the past

138.* I usually enjoy being mean to anyone who has been mean to me

157. I hate to see anyone suffer

175. I would rather be kind than to get revenge when someone hurts me

208.* I like to imagine my enemies suffering

239. Most of the time I quickly forgive anyone who does me wrong

283. It gives me pleasure to help others, even if they have treated me badly

C5- Pure-Hearted Conscience vs. Self-Serving Advantage

3.* Whether something is right or wrong is just a matter of opinion

26.* I would do almost anything legal in order to become rich and famous, even if I would lose the trust of many old friends

71. You don't have to be dishonest to succeed in business

103. I cannot have any peace of mind if I treat other people unfairly, even if they are unfair to me

131. I know there are principles for living that no one can violate without suffering in the long run

196.* Principles like fairness and honesty have little role in some aspects of my life

227.* I don't think that religious or ethical principles about what is right or wrong should have much influence on business decisions

265. Everyone should be treated with dignity and respect, even if they seem to be unimportant or bad

277.* Dishonesty only causes problems if you get caught

Self-Transcendence Dimension

ST1- Self-Forgetful vs. Self-Conscious Experience

33. I am often called "absent-minded" because I get so wrapped up in what I am doing that I lose track of everything else

55. Often when I look at an ordinary thing, something wonderful happens -- I get the feeling that I am seeing it fresh for the first time

65. Often I have unexpected flashes of insight or understanding while relaxing.

98. I have a vivid imagination

108. Sometimes I have felt like I was part of something with no limits or boundaries in time and space

177. I often become so fascinated with what I'm doing that I get lost in the moment - like I'm detached from time and place

216. Often I become so involved with what I am doing that I forget where I am for a while

218. It often seems to other people like I am in another world because I am so completely unaware of things going on around me

246. I have had experiences that made my role in life so clear to me that I felt very excited and happy

278. I have had moments of great joy in which I suddenly had a clear, deep feeling of oneness with all

ST2- Transpersonal Identification vs. Self-Differentiation

22. I often feel so connected to the people around me that it is like there is no separation between us

44. I often do things to help protect animals and plants from extinction

73. I sometimes feel so connected to nature that everything seems to be part of one living organism

118. I often feel a strong sense of unity with all the things around me

134. I would gladly risk my own life to make the world a better place

187. I often feel a strong spiritual or emotional connection with all the people around me

232. I have made real personal sacrifices in order to make the world a better place -- like trying to prevent war, poverty and injustice

284. I often feel like I am part of the spiritual force on which all life depends

ST3- Spiritual Acceptance vs. Rational Materialism

8. I believe that all life depends on some spiritual order or power that cannot be completely explained

80. I seem to have a "sixth sense" that sometimes allows me to know what is going to happen

109. I sometimes feel a spiritual connection to other people that I cannot explain in words

124. Religious experiences have helped me understand the real purpose of my life

136. Sometimes I have felt my life was being directed by a spiritual force greater than any human

164. I think that extra-sensory perception (ESP, like telepathy or precognition) is really possible

174.* I think that most things that are called miracles are just chance

206.* I think it is unwise to believe in things that cannot be explained scientifically

248. I believe that I have experienced extra-sensory perception myself

273.* Reports of mystical experiences are probably just wishful thinking

276. I have had personal experiences in which I felt in contact with a divine and wonderful spiritual power

ST4- Enlightened vs. Objective

67. I receive much comfort and support from my religious beliefs

99. I am grateful for supernatural guidance

114.* If there is any supernatural force in the universe, I don't think it affects me personally one way or the other

140. Faith provides my greatest sense of fulfilment and contentment

155.* I cannot get any comfort from religious preaching because no one really knows what happens after we are dead

170.* I doubt that any supernatural power has ever helped me personally

181. When I am in deep contemplation or prayer, I sometimes feel warmth and tingling like a powerful current is flowing through my body

195.* I think it is foolish to depend on supernatural guidance to understand the mysteries of life

250. When I am in deep contemplation or prayer, I sometimes feel that I am directly connected to a supernatural source of love and peace

260. I am certain the consciousness within me is a spirit that will never die

270. I feel that there is a supernatural source of love and peace that often helps me in the way that is really needed

ST5- Idealistic vs. Practical

24.* My personal and social activities are more important than prayer or religious activities

111.* I like to do practical things more than praying or thinking about the mysteries of the universe

130. I feel an ever-increasing awe of the beauty in all things

152. I try with all of my heart to understand and obey the moral ideals of universal love and harmony

158.* I feel it is foolish and impractical to strive for truth and harmony in all things

167.* I have so much to do most days that I don't usually have time for contemplation or prayer

173. I am often described as a dreamer because I place moral ideals before practical considerations

199. The moral ideals within me fill my heart with awe and admiration

245. I often ask for supernatural forgiveness for violating the absolute ideals of truth and harmony in all things

285.* I am more strongly guided by practical considerations than by my moral ideals

291. I am certain the consciousness within me is the same Consciousness that has been in each and every thing at all times

*Indicates item needs to be reversed coded

NEO Personality Inventory Revised (NEO PI-R)

Directions: Please read each item carefully and in the spaces provided record your responses using the five point response scale below that best corresponds to your agreement or disagreement. There are no right or wrong answers, and you need not be an "expert" to complete this questionnaire. Describe yourself honestly and state your opinions as accurately as possible. Please make sure to respond to every item.

0= Strongly Disagree
1=Disagree
2=Neutral
3=Agree
4=Strongly Agree

Openness Domain

O1: Fantasy

3. I have a very active imagination

*33. I try to keep all my thoughts directed along realistic lines and avoid flights of fancy.

63. I have an active fantasy life

*93. I don't like to waste my time daydreaming.

123. I enjoy concentrating on a fantasy or daydream and exploring all its possibilities, letting it grow and develop.

*153. If I feel my mind starting to drift off into daydreams, I usually get busy and start concentrating on some work or activity instead.

*183. As a child I rarely enjoyed games of make believe.

*213. I would have difficulty just letting my mind wander without control or guidance.

O2: Aesthetics

*8. Aesthetic and artistic concerns aren't very important to me.

38. I am sometimes completely absorbed in music I am listening to

*68. Watching ballet or modern dance bores me.

98. I am intrigued by the patterns I find in art and nature.

*128. Poetry has little or no effect on me.

158. Certain kinds of music have an endless fascination for me.

188. Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.

218. I enjoy reading poetry that emphasizes feelings and images more than story lines.

O3: Feelings

13. Without strong emotions, life would be uninteresting to me.

*43. I rarely experience strong emotions.

73. How I feel about things is important to me.

*103. I seldom pay much attention to my feelings of the moment.

133. I experience a wide range of emotions or feelings.

*163. I seldom notice the moods or feelings that different environments produce.

193. I find it easy to empathize—to feel myself what others are feeling.

223. Odd things—like certain scents or the names of distant places—can evoke strong moods in me.

O4: Actions

*18. I'm pretty set in my ways.

48. I think it's interesting to learn and develop new hobbies.

*78. Once I find the right way to do something, I stick to it.

108. I often try new and foreign foods.

*138. I prefer to spend my time in familiar surroundings.

168. Sometimes I make changes around the house just to try something different.

*198. On a vacation, I prefer going back to a tried and true spot.

*228. I follow the same route when I go someplace.

O5: Ideas

23. I often enjoy playing with theories or abstract ideas.

*53. I find philosophical arguments boring.

83. I enjoy solving problems or puzzles

*113. I sometimes lose interest when people talk about very abstract, theoretical matters.

143. I enjoy working on "mind-twister" type puzzles.

*173. I have little interest in speculating on the nature of the universe or the human condition.

203. I have a lot of intellectual curiosity.

233. I have a wide range of intellectual interests.

O6: Values

*28. I believe letting students hear controversial speakers can only confuse and mislead them.

58. I believe that laws and social policies should change to reflect the needs of a changing world.

*88. I believe we should look to our religious authorities for decisions on moral issues.

118. I believe that the different ideas of right and wrong that people in other societies have may be valid for them.

*148. I believe that loyalty to one's ideals and principles is more important than "open-mindedness."

178. I consider myself broad-minded and tolerant of other people's lifestyles.

*208. I think that if people don't know what they believe in by the time they're 25, there's something wrong with them.

*238. I believe that the "new morality" of permissiveness is no morality at all.

General Mental Abilities Test (GMAT)

The following test contains five sections, all of which consists of multiple-choice questions. You may take as long as you like to answer the questions.

Analogies – For the following items, select the alternative that best completes the sentence.

1. Scant is to deficient as sedate is to _____.
   a. serene
   b. moody
   c. frivolous
   d. flippant

2. Renounce is to accept as imperfect is to _____.
   a. defective
   b. deficient
   c. flawless
   d. scanty

3. Lack is to surplus as renounce is to _____.
   a. abjure
   b. accept
   c. repudiate
   d. abdicate

4. Ascertain is to learn as petty is to _____.
   a. trivial
   b. magnanimous
   c. significant
   d. substantial

5. Essential is to fundamental as endorse is to _____.
   a. sanction
   b. condemn
   c. denounce
   d. reprove

6. Exile is to ostracize as ethical is to _____.
   a. immoral
   b. honorable
   c. promiscuous
   d. lecherous

7. Oppression is to justice as obtain is to _____.
   a. forgo
   b. purchase
   c. procure
   d. acquire

8. Sheer is to opaque as parallel is to _____.
   a. analogous
   b. coinciding
   c. divergent
   d. similar

9. Remit is to retain as nasty is to _____.
   a. repellent
   b. odious
   c. beastly
   d. delightful

10. Bat is to human as whale is to _____.
   a. frog
   b. bear
   c. bird
   d. carp

11. Efface is to obliterate as general is to _____.
   a. inexact
   b. exact
   c. extinct
   d. specific

12. Large is to minute as pacific is to _____.
   a. bellicose
   b. halcyon
   c. tranquil
   d. placid

Vocabulary – Each word in capital letters is followed by four words. Pick the word that comes closest in meaning to the word in capitals.

13. CABINET
   a. bureau
   b. federal
   c. open
   d. drawer

14. OBSTACLE
   a. impediment
   b. gate
   c. yard
   d. gateway

15. CONTENT
   a. shape
   b. hinder
   c. satisfied
   d. appalled

16. ABDICATE
   a. appease
   b. suggest
   c. dictate
   d. resign

17. LOQUACIOUS
   a. parsimonious
   b. courageous
   c. verbose
   d. cautious

18. LITURGY
    a. livid
    b. angry
    c. ritual
    d. spoiled

19. PASTORAL
    a. religious
    b. graze
    c. neglect
    d. peaceful

20. MOPE
    a. stupid
    b. relax
    c. clean
    d. apathetic

21. LACONIC
    a. concise
    b. intelligent
    c. colorful
    d. quiet

22. SERPENTINE
    a. treacherous
    b. frightening
    c. misleading
    d. silly

23. MISCREANT
    a. villain
    b. incorrect
    c. ineptitude
    d. fortuitous

24. OSTENTATIOUS
    a. generous
    b. brilliance
    c. pecuniary
    d. pretentious

General Information – For each of the following items, select the correct answer.

25. What is the first month of the year that has exactly 30 days?
    a. January
    b. February
    c. March
    d. April

26. What planet has the shortest year?
    a. Earth
    b. Pluto
    c. Mercury
    d. Uranus

27. What is the world's northernmost national capital?
    a. Stockholm
    b. London
    c. Reykjavik
    d. Oslo

28. To the nearest day, how long does it take the moon to revolve around the Earth?
    a. 1 day
    b. 27 days
    c. 30 days
    d. 365 days.

29. What is the Fahrenheit equivalent of 0 degrees Celsius?
    a. -32 degrees
    b. 0 degrees
    c. 32 degrees
    d. 212 degrees

30. How many dimensions does a solid have?
    a. one
    b. two
    c. three
    d. four

31. Who wrote *Gone With the Wind?*
    a. Sylvia Plath
    b. Scarlett O'Hara
    c. Gertrude Stein
    d. Margaret Mitchell

32. In what month is Groundhog Day?
    a. January
    b. February
    c. March
    d. April

33. What is "The Windy City"?
    a. New York
    b. Detroit
    c. Chicago
    d. San Francisco

34. How many miles are there in a kilometer?
    a. .4
    b. .6
    c. 1
    d. 1.6

35. Who holds the record for career home runs?
    a. Babe Ruth
    b. Lou Gehrig
    c. Mickey Mantle
    d. Hank Aaron

36. What two cities were the subject of Dickens's *A Tale of Two Cities?*
    a. London and Madrid
    b. London and Paris
    c. London and Berlin
    d. London and New York

Mathematical Ability – For each of the following items, select the correct answer. You may use scratch paper.

37. If $2x + y = 5$, then $6x + 3y = ?$
    a. 2/5
    b. 3/9
    c. 15
    d. 18

38. One side of a rectangle is 3 feet long and the diagonal is 5 feet long. What is its area?
    a. 6
    b. 7.5
    c. 12
    d. 15

39. Rosanne's trail mix uses 6 ounces of M&Ms for every 9 ounces of Hershey's Kisses. How many ounces of M&Ms are needed for 75 ounces of trail mix?
    a. 25
    b. 30
    c. 32.5
    d. 36

40. The diagonal of a rectangle is 5 feet, and one side is 4 feet long. What is the perimeter?
    a. 12 feet
    b. 4 feet
    c. 16 feet
    d. 18 feet

41. A club of 60 people has 36 men. What percentage of the club is women?
    a. 20 percent
    b. 24 percent
    c. 40 percent
    d. 48 percent

42. The average of 3 single-digit numbers is 7. The smallest that one of the numbers can be is:
    a. 0
    b. 1
    c. 2
    d. 3

43. The hypotenuse of a right triangle is 5 feet long, and its area is 6 square feet. One of the sides of the triangle is:
    a. 1.2 feet
    b. 2 feet
    c. 2.5 feet
    d. 4 feet

44. 1/4 x 2/3 x 3/2 = ?
    a. 1/4
    b. 5/9
    c. 6/9
    d. 3

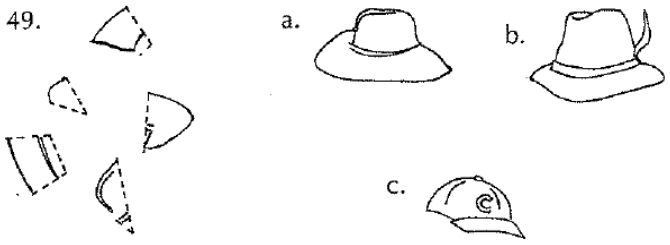
45. 1/4 x 3/4 ÷ 4/5 = ?
    a. 7/13
    b. 15/64
    c. 15/4
    d. 12/20

46. Which of the following is the largest number?
    a. 13/24
    b. 21/40
    c. 36/70
    d. 51/100

47. Sally is 2 years older than her brother. Twelve years ago, she was twice as old as he was. How old is Sally now?
    a. 14
    b. 16
    c. 20
    d. 32

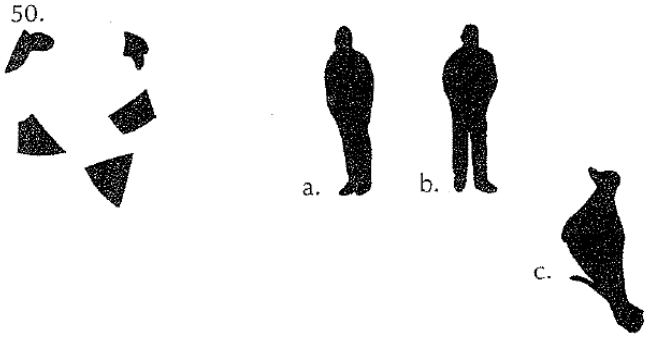
48. There were 16 teams in a basketball tournament. When a team lost, it was eliminated from the tournament. How many games had to be played to determine a champion?
    a. 4
    b. 9
    c. 15
    d. 31

Spatial Ability – For the following items, your task is to select the picture on the right that would result if the pieces on the left side of the page were put together properly. There is only one correct answer for each item.



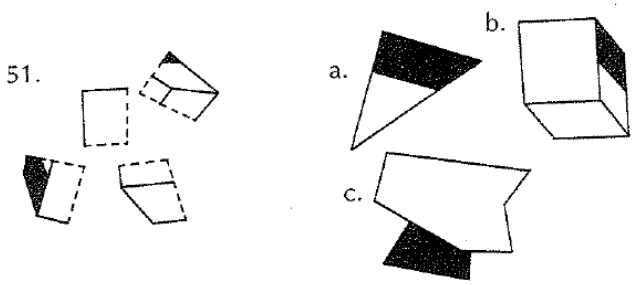
Answer to 49: a

50.



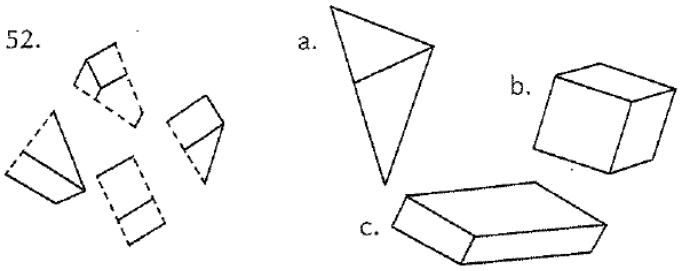
Answer to 50: a

51.



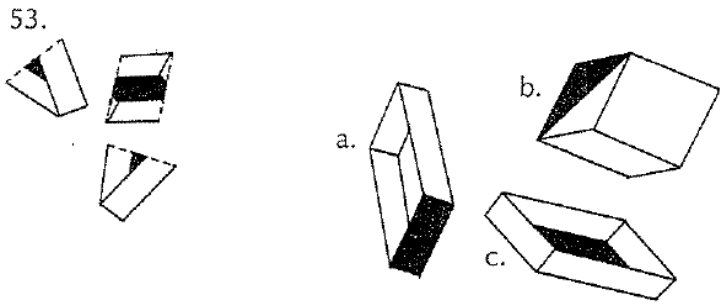
Answer to 51: b

52.



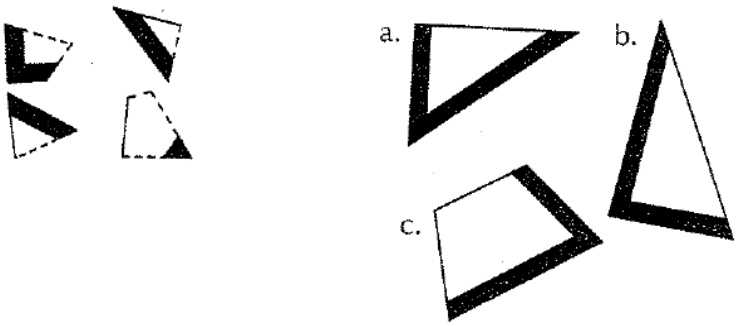
Answer to 52: c

53.



Answer to 53: c

54.



Answer to 54: b

Barkley Deficits in Executive Functioning Scale – Short Form: Self Report (BDEFS-SF)

Instructions: How often do you experience each of these problems? Please circle the number next to each item that best describes your behavior **DURING THE PAST 6 MONTHS**.

1=Never or Rarely
2=Sometimes
3=Often
4=Very Often

1. Procrastinate or put off doing things until the last minute
2. Can't seem to hold in mind things I need to remember to do
3. Not motivated to prepare in advance for things I know I am supposed to do
4. Have trouble doing what I tell myself to do
5. Have trouble learning new or complex activities as well as others
6. Have difficulty explaining things in their proper order or sequence
7. Unable to "think on my feet" or respond as effectively as others to unexpected events
8. I don't seem to process information as quickly or as accurately as others
9. Unable to inhibit my reactions or responses to events or others
10. Make impulsive comments to others
11. Likely to do things without considering the consequence for doing them
12. Fail to consider past relevant events or past personal experiences before responding to situations (I act without thinking)
13. Do not put as much effort into my work as I should or than others are able to do
14. Others tell me I am lazy or unmotivated
15. Inconsistent in the quality or quantity of my work performance
16. Unable to work as well as others without supervision or frequent instruction
17. Have trouble calming myself down once I am emotionally upset
18. Cannot seem to regain emotional control and become more reasonable once I am emotional
19. Cannot seem to distract myself away from whatever is upsetting me emotionally to help calm me down. I can't refocus my mind to a more positive framework
20. I remain emotional or upset longer than others

Brief Mood Introspective Scale (BMIS)

INSTRUCTIONS: Circle the response on the scale below that indicate how well each adjective or phrase describes your present mood.

--------1--------	--------2-------	--------3--------	--------4--------	--------5--------	--------6--------	--------7--------
Definitely Do Not Feel			Unsure			Definitely Feel

Lively

Happy

Sad

Tired

Caring

Content

Gloomy

Jittery

Drowsy

Grouchy

Peppy

Nervous

Calm

Loving

Fed up

Active

Overall, my mood is:

Very Unpleasant Very Pleasant

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

Toronto Empathy Questionnaire (TEQ)

INSTRUCTIONS: Below is a list of statements. Please read each statement *carefully* and rate how frequently you feel or act in the manner described. Circle your answer on the response form. There are no right or wrong answers or trick questions. Please answer each question as honestly as you can.

Each statement can be answered in the following way:

Never
Rarely
Sometimes
Often
Always

1. When someone else is feeling excited, I tend to get excited too.

2. Other people's misfortunes do not disturb me a great deal.

3. It upsets me to see someone being treated disrespectfully.

4. I remain unaffected when someone close to me is happy.

5. I enjoy making other people feel better.

6. I have tender, concerned feelings for people less fortunate than me.

7. When a friend starts to talk about his/her problems, I try to steer the conversation towards something else.

8. I can tell when others are sad even when they do not say anything.

9. I find that I am "in tune" with other people's moods.

10. I do not feel sympathy for people who cause their own serious illnesses.

11. I become irritated when someone cries.

12. I am not really interested in how other people feel.

13. I get a strong urge to help when I see someone who is upset.

14. When I see someone being treated unfairly, I do not feel very much pity for them.

15. I find it silly for people to cry out of happiness.

16. When I see someone being taken advantage of, I feel kind of protective towards him/her.

Levels of Emotional Awareness Scale (LEAS)

INSTRUCTIONS: Please read the following situations are rate how strongly you would feel each of the following: anger, guilt, sadness, and shame. Use the following scale to rate your feelings:

1=Not at all
2=Slightly
3=Somewhat
4=Very
5=Extremely

1. A neighbor asks you to repair a piece of furniture. As the neighbor looks on, you begin hammering the nail but then miss the nail and hit your finger. How would you feel?

2. A loved one gives you a back rub after you return from a hard day's work. How would you feel?

3. As you drive over a suspension bridge you see a person standing on the other side of the guardrail, looking down at the water. How would you feel?

4. Your boss tells you that your work has been unacceptable and needs to be improved. How would you feel?

5. You are standing in line at the bank. The person in front of you steps up to the window and begins a very complicated transaction. How would you feel?

6. You have been working hard on a project for several months. Several days after submitting it, your boss stops by to tell you that your work was excellent. How would you feel?

7. Your dentist has told you that you have several cavities and schedules you for a return visit. How would you feel?

8. Your doctor told you to avoid fatty foods. A new colleague at work calls to say that she/he is going out for pizza and invites you to go along. How would you feel?

9. You and a friend agree to invest money together to begin a new business venture. Several days later you call the friend back only to learn that she/he changed his/her mind. How would you feel?

10. You fall in love with someone who is both attractive and intelligent. Although this person is not well off financially, this doesn't matter to you—your income is adequate. When you begin to discuss marriage, you learn that she/he is actually from an extremely wealthy family. She/he did not want that known for fear that people would only be interested in her/him for her/his money. How would you feel?

Moral Reasoning Task

INSTRUCTIONS: You will be given a statement that describes a real-life practice that is viewed as acceptable in another culture, based on research by anthropologists. Please read each statement and rate the extent to which you believe it is absolutely right or wrong.

During this task you also will be presented with a series of images. You may find some of the images disturbing. Try not to let these images influence your opinions about the cultural practices. Please remember that you may discontinue the task at any time by closing your browser.

Use the following scale to rate your feelings:

1= Not At All Acceptable
2= Slighty Acceptable
3= Somewhat Acceptable/Neither Right nor Wrong
4= Very Acceptable
5= Extremely Acceptable

An unmarried woman who has sex may be murdered by her family. (N - 7000)

After their first period, girls are subjected to genital incision. (N – 7004)

Children who talk too much have part of their tongues cut off. (N – 7006)

Female babies are deemed unimportant and buried alive. (D – 1111)

Adulterous women are burned. (N – 7009)

Masturbation is harshly punished. (D – 1270)

Criminals are beaten to death and fed to the birds. (D – 1280)

Women cannot own property without male consent (N – 7010).

Female babies are killed during times of famine and poverty. (D – 1945)

Pregnant women have sex with other men to have healthier babies. (D – 2750)

A widow has no claim to her husband's possessions. (D – 3160)

Parents let severely deformed infants die of neglect. (D – 7360)

People are buried alive when they are too ill to speak. (N – 7020)

A husband can kill his wife if he finds her cheating on him. (D – 7380)

A man can avoid penalty for rape by marrying his victim. (N – 7025)

At puberty, children have designs carved on their backs. (D -8230)

The mentally retarded are teased for fun. (N – 7030)

A wife guilty of offending the king can be killed immediately. (N – 7031)

The family of a murderer is allowed to be killed by the victim's family. (N – 7034)

If a man successfully kidnaps a woman, she legally becomes his wife. (N – 7035)

A husband can force his wife to have an abortion if it isn't his child. (D – 9290)

Parents whip female adolescents that have premarital sex. (D – 9300)

People that are too old to contribute are abandoned to die. (D – 9330)

A man is punished for rape by having his genitals severely deformed. (D –9373)

Women guilty of adultery are severely physically punished. (N – 7040)

Thieves have their hands cut off. (N – 7080)

A woman who has not been enjoying marital sex may kill her offspring. (N – 7090)

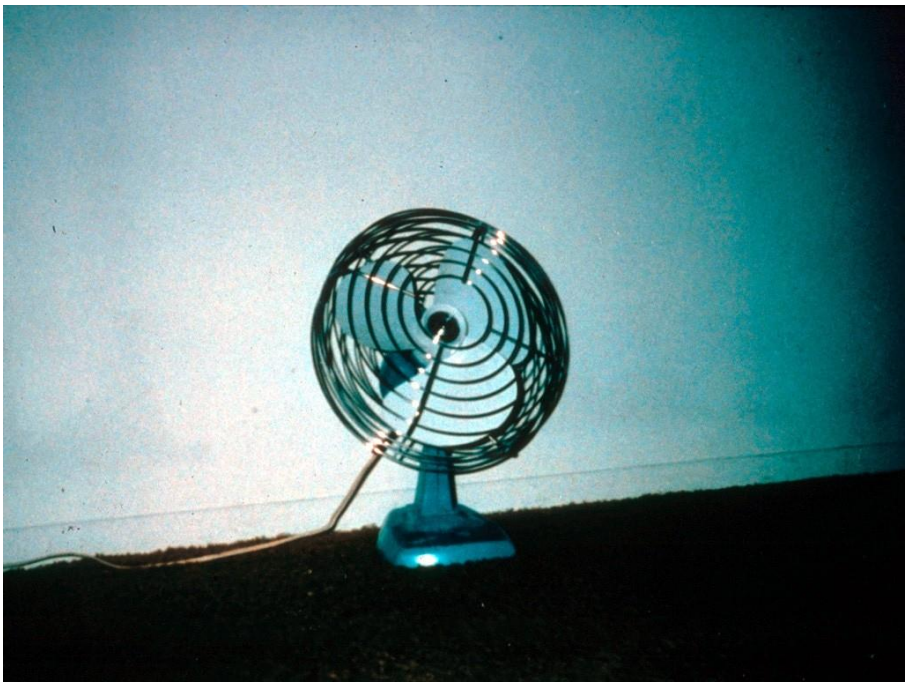
Children who are born abnormal are killed. (N – 7170)

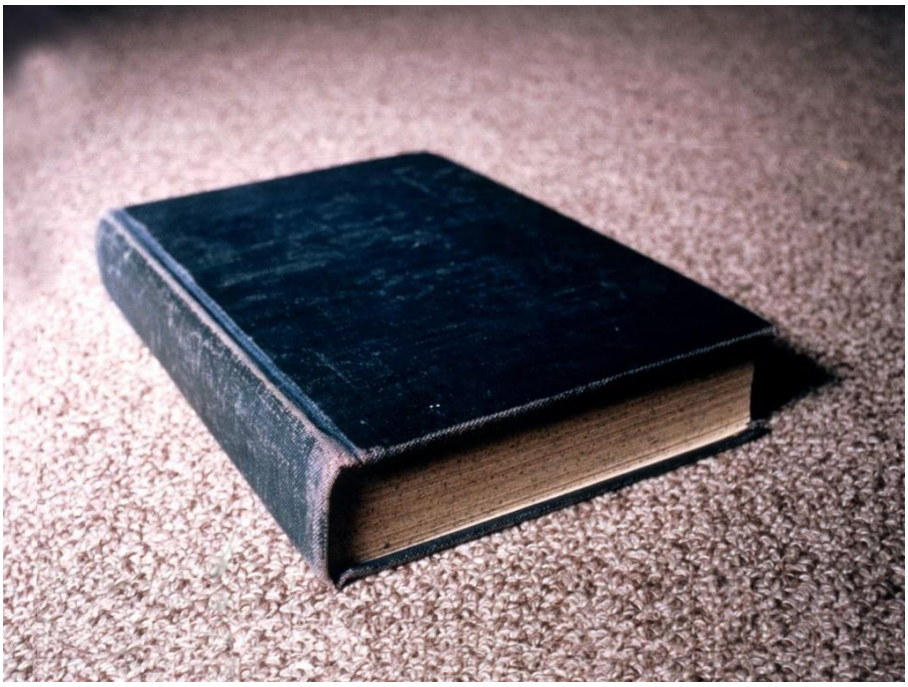
Once married, a bride cannot visit her parents again. (D – 9390)

People with physical defects are not allowed to become leaders. (D – 9830)

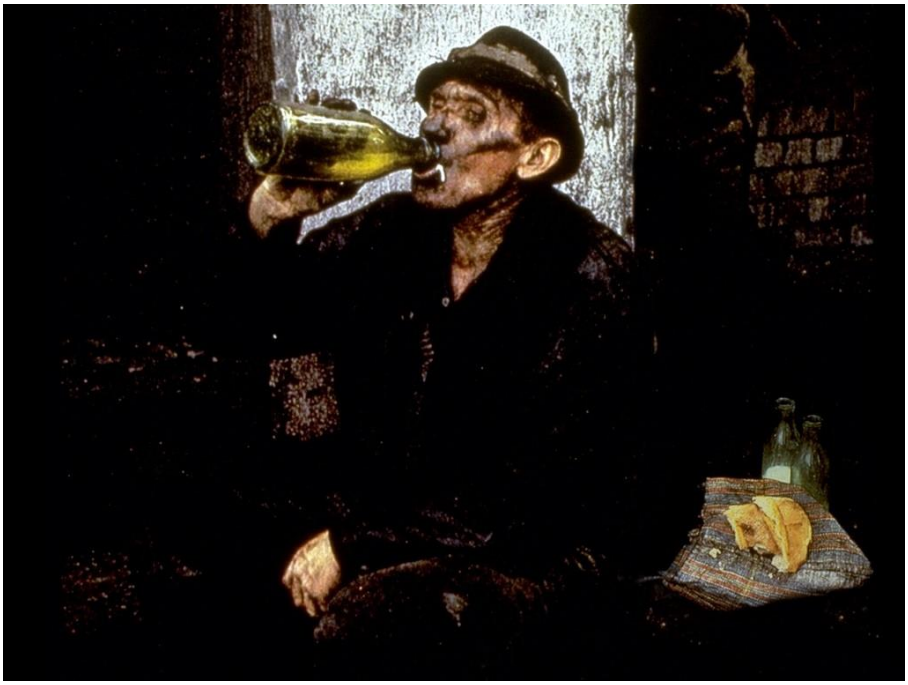
International Affective Picture System

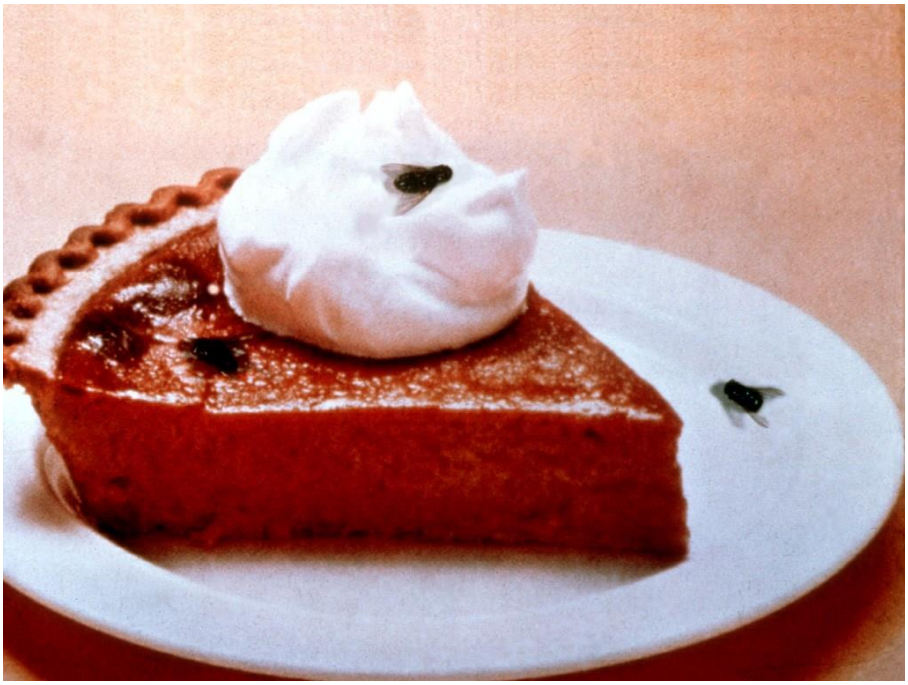
Neutral Images (in order) - 7000, 7004, 7006, 7009, 7010, 7020, 7025, 7030, 7031, 7034, 7035, 7040, 7080, 7090, 7170





Disgust Images (in order) - 1111, 1270, 1280, 1945, 2750, 3160, 7360, 7380, 8230, 9290, 9300, 9330, 9373, 9390, 9830






DATSUN

Printable Extra Credit Form

TO: _____
(Name of Instructor)

FROM: Anthony McMahon, M.A.
University of Detroit Mercy

RE: Participation of Student in Research

This note is to inform you that a student, _____
(Name of Student)

who is in your _____ class participated in my research study entitled *Personality*
(Course Number and Name)

and Moral Judgment: Self-Transcendence and Openness to Experience as Predictors of Emotion Differentiation on

_____ for a period of _____ hours.
(Date of Participation)

Please feel free to contact me at mcmahoaj@udmercy.edu if you have any questions.

ABSTRACT

PERSONALITY AND MORAL JUDGMENT: SELF-TRANSCENDENCE AND OPENNESS TO EXPERIENCE AS PREDICTORS OF EMOTION DIFFERENTIATION

By

ANTHONY MCMAHON

May 2016

Advisor: Dr. Douglas MacDonald

Major: Psychology (Clinical)

Degree: Doctor of Philosophy

This dissertation examined how personality traits (Openness, Self-Transcendence) impact emotion differentiation, a construct that was hypothesized to moderate the effect incidental disgust has on moral judgment. Executive function and the personality trait Cooperativeness were treated as control variables in a series of statistical analyses culminating in a path analysis of all study variables. Several moderators (age, gender, mood, and empathy) also were taken into account for the proposed model. A cross-sectional convenience sample was used which was comprised of 193 adults (ages 18-59, *M* = 23.1 years; female = 133, male = 56) currently enrolled in higher education. While the path model was not supported, surprising results emerged; specifically, incidental disgust appeared to bias moral judgments significantly, albeit in a way contrary to previous studies. Furthermore, there was a failure to reproduce the alleged effect emotion differentiation has on this relationship. Lastly, personality traits failed to demonstrate anticipated associations with emotion differentiation and moral judgment, a finding that was surprising given that predictions were based on the defining characteristics attributed

to them by their underlying personality models. These findings shed light on substantial flaws in current conceptual and methodological approaches to the study of personality, emotion differentiation, and moral judgment. The far-reaching implications on future programs of research as well as clinical and psychoeducational interventions are examined in detail in light of such results.

Autobiographical Statement

Anthony McMahon was born in Toledo, OH on May 27, 1987. He received his B.S. degree in psychology and religion from Heidelberg University in 2009. His proficiency in research has been recognized with distinction at the University of Detroit Mercy, where he received his masters and doctorate in clinical psychology. Dr. McMahon has worked in a number of clinical settings, including university counseling centers, day treatment programs for children, and community mental health clinics. He completed his doctoral internship at Hawthorn Center, the only state-run child psychiatric hospital in Michigan. He currently lives with his wife, Jenny, in Westlake, OH.

For correspondence, please contact via e-mail: anthony.mcmahon01@yahoo.com