

FEELING AND THINKING: TOWARDS A DEVELOPMENTAL ACCOUNT OF THE
MORAL/CONVENTIONAL DISTINCTION

by

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ABSTRACT

Since Turiel proposed social domain theory, many efforts have been made to explore the capacity to distinguish moral transgressions from conventional transgressions. However, researchers cannot reach a consensus on whether selective moralization is driven by emotional and non-rational processes or reasoning and higher cognition. After reviewing the existing theories and studies, this paper argues that the developmental dimension of moral thinking should be considered when studying the mechanisms underlying moral/conventional distinction. Participants were recruited to make judgments about a series of disgusting scenarios, their moral development and sensitivity to disgust were assessed by well-established questionnaires. The findings suggest that cognitive moral development contributes to judgments made in emotionally charged situations and moral cognition affects the influences of moral emotion on the moral/conventional distinction.

LIST OF ABBREVIATIONS AND SYMBOLS

| | |
|----------|---|
| α | Cronbach's Alpha |
| β | Beta (Standardized Coefficient) |
| CI | Confidence Interval |
| DIT | Defining Issues Test |
| DIT-2 | Defining Issues Test – 2 |
| DS | Disgust Scale |
| DS-R | Disgust Scale – Revised |
| EMG | Electromyography |
| fMRI | Functional Magnetic Resonance Imaging |
| GFI | Goodness-of-fit Index |
| MEQ | Multicultural Experiences Questionnaire |
| P score | Postconventional Schema score |
| RMSEA | Root-mean-square Error of Approximation |
| SE | Standard Error |
| SES | Socioeconomic Status |
| SD | Standard Deviation |
| VIM | Violence Inhibition Mechanism |
| WWII | World War II |
| χ^2 | Chi-Square statistic |

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CHAPTER 1

INTRODUCTION

Influenced by Piaget's genetic epistemological project and the Piagetian conception of cognitive structures, Turiel proposed that knowledge of social convention is distinct from one's knowledge of morality (Turiel, 1975, 1983). According to this theory, moral judgments are categorical, obligatory, universally applicable and impersonal. That is, moral injunctions do not derive from institutional practices, and certain actions can be judged wrong from the moral point of view even if these actions are widely practiced (e.g. to strike someone when you get angry or to keep something not yours). In contrast, social conventions are contextually relative and arbitrary, and are established by consensus and agreement (e.g. for a man to wear a dress or to have long hair). Thus, different social systems can institute different conventional practices.

Since Turiel proposed the domain theory of social knowledge, many studies have been conducted to explore people's capacity to distinguish moral from conventional transgressions (also referred to as selective moralization). The findings indicate that people do have the ability to make a moral/conventional distinction (see Smetana, 1993; Tisak, 1995, for reviews). What's more, this ability seems to be obtained from a very young age. It has been shown that children as young as 3 can make the moral/conventional distinction on some dimensions. Generally and consistent with the theory, moral transgressions are considered more serious and less permissible than conventional transgressions, and they are prohibited regardless of the authority's standpoint

or the social context (i.e. social transcendence) (Lapsley, 1996). However, “what is the mechanism underlying moral/conventional distinction” remains a question to be answered.

Different Accounts of the Moral/Conventional Distinction

The earliest detailed proposal for the mechanism of selective moralization also comes from Turiel (1983). He believes that, moral judgments are constructed from social events that have intrinsic consequences, whereas social-conventional judgments are constructed from social events that are relative to an institutional context. In other words, individuals construct the independent conceptual domains from the qualitatively different social interactional consequences of moral and conventional transgressions. Blair (1993) challenged Turiel’s account and claims that humans may possess a violence inhibition mechanism. It can initiate withdrawal responses when activated by non-verbal communications of distress such as sad facial expressions and sound of tears, and these withdrawal responses are experienced as aversive through meaning analysis. He argues that, it is the feeling of aversion that results in the moral transgressions being judged as bad. Nichols (2002) studied people’s judgments of different kinds of transgressions and proposed an affect-backed normative theory, which suggests that the capacity to draw the moral/conventional distinction depends on both an affective mechanism and a body of information about what actions are prohibited. This theory was criticized by Royzman and his colleagues (Royzman, Leeman, & Baron, 2009) as not being able to explain some existing findings such as the happy victimizer phenomenon. What’s more, the design of the studies on which the affect-backed normative theory was based has also been questioned. Therefore, Royzman et al. claim that Nichols’ theory is flawed and maintain that the capacity to make a moral/conventional distinction is harm-based and emotion-independent.

Moral Cognition and Moral Emotion

The disagreements among researchers with regard to the mechanisms underlying moral/conventional distinction reflect a classic debate in moral psychology --- whether moral judgments are driven by emotional and non-rational processes or reasoning and higher cognition. Both Kohlberg (1969) and Turiel (1983) took the view that moral judgments are primarily formed through a cognitive process of reasoning. Similarly, Rest (1983) while allowing for affective processes in moral decision-making, argued that moral reasoning was primarily a cognitive process. This dominant view is challenged by Haidt who claims that “if you focus on the reasons people give for their judgments, you are studying the rational tail that got wagged by the emotional dog” (Haidt & Joseph, 2004, p. 57). According to Haidt, people have gut feelings of right or wrong and these automatic emotional processes drive their moral judgments.

In reaction to this debate, some researchers make attempts to synthesize these two perspectives and argue that both controlled cognition and emotionally driven intuitions play crucial roles in mature moral functioning. However, they are usually interested in how factors related to emotion such as the types of emotions and people’s emotion control ability determine whether automatic emotional responses can be overridden by deliberative reasoning (e.g. Horberg, Keltner, Oveis & Cohen, 2009; Feinberg, Willer, Antonenko, & John, 2012), and rarely take cognitive differences into account. That is, in the efforts to explain how moral cognition and moral emotion work together, researchers may have neglected the fact that people are not only different in their ability to control and differentiate emotions, but also different in their ability to reason and justify moral issues.

Moral Development

When being asked to make decisions about a complex situation in which obeying a moral rule will result in violating another one (e.g. whether a doctor should give a cancer patient who is in her last phase of life more than safe dose of painkillers if she is suffering terrible pain and requires him to do so), people give different answers and rationales. Kohlberg and the neo-Kohlbergian researchers believe that among the different viewpoints, some are “better” than the others, namely, they are more complex, defensible, and elaborated. Therefore, the differences in how individuals understand moral phenomena actually represent the developmental course of moral judgment. To be more specific, Kohlberg and the neo-Kohlbergian researchers suggest that individuals have a major development in moral understanding during their second decade of life. Adolescents and young adults become aware of the functions of laws, rules, roles and institutions in regulating the society; and some of them may even develop an understanding that to be moral, all these system must serve a shareable ideal of cooperation. At this point, it is worthy to note that Kohlberg and the neo-Kohlbergian researchers are mainly interested in macro-morality, which deals with individuals’ understanding of the society-wide formal structures. They do not focus on micro-morality, which primarily addresses positive characteristics such as kindness, empathy and courtesy that concern interpersonal relationships in everyday life (Rest, Narvaez, Bebeau, & Thoma, 1999).

With the emphasis on cognition, Kohlberg’s theory accepts the notion that affective factors such as guilt have an impact on individuals’ moral judgment but maintain that their influence should decline with development (Kohlberg, 1984). The neo-Kohlbergian approach has similar statements although it devotes more importance to emotion in general. This idea could make a valuable contribution to the literature that examines the roles emotion and

cognition play in moral judgment. However, it seems to be neglected by researchers as it has rarely been tested.

In general, Kohlberg and the neo-Kohlbergian researchers suggest that transformation in moral thinking can result in different interpretations of the same issue and the influence of emotion on moral judgment may not be consistent. It implies that there may be differences in how people with different levels of moral development make the moral/conventional distinction. Since Kohlberg's theory and the neo-Kohlbergian approach are known as the cognitive moral development theories, their views appear to be on the cognitive side of the debate. But applying their frameworks does not mean that emotion is seen as an undesirable distraction in moral judgment. Instead, it simply gives us a different angle to look at the problem while putting both cognitive and affective processes on the table.

Summary and Research Questions

Since Turiel proposed the domain theory, many efforts have been made to explore the mechanisms underlying selective moralization. Researchers have come up with a variety of theories to explain how people make the moral/conventional distinction, but they cannot reach a consensus on whether these judgments are emotion driven or cognition driven. Currently, there is an increasing number of studies that take both emotion and cognition into consideration and try to investigate what factors may affect their roles in moral judgment. However, the majority of these studies have been focused on the potential influence of factors associated with emotion. The cognitive aspects, especially the developmental dimension of moral thinking, have long been overlooked. To fill this research gap, the cognitive moral development approaches should be introduced.

According to Kohlberg and the neo-Kohlbergian researchers, “differences between people in their moral understanding can be explained in part by a developmental dimension that reflects the complexity of the ideas the individual uses to interpret moral phenomena” (Thoma & Dong, 2013, p. 6). They also believe that the influence of emotion on moral judgments change across development. This study attempts to test these ideas within the social domain framework. More specifically, it is mainly intended to investigate whether cognitive moral development contributes to the moral/conventional distinction, whether moral emotion contributes to the moral/conventional distinction, and whether cognitive moral development moderates the relationship between emotion and moral/conventional distinction. In addition, it would be meaningful to examine whether the individuals who presumably should experience an intense tension between their emotional responses and deliberative reasoning are inclined to spend more time on making moral/conventional distinctions, as it may provide more insight into the process of moral functioning.

Organization of the Dissertation

This dissertation is organized in five chapters. Following this introductory chapter, Chapter 2 reviews the existing theories of moral judgment, the researches that have been conducted to explore the roles of emotion and cognition in moral decision making, and other concepts that are related to this study. Additionally, Chapter 2 includes a pilot study as it provides preliminary support for the research hypotheses and was instrumental in the design of the current study. Chapter 3 presents the research methods of the study, including the subjects, materials, and the procedure of the data collection. Chapter 4 reports the results of the data analysis, especially the findings of the main research questions. Finally, Chapter 5 generally

discusses the major findings and limitations of this study, as well as the directions for future research.

CHAPTER 2

LITERATURE REVIEW

Turiel's Social Domain Theory

When exploring how scientific knowledge developed, Piaget believed that it was necessary to consider the types of knowledge. That is, the development of knowledge must be studied within domain boundaries (Chapman, 1988). Turiel's domain-specific approach to social judgments is associated with Piaget's epistemological considerations --- if epistemological knowledge can be classified into different domains, so can social knowledge. According to Turiel, a distinction should be drawn between social convention and morality. Social conventions are behavioral uniformities that regulate social interactions and social order. They do not have an intrinsically prescriptive basis and are relative to the social context. Morality, by contrast, involves concepts of justice, and are not determined by the social system. In one of Turiel's early works (Nucci & Turiel, 1978), preschool children were interviewed after witnessing a series of social events that could be classified as social conventional or moral based on these criteria. It was revealed that children's responses to moral transgressions were different from their responses to social conventional transgressions, and their views of these events were largely consistent with the researchers' classifications. Following this study, many researchers found similar empirical evidence of moral/conventional distinction. For instance, Smetana (1981) found that moral transgressions such as causing physical harm to others or taking others' property were judged by children as more serious rule violations, and as not permissible even if

there were no rule to prohibit them. Therefore, it seems reasonable to conclude that just like logical, mathematical, and physical knowledge is not one kind of epistemological knowledge, morality and social convention are also two distinct domains of social knowledge.

With regard to the mechanism underlying moral/conventional distinction, Turiel proposes that morality and social convention are constructed out of different interactions with the environment (Turiel, 1983). Moral understanding is constructed from the events that are independent of social norms, and social conventional understanding is constructed from the events that only have meaning when there are social regulations or general expectations. It is believed that manipulations of past experiences and counter-factual reasoning are crucial in the construction process. For moral transgressions, children connect the undesirable experiences of their own to the victim's experience, and this connection results in a proscription against the acts harmful to others' well-being. Also, children compare the results of performing and not performing a behavior --- they ask themselves whether the behavior leads to less desirable consequences. In the case of moral transgressions, the suffering of the victim is obviously undesirable. But for conventional transgressions, no past experience may result in the generation of proscriptions and the behaviors do not cause significantly worse consequences. For example, when children see a classmate pushes and punches another one, they connect the pain they experienced before with the pain of the victim and understand that the consequences of the assault (pain and suffering) should be avoided. But when they see a classmate eats snacks in class, they need to refer to the school rules to judge this behavior as wrong. This view seems to be supported by Smetana's study (1989), which found that when toddlers committed a conventional transgression, their mothers just asked them to stop doing it and obey the rules; but

if they were involved in moral transgressions, their mothers often required them to think about the victim's feelings and the consequences of their behaviors.

Blair's Violence Inhibition Mechanism Model

Blair and his colleagues (Blair, Jones, Clark, & Smith, 1995) challenged Turiel's account by studying the moral/conventional distinctions made by psychopaths and non-psychopaths as well as how they justify their judgments. The findings revealed that psychopaths did not make the moral/conventional distinction. They treated conventional transgressions like moral transgressions and were much less likely to refer to victim's welfare in their justification. According to Blair, since there is no evidence indicates that "the psychopath has not constructed the moral domain either because of a failure in the construction process or because of a lack of experience of the social interactional consequences of moral and conventional transgressions" (p. 21), Turiel's framework is questionable. Later, Blair (1997) conducted another study and found that psychopaths showed lower physiological responses to cues of distress in others than did non-psychopaths. To strengthen his claim that distress, rather than the capacity of mindreading or "mentalizing", is associated with the ability to draw the moral/conventional distinction, Blair did research on children with autism as well (1996). He found that although these children were incapable of "mentalizing" (e.g., Baron-Cohen, Leslie & Frith, 1985), they could make the moral/conventional distinction. All these findings helped Blair build his violence inhibition mechanism (hereafter the VIM) model.

The idea of VIM originally came from the ethologists (Eibl-Eibesfeldt, 1970; Lorenz, 1966) who believe that aggression-control mechanisms exist in some social animal species. These mechanisms, according to them, can stop the aggressor from continuing attacking the

weaker conspecific opponent when the submission cues are displayed (e.g. drawing back ears or lowering body). Blair (1993) suggests that humans may possess a cognitive mechanism that has similar functions --- the VIM. It can be activated by the victim's distress cues and initiate a withdrawal response. The withdrawal response would be experienced as aversive and the sense of aversion causes a behavior being judged as a moral transgression. Thus, the activation of VIM mediates the performance on the moral/conventional task because only moral transgressions can become stimuli (through classical conditioning) for this activation. In other words, conventional domain is distinguished from moral domain because conventional transgressions cannot activate the VIM --- they do not result in victims and are never paired with distress cues. It should be clarified that although Blair considers the VIM as a cognitive device, he claims that the arousal induced by the activation of VIM is a kind of moral emotion. Therefore, his VIM model has been seen as a cognitive account of the role of affect in moral judgment.

Nichols' Affect-Backed Normative Theory

Nichols casts doubt on Blair's theory for two reasons (2002). First, Nichols claims that autistic children's ability of making a distinction between moral and conventional violations cannot be considered as an evidence of dissociation between the capacity of mindreading and selective moralization. Referring to some former studies, Nichols argues that autistic children can represent some mental states. For instance, they are able to attribute simple desires and emotions (e.g. Tan & Harris, 1991; Yirmiya, Sigman, Kasari, & Mundy, 1992), understand that people have different desires and fulfillment of desires can make them happy (Baron-Cohen, 1995), and use the words "want" and "hurt" correctly (Tager-Flusberg, 1993). Thus, in Nichols' view, Blair's evidence can only be used to support the more restricted claim that not all aspects

of mindreading are associated with the capacity of drawing the moral/conventional distinction. Second, Nichole points out that Blair does not make a clear distinction between judging something bad and judging something wrong. For example, the feeling of pain is bad, but cannot be considered as wrong. Looking at a child crying when getting a flu shot should activate the VIM in the witness, but it won't make the nurse's behavior to be judged a moral transgression. Therefore, from Nichols' viewpoint, Blair's theory "does not provide an adequate account of moral judgments of wrong on the moral/conventional task" (Nichols, p. 225).

To fix the problems in Blair's theory, Nichols claims that it is necessary to maintain the viewpoint that there is a body of information specifying what acts are wrong and people's judgments are guided by this information. In other words, to make a moral/conventional distinction, people should have a normative theory proscribing behaviors that harm others and it does require some minimal capacity of mindreading. At the same time, he also believes that affective mechanism is crucial to moral judgment, but it should be a mechanism for concern or personal distress instead of the VIM.

Therefore, Nichols proposed an affect-backed normative theory which suggests that both an affective mechanism and a normative theory contribute to the capacity to make the moral/conventional distinction. Furthermore, these two mechanisms are believed to be at least partly dissociable. In Nichols' view, it is due to the lack of an understanding of the normative theory, very young children cannot make the moral/conventional distinction even if they already exhibit both personal distress and concern; in contrast, a deficit in affective response to suffering results in psychopaths' poor performance on the moral/conventional task, although they have intact knowledge of the rules prohibiting harming others.

To further support his theory, Nichols designed two experiments (2002). In the first experiment, a set of transgression scenarios was given to the subjects, including two moral transgressions, two neutral conventional transgressions, and two disgusting transgressions. Following each scenario, questions about permissibility, seriousness and authority contingency were asked. For instance, one of the disgusting scenarios described a person snorts and spits into his drinking water at a dinner party. The questions about this scenario included whether it was OK for him to do this, how bad it was for him to do this, why it was bad for him to do this, and whether it was OK for him to do this if the hosts approved this kind of behaviors. The results showed that disgusting transgressions were distinguished from the conventional transgressions on all the criterion judgments. That is, the disgusting violations were regarded as less permissible, less authority contingent, and more serious than the neural violations.

In the second experiment, the Disgust Scale (Haidt, McCauley, & Rozin, 1994) was used to assess the subjects' disgust sensitivity, and the spitting into water scenario was changed to a less disgusting one (spitting into a napkin). It was found that, comparing to the low disgust sensitivity group, the high disgust group would be more likely to judge disgust violations as impermissible, very serious and not contingent on authority. Taken together, the findings of these two experiments seemed to indicate that disgust violations are distinguished from conventional violations in the same ways as moral violations. According to Nichols, it implied that just as the disgusting scenarios, harmful behaviors generate affective response, which makes individuals produce non-conventional answers to the questions of the standard moral/conventional tasks.

Royzman's Support for Harm-based Approach

After Nichols proposed the affect-backed normative theory, how well it could fit with the existing findings became a question. The answer from Royzman and his colleagues was “not nearly as well as one may hope” (Royzman et al., 2009, p. 162). They argued that Nichols’ account could not explain the happy victimizer effect, which refers to the phenomenon that young children (especially 4- and 5- year olds) generally expect a person to feel happy after committing moral violations such as stealing or cheating (e.g. Arsenio, 1988; Arsenio & Fleiss, 1996). Although children of this age already look at these transgressions from a moral angle and would show sympathy when witnessing another being distressed or accidentally injured, they seem to attribute affect purely to whether the outcomes of their actions meet their goals.

In addition, Royzman et al. (2009) claimed that the disgusting violations depicted in Nichols’ experiments actually do psychological harm to people who are there witnessing these behaviors and feel repulsed by them. In other words, harm should be broadly understood as making others worse off (Turiel, 1983). Therefore, a study (Royzman et al.) was modeled closely after Nichols’ experiments, except for that subjects were required to judge whether and to what extent anyone was “negatively affected” by the protagonist’s act. In this study, the term “grossed out” was used instead of “disgusted” because “the lay understanding of the word disgust corresponds as closely, if not more so, to the theoretical meaning of anger as to that of disgust” (Nabi, 2002, p. 700). The results revealed that harm, rather than rating of being grossed out, was a significant predictor of authority non-contingence. Royzman et al. followed this study with a study 2 in which they adapted an incest scenario (protected sex between siblings) from Haidt (2001) and created another sex-related disgusting story to serve as a control scenario. The Disgust Scale (without the four items of the sexual morality subscale) was applied to assess the

subjects' disgust sensitivity. It was found that disgust sensitivity was not significantly correlated with social transcendence. Based on these results, Royzman et al. suggested that Turiel's original vision is still more plausible. That is, whether a transgression is deemed as moral or social conventional is largely determined by whether it is intrinsically harmful to others.

Haidt's Social Intuitionist Model of Moral Judgment

The disagreements between Nichols and Royzman et al. reflect a classic problem in moral psychology with regard to the roles of affective intuition and deliberative reasoning in moral judgment. In 1980s, there was a well-known debate over the relationship between emotion and cognition. Lazarus (1984) claimed that cognitive processes always come before emotional reactions, that is, emotion can be experienced only after people have comprehended the situation. However, Zajonc (1984) argued that emotion and cognition are two separate systems and emotion can be generated without cognitive activities. This debate has influenced many fields of psychology, including moral psychology. Traditionally, it is believed that moral decisions are made through a deliberative reasoning process. Haidt took Zajonc's affective primacy hypothesis suggesting that affective judgments precede perceptual and cognitive operations (Zajonc, 1980). Also influenced by Hume's radical statement that reason is the slave of the passions (Hume, 1739-1740/1969), Haidt proposed that "moral emotions and intuitions drive moral reasoning, just as surely as a dog wags its tail" (Haidt, 2001, p. 830).

To demonstrate the role of affect in moral judgment, Haidt and his colleagues conducted a cross-cultural study in Brazil and the U.S. (Haidt, Koller, & Dias, 1993). They presented the subjects with stories describing disgusting/disrespectful yet harmless behaviors (e.g. having sex with and then eating a dead chicken) and then asked for their judgments. The results indicated that the U.S. subjects of high socioeconomic status considered the harmless-offensive actions as

matters of social convention or of personal preference. That is, they exhibited harm-based morality. However, the subjects of low socioeconomic status (especially in Brazil) took a moralizing stance towards these actions, and whether the actions were bothersome had a higher concordance with their judgments of punishment and universality than did whether the actions would hurt anybody. According to Haidt et al., it implied that affective reactions rather than perceived harmfulness could better predict their moral judgments. In another study, Wheatley and Haidt (2005) tested whether hypnotic disgust could influence people's moral judgments. At the beginning of their experiments, the participants were required to take short hypnosis sessions which suggested them to feel disgust when they read certain words. After these sessions, they were presented with a series of vignettes with/without those words in them. It was found that the vignettes that included the hypnotic words were judged as more disgusting and more morally wrong than the ones without the hypnotic words. These findings deemphasized the role of reasoning in moral judgment and seemed to support Haidt's statement that moral judgments are "grounded in affectively laden moral intuitions" (p. 780).

To differentiate his model from the mainstream theories, Haidt introduced two terms "rationalist approaches" and "intuitionist approaches". According to him, rationalist approaches of moral psychology refer to the models that emphasize the process of reasoning and reflection in moral judgment. These approaches believe that when making moral judgment, people take issues of harm, rights, justice and fairness into account. Intuitionist approaches, on the other hand, take the view that moral intuitions (including moral emotions) pop into consciousness as soon as a situation is presented and directly cause moral judgment. These approaches argue that people know something is wrong intuitively and will search for reasons only if they are required

to explain their judgments. Apparently, Haidt's model falls into the latter category and it was named as the social intuitionist model.

It should be noted that Haidt used the term "moral emotion" in his theory at the beginning and then introduced the concept of "moral intuition". This may cause confusion because theoretically an intuitive response can be purely cognitive whereas an emotive response always implies the exclusion of cognition (Haste, 2013). The shift of terms may reflect Haidt's intention of adjusting his former position by reducing the contrast between emotion and cognition. However, it is evident that Haidt takes a strong stance in emotion. Although moral reasoning is included in his model, it is considered as a post hoc construction that is only used to support already-made judgments, persuade others, or occasionally solve competing intuitions.

Disgust as a Moral Emotion

Moral emotions can be divided into two large families --- other condemning emotions (contempt, anger and disgust) and self-conscious emotions (shame, guilt, and embarrassment) (Haidt, 2003; Rozin, Lowery, Imada, & Haidt, 1999). Among them, disgust has been most favored by Haidt and should be addressed specifically here. According to Darwin (1872/1965), disgust "... refers to something revolting, primarily in relation to the sense of taste, as actually perceived or vividly imagined; and secondarily to anything which causes a similar feeling, through the sense of smell, touch and even of eyesight" (p. 253). Therefore, it is believed that disgust has the evolutionary functions of food selection and disease avoidance. However, Haidt and his colleagues argue that disgust not only helps human beings figure out what to eat but also helps people understand what to do (Haidt, Rozin, McCauley, & Imada, 1997). To put it simply, they suggest that disgust has moral implications.

Disgust has dominated the literature of moral emotion for years. Besides Haidt and Nichols who use disgust as a representative of emotion to support their models, other researchers have also conducted many studies to investigate the relationship between physical disgust and moral judgment. For example, Eskine and his colleagues (Eskine, Kacinik, & Prinz, 2011) asked subjects to drink a sweet beverage, a bitter beverage (to elicit physical disgust) or water before making judgments about the vignettes of transgressions. They found that the bitter group rated the transgressions as more wrong than did the other two groups. Meanwhile, some studies suggest that as the conceptual opposite of disgust, cleanliness can reduce the severity of moral judgments --- subjects who were primed by cleanliness-related words or who washed their hands after watching a disgusting film clip judged transgressions (e.g. eating a dead dog) as less wrong than did the subjects in control group (Schnall, Benton, & Harvey, 2008).

In addition to scenario-rating experiments, analyses of facial expressions and neuroimaging data are also used to build the link between disgust and moral transgression (for a review, see Chapman & Anderson, 2013). Some researchers revealed that unpleasant taste, photos of contaminants, and unfair treatment activate the same muscles of the face (Chapman, Kim, Susskind & Anderson, 2009). The fMRI studies also demonstrated that there are some common neural substrates underlying physical disgust and moral transgressions (Moll et al., 2005; Schaich Borg, Lieberman, & Kiehl, 2008; Parkinson et al., 2011).

Taken together, the findings of numerous studies seem to support the notion that disgust plays a role in moral judgments. However, there is also some evidence to support the opposing view. For instance, David and Olatunji (2011) conducted a study in which they paired a neutral word (“part”) with disgusting photographs (bodily mutilation) and then inserted the word into vignettes modified from Wheatley and Haidt (2005). It was found that although the previously

neutral word evoked feelings of disgust successfully, it did not make the transgressions to be judged as more wrong. Therefore, just like Royzman et al.'s studies (2009), this experiment failed to replicate any influence of disgust on moral judgment. Some researchers tried to explain the conflicting findings in terms of the kinds of disgust, namely, "not all evocations of physical disgust have equal influence" (Chapman & Anderson, 2013, p. 312). But presently there is hardly any study that explores whether some kinds of disgust are more closely associated with morality than the other kinds.

The Categories of Disgust

When developing the Disgust Scale, Haidt et al. (1994) asked students to list the disgusting experiences and things they could think of. The answers were able to be categorized into eight domains, including: food, sex, body products (e.g. seeing someone vomiting), envelope violations (e.g. seeing someone taking his glass eye out of the socket), socio-moral violations, animals, hygiene and death. The preliminary studies revealed that the domain of socio-moral violation should be removed because it was not reliably correlated with the total score (Haidt et al.). They also suggested that the domain of magical thinking should be added which refers to people's tendency to believe that "once an object is contaminated, it is always contaminated" (e.g. people do not want to drink from a glass that once held urine even if it has been thoroughly cleaned and sterilized) or "an object is what it looks like" (e.g. people would not like to eat a piece of chocolate that is shaped as feces).

Although this scale has been extensively used by researchers, the eight subscales have shown low Cronbach's alpha reliabilities (Haidt et al., 1994; Schienle, Stark, Walter, & Vaitl, 2003). Therefore, Olatunji and his colleagues (2007) refined the original scale and identified three broad categories of disgust --- core, animal-reminder, and contamination disgust. The core

disgust is characterized by reactions to “oral incorporation of offensive stimuli (e.g. eating monkey meat)” (Olatunji, Haidt, McKay, & David, 2008, p.1244). The animal-reminder disgust is elicited by behaviors that can remind human beings of their animal origins (e.g. touching a dead body). Finally, the contamination disgust is a kind of interpersonal disgust featured by the probability of disease transmission among people. This classification system has been supported by a series of studies --- the three kinds of disgust have showed different patterns of relations with personality, behavior, psychophysiological outcomes, and anxiety disorder symptom (see Olatunji, et al., 2008).

Comments on Haidt’s Social Intuitionist Model

Haidt’s theory has successfully brought attention to the affective processes of moral functioning. However, it also has been criticized by some researchers. Pizarro and Bloom (2003) argued that although it is meaningful to take emotion and intuition into account, deliberative reasoning still plays an essential role in moral judgment. First, they claimed that cognitive appraisal is important to the generation of automatic responses and changing a person’s thoughts about an issue can change his emotions immediately. For example, a teacher may feel angry if a student does not show up in an exam, but will be sympathetic to him when discovering that his absence is caused by a death in the family. Also, it was found that when watching films of industrial accidents, individuals who were told to adopt an analytical attitude were less distressed than the others (Dandoy & Goldstein, 1990). Second, people can choose what environments they expose themselves to and what information they attend to, through which they can exert second-order control over automatic reactions. For instance, students who enrolled in a seminar about racism showed significantly reduced implicit negative attitudes toward African Americans (Rudman, Ashmore, & Gary, 2001). In general, Pizarro and Bloom suggested that

moral intuition can be shaped and informed by deliberation. In addition, they pointed out that people give automatic responses to the stories such as those used in Haidt's study (e.g. eating one's own dog after it is killed by an accident) because they do not need to modify their responses by deliberative thinking. But in real life, moral reasoning plays a central role in moral judgment because the moral issues people would face are much more complex.

Saltzstein and Kasachkoff (2004) also made critical comments to Haidt's theory. They began with questioning Haidt's four reasons for rejecting the importance of moral reasoning in moral judgment. Firstly, Haidt claims that the notion of dual processing has been well accepted by other fields of psychology, and it should also be plausible that both automatic and deliberative processes are involved in moral decision making. However, according to Saltzstein and Kasachkoff, Haidt has actually reduced the dual processes to only automatic processing in his social intuitionist model. Secondly, Haidt claims that moral choices are motivated by evolutionary forces instead of rational processes. But Saltzstein and Kasachkoff suggest that moral reasoning may have promoted human evolution as it serves social harmony by producing defensible judgments. Thirdly, Haidt claims that moral reasoning is usually used to generate post hoc justifications to moral decisions made by intuition. However, the fact is that people do change their moral decisions because of the reasonable arguments of others. Finally, Haidt claims that moral reasoning and moral action are not always related. Saltzstein and Kasachkoff argue that the discrepancies may be explained by other factors such as the complexity of the moral issue.

Additionally, Saltzstein and Kasachkoff pointed out that there are three general mistakes in the social intuitionist model, including: 1) this model has narrowed the scope of social influence to compliance and does not consider the influence of reasoned argument or persuasion

on changing moral positions; 2) this model has failed to distinguish between the deployment of a moral position and its formation; and 3) this model does not fully recognize the distinction between cause and justification. The first point concerns the phenomenon that people sometimes change their minds about moral issues after talking to those who have different views. Haidt tends to explain it in terms of non-thinking conformity, whereas Saltzstein and Kasachkoff maintain that deliberative and rational forms of social influence can be involved in this process. With regard to the second point, Saltzstein and Kasachkoff suggest that just as we stop at red lights after we have learned this rule, individuals may make some moral decisions automatically because they have responded to similar situations many times after they have learned how to respond through deliberative thinking. The last point illustrates that asking individuals to describe what have caused their judgments is different from asking them to provide justifications of their judgments --- the former is about the processes that lead to the judgments and the latter refers to the reasons that make the judgments right --- and therefore “access to processes behind evaluations is neither required nor relevant to providing justifications for those evaluations” (p.281).

Haidt responded to both these two articles. In reply to Pizarro and Bloom’s comments, Haidt stated that although it may be true that people can make deliberative efforts to challenge their intuitions in moral decision making, they rarely do it (Haidt, 2003). That is, it is theoretically possible that deliberative thinking influences moral judgment, but it does not happen a lot in practice. As for the second article, Haidt accused Saltzstein and Kasachkoff of misreading his social intuitionist model. In his words, “the model they critique is a stripped-down version that should be called the ‘possum’ model” (Haidt, 2004, p. 283)

Integrating Moral Cognition and Moral Emotion

Recently, a growing number of researchers believe that both cognition and emotion play crucial roles in moral judgments and have made considerable efforts to reduce the gap between “rationalist” and “intuitionist” perspectives. Instead of asking whether it is cognition or emotion that constitutes moral judgments, they are interested in when and for whom one of them is more influential. For instance, Greene and his colleagues (Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008) found that cognitive load can increase the reaction time of utilitarian judgments but not the reaction time of non-utilitarian judgments. Therefore, they claim that utilitarian judgments are driven by deliberating reasoning processes whereas non-utilitarian judgments are driven by automatic emotional processes. Meanwhile, some studies show that the types of emotions and moral scenarios influence the role emotion plays in moral judgment. It is found that disgust, but not other negative emotions, predicts stronger moral condemnation about purity violations but not justice violations (Horberg et al., 2009).

Studies on individual differences have also offered inspiring insights into the roles emotion and cognition play in moral judgments. Using the Rational versus Experiential Inventory (Epstein, Pacini, DenesRaj, & Heier, 1996) to measure individuals’ thinking style, Bartels (2008) found that deliberative thinkers are more likely to override the influence of their affect and make decisions that can promote “the greatest good for the greatest number” than people who trust their feelings. Feinberg and his colleagues (Feinberg et al., 2012) believe that differences in emotion control ability can account for the variability in people’s moral judgments. They found that emotion reappraisal can undermine the influence of intuition on moral judgment and individuals who reappraise their emotions tend to use more deliberative reasoning in moral decision making. They also investigated the relationship between reappraisal

of disgust and liberal-conservative differences on purity issues (Feinberg, Antonenko, Willer, Horberg, & John, 2014). The results supported their hypothesis that liberals' moral judgments are less influenced by disgust, because comparing to conservatives, liberals are more likely to regulate their disgust reactions through reappraisal. In addition, it was suggested that people's capacity of emotion differentiation also affects the role emotion plays in moral judgments (Cameron, Payne, & Doris, 2013). For the individuals who can clearly differentiate incidental emotion and integral emotion, the ethically irrelevant emotion cannot increase the strength of moral judgments.

These studies have extended our understanding about the flexibility and complexity of moral judgment. But they apparently put more emphasis on emotion than cognitive processes. That is, they often focus on the potential variability in emotion-related factors and investigate how these factors influence the role of emotion --- whether emotion can be overridden or controlled --- in moral decision making. However, by studying people's working memory capacity and their judgments about "kill one person to save more lives" stories, researchers revealed that people with different working memory capacity make different judgments about killing, and these differences should be caused by deliberative reasoning rather than simply by executive control over emotion (Moore, Clark, & Kane, 2008).

Kohlberg's Theory of Moral Development

It appears that the process of reasoning has been under-studied in the existing emotion-cognition integration research of moral judgment. Especially, it is surprising that there is scarcely any study that takes cognitive moral development into account. One of, if not the most influential theory in moral psychology is Kohlberg's six-stage model of moral development. Kohlberg refined and extended Piaget's early work on children's moral judgment and proposed

that how people reason about moral dilemmas can go through a three-level structural transformation with development. According to Colby and Kohlberg (1987), these three levels represent three ways of relating the self to the moral expectations of society: for preconventional level, the expectations of authority are external to the self; for conventional level, moral rules and norms are internalized by individuals; and for the postconventional level, the self-chosen principles are abstract and distinguished from the expectations of society. Each level can be further divided into two stages. The stage 1 is heteronomous morality, which is characterized by punishment-and-obedience orientation. The goodness or badness of a behavior is completely determined by its consequences and the motives behind it are not considered. The stage 2 is instrumental morality, which is also called naïve hedonism because individuals at this stage obey rules to gain rewards or satisfy their personal objectives. Reciprocity, therefore, is understood as an exchange of favors just like “you scratch my back and I’ll scratch yours”. The stage 3 is interpersonal normative morality and can be featured by the “good boy – good girl” orientation. At this stage, the primary objective of conducting moral behavior is to be thought of as a good person by friends and relatives. The stage 4 is social system morality. Individuals at this stage take a social-order-maintaining orientation and believe that all members should obey the laws to ensure the normal operation of a society. The stage 5 is human rights and social welfare morality. Laws and rules are now considered as flexible and can be changed if they are not consistent with the fundamental rights and values. Finally, the stage 6 is morality of universal ethical principles. At the highest stage, moral choices do not depend on the societal laws anymore. Instead, the actions are based on ethical principles that value the dignity of all human beings. Kohlberg argued that the order of these six stages is invariant, and a person at a higher stage of moral reasoning cannot regress to a lower stage.

Kohlberg's theory is supported by a 20-year longitudinal study (Colby, Kohlberg, Gibbs, & Lieberman, 1983). However, there are also many criticisms about it. For instance, Kohlberg adopted a "hard" stage concept, which considers development as a series of qualitative changes rather than a quantitative process. Just like climbing a staircase, it is believed that, a subject can only be at one (or sometimes two) stages at one time. This strong version of the stage concept is found to be problematic because children always display multiple ways of thinking and the changes of frequency children use these ways of thinking often reflect their cognitive development (Siegler, 1997). Another point the critics focus on is the way Kohlberg assessed moral development. Kohlberg's theory was originally based on the interview data about how a group of boys justify their decisions of moral dilemmas (e.g. whether Heinz should steal drugs to save his wife's life). This verbal method of assessment was kept by Kohlberg as he believed that the subjects could be fully aware of their own thinking and explain it explicitly. However, many researchers suggest that people may not be able to report their cognitive processes accurately due to limited verbal ability (e.g. Nisbett & Wilson, 1977). That is, they may "know more than they can tell" (Shweder, Mahapatra, & Miller, 1987, p. 16).

The Neo-Kohlbergian Approach

To solve the problems of Kohlberg's theory and methodology, Rest and his colleagues (Rest et al., 1999) proposed a reformulation and named it as the "neo-Kohlbergian" approach. This approach keeps the core ideas of Kohlberg's theory. First, the neo-Kohlbergian researchers are also interested in how individuals make sense of the world. They maintain the notion that cognition is a key factor to understand moral behaviors. Second, it is still believed that individuals can actively construct and organize social information instead of just passively absorbing it. Third, the neo-Kohlbergian researchers also suggest that there is a developmental

path of how people understand moral concepts. In other words, some individuals possess more complex and defensible ideas than others do. Fourth, the transition from conventional to postconventional thinking is still considered to be a major developmental feature in late adolescence and young adulthood. However, the neo-Kohlbergian approach is different from Kohlberg's theory in significant ways.

The neo-Kohlbergian researchers reject the strong stage model and consider moral development as a gradual procedure. Correspondingly, the six stages of Kohlberg's theory are reformed into three ordered schemas, namely, Personal Interests Schema, Maintaining Norms Schema, and Postconventional Schema. In the study of social cognition, a schema often refers to a general knowledge structure about people or events that exist in long-term memory and can be activated by current stimuli. In the neo-Kohlbergian approach, a moral schema is more abstract -- it explains "how roles are organized into a societywide cooperative structure" (Rest et al., 1999, p. 137). The Personal Interests Schema represents a perspective concentrating on an individual's personal gain and loss, which is similar to Kohlberg's stage 2 and stage 3 considerations. The social norms do not affect how people make moral decisions within this schema. The Maintaining Norms Schema and Kohlberg's stage 4 are very much alike. Within this schema, people understand and respect social rules and believe that members of a society should obey the laws to ensure cooperation. Finally, the Postconventional Schema resembles Kohlberg's last two stages and emphasizes sharable ideals and fully reciprocity. That is, the moral decisions would be justified in terms of furthering common good and protecting everyone's basic rights; and the laws can be challenged if they are biased. It is believed that multiple schemas are available to an individual at any given time.

The neo-Kohlbergian approach uses the Defining Issues Test (hereafter the DIT) instead of Kohlberg's semi-structured interview to assess people's moral judgment development. The DIT includes several moral dilemmas, each of which is followed by a set of standard items. The subjects' task is to rate and rank the items in terms of importance, and the ratings and rankings are used to calculate the score for each moral schema rather than assign a subject to a certain stage. Just like cognitive psychologists believe that activating different schemas can result in diverse interpretations of events (Taylor & Crocker, 1981), the neo-Kohlbergian researchers argue that whether the items are judged as very important is determined by whether they make sense and tap into the subjects' preferred schema. That is, they investigate which moral schemas a subject uses in solving the DIT dilemmas and presume that he/she is likely to use the same schemas to make moral decisions beyond the test situation. Therefore, the DIT can be considered as a device that activates moral schemas as far as the subjects have developed them. The design of this measure is aligned with the neo-Kohlbergian notion of moral development; and what's more, as a multiple-choice test the DIT has lower verbal requirements than Kohlberg's production task. The DIT has been validated by a series of criteria. For example, it was found that students have significant gains in DIT scores throughout the college years (Maeda, Thoma, & Bebeau, 2009), which suggests that as a developmental measure DIT is able to detect longitudinal differences. Some studies also showed that DIT scores are related to Kohlberg's measure and measures of moral comprehension (Rest, 1979) and they are sensitive to moral education interventions (Rest, 1986).

The differences between the neo-Kohlbergian approach and Kohlberg's model not only lie in how they define and assess moral development, but also in how they describe the role moral reasoning plays in moral functioning. Instead of placing moral reasoning as central to

moral functioning, the neo-Kohlbergian approach suggests that there are at least four broad components connected to the production of moral action, and moral reasoning is only an element of Component 2 --- moral judgment. This component requires people to incorporate social norms and moral principles when they evaluate all the possible courses of action to solve a problem. That is, they ask themselves what is the moral thing to do at that point. The other three components are moral sensitivity (Component 1), moral motivation (Component 3) and moral character (Component 4). Moral sensitivity is the process that an individual recognizes there is a moral problem in a situation. When the social situations are complex, individuals must be able to identify that there is a moral dimension in it. Moral motivation is the process that prioritizes a moral course of action against other options. Since competing values can suggest different courses of action and compromise moral values, a motivational system is needed to elevate morally ideal choice above other claims. Finally, moral character is a system that helps the individuals stay focused on the moral choice and carry out their plan of action. To implement a moral action, one must have competence, courage and determination. Without these strength and characters, individuals would be likely to give up in the middle of a task. In general, the neo-Kohlbergian approach believes that to construct a moral action individuals must be aware of that their action can influence the welfare of others (Component 1), be able to integrate various considerations and evaluate all possible choices in light of a moral ideal (Component 2), be strongly motivated to pursue the moral action (Component 3), and also have enough ability and perseverance to actually execute the plan of action (Component 4). This framework is often referred to as Rest's four-component model (see Rest, 1983).

The four-component model has made a successful attempt to capture the complex nature of moral functioning. By expanding the view about the factors related to the production of moral

action, this model has left more room for exploring the integration of different research traditions in moral psychology. At the same time, it is important to note that the four-component model does not describe moral functioning as a step-wise process. That is, instead of following a linear sequence, the four components continually interact with each other and function as a whole. In addition, this model suggests that both affective and cognitive processes are involved throughout the four components.

The Theoretical Foundation for Integrating the Neo-Kohlbergian Approach with the Domain Approach

As stated at the beginning of this chapter, Turiel proposed that convention and morality are separate domains and have distinct developmental pathways. This notion seems to be different from Kohlberg's view that moral development progresses from simply maintaining conventions of the social system to postconventional thinking of principles. That is, in Turiel's theory, convention and morality develop in parallel rather than in sequence. Therefore Turiel, one of Kohlberg's first supporters, departs from Kohlberg with his claim that "convention is part of the individual's conceptualization of nonmoral aspects of the social interaction and develops alongside the development of justice concepts" (Turiel, 1978, p. 59).

Since the neo-Kohlbergian approach derives from Kohlberg's theory, to which the domain approach is considered as a main challenge, one may doubt whether these two approaches can be integrated. The theoretical foundation for this integration lies in two points. First, there is a small but vital difference between the meanings of the term "conventional" in Kohlberg's and Turiel's theory. For Turiel, the conventional domain refers to norms of certain cultures and alterable social agreements, whereas for Kohlberg "conventional" implies a "focus on socially shared moral norms and roles as the basis for making morally prescriptive judgments of rights, responsibilities, and so on" (Colby et al., 1987, p.11). In other words, Kohlberg's

theory describes the term “conventional” as a developmental stage in which individuals want to comply with conventions as they believe it is the moral thing to do. Morality and conventionality are not so separate here as “maintaining conventions at this stage is very moralistic” (Rest et al., 1999, p. 158). But at the postconventional level these two notions would be more distinguishable. For instance, from the perspective of postconventional thinking one can realize that some rules and practices of a specific society (e.g. discriminatory traditions) do not serve shared ideals and decide not to maintain those norms. The difference between “distinguishing moral and conventional domains” and “maintaining conventions” is prominent in this situation.

Second, the notion of “domain” can be interpreted in two ways --- a hard version and a soft version. The hard domain notion suggests that the mind is a system of organs and is composed of separate modules (e.g. visual machinery and motor machinery) to solve specialized problems. These modules are preprogrammed by evolution and are hard wired in the brain (Pinker, 1997). In contrast, the soft domain notion implies that there are distinguishable networks of associated schemas in our social knowledge but they are not completely separate mechanisms. Turiel maintained that conceptual domains are constructed through individual-environment interactions instead of being innately determined, and thus the boundaries between domains are not rigid (Turiel, 1989). Similarly, the neo-Kohlbergian approach adopts the soft domain notion and believes that morality and social convention are distinguishable but related parts of a larger whole. In this sense, some people may focus on conventions whereas some others may concentrate on justice issues in the decision making processes. In addition, “in a soft domain view, development can be portrayed as conventional thinking giving way to postconventional thinking” (Rest et al., 1999, p. 150).

Understanding different meanings of the term “conventional” and the two notions of domain makes it theoretically possible to integrate the social domain theory and the neo-Kohlbergian theory. At the same time, it implies that development as defined in the neo-Kohlbergian approach may influence how people make judgments in the moral/conventional tasks. For example, if being asked to make judgments about harmless yet offensive behaviors, individuals who use conventional thinking may consider them as seriously wrong because violating social norms is not moral in their point of view, whereas individuals who use postconventional thinking may consider them as moderately or even slightly wrong because those behaviors do not violate moral principles although they are socially unfavorable. This prediction is roughly consistent with the finding that purity, as measured by the Moral Foundations Questionnaire (Graham et al., 2011), is positively related to the DIT-2 Maintaining Norms Schema score (Baril and Wright, 2012). That is, the individuals who are likely to think in terms of maintaining existing social orders are more likely to focus on the issues about disgust and chastity.

A Developmental Explanation of Existing Findings about Moral Emotion

Cognitive moral development may also influence the role of affect in selective moralization. In Kohlberg’s view, moral reasoning is the only distinctive moral factor (Kohlberg & Hersh, 1977); non-moral factors such as emotions and setting considerations just play a secondary role in moral functioning and will become less influential with development (Kohlberg, 1984). In other words, Kohlberg believes that as one develops a postconventional understanding of morality, moral perspective becomes more central to the self and the link between emotions and moral judgments becomes weaker. Although the neo-Kohlbergian approach recognizes the importance of affective processes (especially in moral sensitivity), it

keeps this developmental notion and suggests that emotional reactions may be tempered by more advanced moral thinking (Thoma, in press). This idea seems to be supported by Bebeau's (2009) finding that dentists who could not consider professional actions from a system-wide perspective were likely to be affected by their emotions and commit ethical violations.

Moral emotion has rarely been studied in a developmental framework, but some consistent findings about socioeconomic status are noteworthy. For instance, in the cross-cultural study discussed before, Haidt and his colleagues (1993) were surprised to find that there was a larger difference in the moral judgments made by people from different social classes than by people from different cultures --- the low-SES subjects in both U.S. and Brazil tended to make affect-based judgments and moralize the harmless yet offensive actions, whereas the high-SES subjects did not. Horberg et al.'s study (2009) replicated this finding but revealed that lower SES did not predict stronger emotion. That is, upper SES individuals may feel just as disgusted as the lower SES individuals feel towards purity violations but they still make judgments based on appraisals of harmfulness. Horberg and his colleagues found this SES effect on moral judgments very intriguing and suggested that the mechanisms that account for this association should be an important area for future study. These findings do not relate to the neo-Kohlbergian notion of moral development directly. However, since SES is largely attributable to level of education (e.g. Oakes & Rossi, 2003), which is the most powerful demographic correlate of DIT scores (Rest, 1979), there is a possibility that the observed relationship between SES and moral judgments actually reflects the moderating effect of moral development --- with the development of moral thinking, individuals may be less influenced by emotions when making moral/conventional distinctions.

A Pilot Study

A review of existing theories and studies indicates that cognitive moral development can and should be taken into account when investigating how individuals make moral/conventional distinctions. The first step we can take is to simply add the developmental component to the well-established research and examine whether the expected developmental differences can be found. Therefore, in a pilot study, subjects were required to make judgments about two disgusting scenarios (spitting and incest) adapted from former studies (Nichols, 2002; Royzman et al., 2009; Haidt et al., 1993) as well as complete the DIT-2. The questions for the scenarios were derived from Royzman et al.'s study (see Appendix A for more details).

The findings indicated that the behaviors depicted in these scenarios were perceived as moral violations. However, the significant correlations between ratings of seriousness and disgust could only be found among people who prioritized the Maintaining Norms Schema (for spitting $r = .201, p < .05$; for incest $r = .401, p < .01$). In other words, for people who prefer the other two moral schemas, how disgusted they feel is not correlated with how serious they consider a transgression is. In addition, the results revealed that judgments of seriousness were negatively correlated with the DIT scores at .01 level (for spitting $r = -.259$, for incest $r = -.314$), which is consistent with the expectation that development of postconventional moral thinking should be associated with less severe judgments. However, the analyses of social transcendence scores did not find similar patterns.

Interestingly, there were also some specific findings about each scenario. For the spitting scenario: An ordinal regression found that if the subjects completed the scenarios first, only the rating of disgust could significantly predict the judgment of seriousness; whereas if the subjects completed the DIT-2 first, only the DIT score could significantly predict the judgment of

seriousness. This difference was not due to the fluctuation of DIT scores because there was no significant difference in DIT scores between these two groups. Additionally, it was found that test-taking environments also influenced the results --- if the subjects took the survey with a minimal amount of distractions, both the DIT score and the rating of disgust predicted the judgment of seriousness (although in different directions); but for the subjects who completed the survey in environments that had more distractions, the DIT score was the only significant predictor of seriousness rating. It may indicate that cognitive moral development could be more influential in moral decision-making than affective intuition in distraction-filled situations. For the incest scenario: the findings suggested that people with opposite-sex siblings tended to have more intense feelings of disgust and were more likely to judge the described behavior as very harmful, implying that real life context may influence people's judgments about hypothetical transgressions.

In general, this study has provided preliminary support to the claim that cognitive moral development contributes to judgments made in emotionally charged situations. To be more specific, it suggests that the relationship between feelings of disgust and judgments of seriousness varies for people prioritizing different moral schemas; and postconventional moral thinking is associated with more "tolerant" view towards offensive behaviors. It should be noted that ratings of disgust and seriousness were always placed on the same page of the scenarios, whereas the DIT-2 was given as a separate questionnaire. Thus it could not be the case that moral reasoning functions in a post hoc way as argued by the social intuitionist model (see Haidt, 2001; Wheatley & Haidt, 2005).

Reaction Time

The pilot study did not take reaction time into account and only focused on the decisions participants made. However, there is actually a long history in the cognitive sciences that supports the measurement of information processing by reaction time and some attempts have been made in the studies of moral thinking. For instance, it is found that individuals respond more rapidly to the DIT items that match their dominant moral schema (Thoma, Narvaez, Endicott, & Derryberry, 2002) and people who have high collectivism scores react faster to moral inferences but not to nonmoral inferences than the ones with low collectivism scores while reading helping stories (Narvaez, 1999). More recently, reaction time has been used to investigate the interaction between intuition and deliberation in moral judgments. Researchers (Shtulman & Tong, 2013) compared individuals' judgments about the permissibility of extraordinary actions (moral judgments) with their judgments about the possibility of extraordinary events (modal judgments). They found that participants who tended to judge the events such as "travel through time back into the past" as possible were also more likely to consider the actions such as "80-year-old woman to have sex with a 20-year-old man" as permissible, even when disgust sensitivity was controlled; and participants who had the tendency to judge the items as "possible" or "permissible" took longer to make an "impossible" or "impermissible" judgment and vice versa. It is believed that since modal judgments involve little affective processes, the correspondence between it and moral judgments should be explained by a common form of reasoning rather than affective intuition. In general, these findings indicate that it would take longer to reach a moral decision if any conflicts or contradictions occur in this process. Since it is predicted that postconventional moral thinking is negatively related to the judgments of seriousness and social transcendence, whereas the feeling

of disgust should be positively correlated with these judgments, it would be particularly interesting to examine whether individuals with more developed moral thinking use more time in making judgments of highly disgusting behaviors as they should be pulled in opposite directions.

Purpose

After years of debate, researchers are still interested in the roles emotion and cognition play in moral judgments. Therefore, it is reasonable to consider whether some important factors have been overlooked in existing theories. Instead of arguing for either side, this study aims to obtain a more comprehensive understanding of the mechanisms underlying moral/conventional distinction by taking a developmental dimension into consideration. Therefore, the neo-Kohlbergian approach is introduced. As a reformulation of Kohlberg's theory, it has fixed the flaws of Kohlberg's theory and developed its own measure of moral development --- the DIT.

One may be skeptical about bringing the neo-Kohlbergian notion of development in domain studies as Turiel and Kohlberg seem to hold fundamentally different views about the relationship between morality and social convention. However, a closer examination of these theories shows that the domain approach and the neo-Kohlbergian approach are actually compatible in some way. Since the neo-Kohlbergian researchers describe development as the shift from conventional to postconventional thinking, it is reasonable to expect that with the development of moral thinking, people may be more permissive to some socially unacceptable behaviors if they do not violate the abstract ethical principles. In addition, the neo-Kohlbergian approach adopts a more comprehensive model and accepts the importance of affective processes in moral functioning. However, it also maintains that the influence of emotion on moral judgments may vary across development. This point of view can be used to explain some existing findings about moral emotion, but it has rarely been tested.

A pilot study was conducted to examine these ideas. The results gave basic support to the current effort of integrating the developmental approach with the social domain theory and even the social intuitionist model. But at the same time, the results of the study also raised some questions. First, why are there not many findings about social transcendence score? Does it indicate that cognitive moral development has no impact on judgments of social transcendence? Or is it simply because the scale of social transcendence (ranges from 0 to 3) is too narrow to generate any meaningful results? Second, how do we explain the particular findings of each scenario? Since only two scenarios are employed in this study and they may elicit different kinds of disgust, it is hard to draw any conclusion based on the unique findings of each scenario. Third, are these findings applicable to the judgments of disgusting behaviors that commonly exist in some cultures? Currently, most of the disgusting scenarios used in the studies of selective moralization are rarely practiced in any culture. It is difficult for the subjects to make sense of those extremely disgusting behaviors and imagine that such behaviors can be approved by a society. Therefore, it is important to test whether these findings can be replicated using the behaviors that sound disgusting but are actually accepted by the majority of people in some countries or regions.

To seek answers to the above questions and further explore the mechanisms of selective moralization, it is necessary to make some modifications in the research design. Especially, a series of scenarios should be utilized to cover a wide range of disgust-tinged behaviors. By using scenarios designed in accordance with real customs/practices to evoke each kind of disgust, the current study is mainly aimed to investigate the following questions:

1. Does cognitive moral development contribute to the moral/conventional distinction?
2. Does disgust as a moral emotion contribute to the moral/conventional distinction?

3. Does cognitive moral development moderate the relationship between moral emotion and moral/conventional distinction?
4. Does cognitive moral development influence the amount of time individuals use to make the moral/conventional distinction?

Additionally, this study is able to test whether the domain of disgust makes a difference in these relationships; and whether individuals' multicultural experiences and familiarity with those specific customs/practices influence their judgments.

CHAPTER 3

METHODOLOGY

Subjects

The subjects were recruited from a large public research university located in the Southern United States. As of the fall semester of 2014, more than 36,000 students were enrolled in this university. Among them, 46% were out-of-state students and 5% were international students from 77 countries. Up to 83% students at this university were Caucasian - American and there were about 10% more females than males. The average ACT score of freshman was 25.8. Two hundred twenty-one students took and completed the survey. The majority of them were drawn from College of Education and College of Human Environmental Sciences. The undergraduates and some graduate students from these two colleges were given extra credit for completing the survey. Some students from other colleges such as arts and sciences and communication also participated in this study.

Finally, 185 respondents passed all the reliability checks, which will be introduced in the Materials section, and were included for further analysis. Among them, 150 were females (comprises 81.1% of the sample) and 34 were males (one subject did not respond to the demographic questions). The average age was 22.08 (SD = 5.08). In terms of educational level, 17.8% of the sample were freshmen, 28.1% were sophomores, 21.6% were juniors, 15.1% were seniors, and 15.6% were graduate students including the ones who have obtained or are currently working at professional degree, master's degree and doctoral degree (the sum of these percentages was slightly less than 100 since 2 respondents selected "Other").

One hundred seventy-four subjects were U.S. citizens and 173 considered English as their first language. The majority of the sample described themselves as Caucasian, which made up 76.8% of the sample, followed by African American (13.5%), Asian (6.5%), and other ethnic groups (e.g. Hispanic and Native American). In general, there were more respondents (97) who characterized themselves as somewhat or very conservative than respondents who were liberal (42) or neither liberal nor conservative (45) in terms of their political views.

Materials

DIT-2

Currently, there are two versions of the DIT. The first version was published in 1970s with six dilemmas in it, and was validated in terms of seven criteria such as longitudinal gains, sensitivity to moral education intervention, and correlation with other cognitive developmental measures (Rest, Thoma, & Edwards, 1997). The DIT-2 was developed in late 1990s as a revision of the original DIT and has been tested in hundreds of studies since then. It has five new dilemmas (Famine, Reporter, School Board, Cancer, and Demonstration) and more understandable wording. But the most significant changes lie in indexing and participant reliability checks.

Just like the original DIT, the DIT-2 provides scores for each moral schema. Therefore, there are three schema scores, including Personal Interests Schema score, Maintaining Norms Schema score and Postconventional Schema score (also known as P score). Each of them represents the percentage of items selected that appeal to a schema in moral decision making (ranges from 0 to 95). In addition, the DIT-2 has another developmental index called N2 score, which reflects both the degree to which sophisticated moral thinking is prioritized and the degree to which simplistic moral thinking is rejected. That is, it combines the Postconventional Schema

score and the difference in how respondents rate the Personal Interests items and the Postconventional items. Depending on the patterns of the schema scores, the DIT-2 also generates a type indicator. Type is categorized into seven levels: the first two types are predominant in Personal Interests schema; Type 3, 4 and 5 are predominant in Maintaining Norms schema; and the last two types are predominant in Postconventional Schema. Among all the indices, P score and N2 score are most commonly reported by researchers.

The new participant reliability checks detect the same four problems (random responding, missing data, meaningless item, and nondiscrimination) as the checks used in the original DIT. However, it uses an updated calculation method to determine whether a response should be eliminated. Using the new checks procedure, the DIT-2 purges fewer participants for unreliability than does the DIT-1 without sacrificing its validity --- the DIT-2 N2 score correlates with educational level more strongly, predicts participants' views on public policy issues better, and has higher Cronbach's alpha (.81) than does the DIT-1 P score (for more details, see Rest, Narvaez, Thoma, & Bebeau, 1999).

The Disgust Scale – Revised

Besides disgust ratings of the scenarios (just like those used in the pilot study), the Disgust Scale – Revised (hereafter the DS-R, Haidt et al., 1994, modified by Olatunji et al., 2007) was also applied to measure individuals' disgust sensitivity. As mentioned in Chapter 2, comparing to the original DS used in Nichols' (2002) and Royzman et al.'s (2009) studies, the revised version has a reduced amount of subscales (from 8 to 3) but higher alpha reliabilities (α 's > .70). The DS-R has 25 real items and 2 "catch" items (e.g. "You see a person eating an apple with a knife and fork."), all of which are rated on 5 points (0-4) scales. To be more specific, it contains 12 core disgust items (e.g. "If I see someone vomit, it makes me sick to my stomach."),

8 animal-reminder disgust items (e.g. “It would bother me to be in a science class, and to see a human hand preserved in a jar.”) and 5 contamination disgust items (e.g. “I never let any part of my body touch the toilet seat in public restrooms.”). The total score is calculated by adding up all the responses and it can be a number from 0 to 100. To limit the influence of missing data, the scoring syntax provided in the official website of the Disgust Scale generates the means of the items of each subscale and the whole scale, instead of the total scores. Therefore, all reported DS-R scores would be a number from 0 to 4, with 4 as the maximum possible disgust sensitivity. Introducing this scale into the current study is essential as it evaluates the trait level of disgust. Combining the usage of the DS-R and the rating of disgust on each scenario made it possible to detect the potential differences between how trait and state disgust influence individuals’ moral judgments.

Multicultural Experiences Questions

The multicultural experiences questions consisted of the number of other countries the respondents have visited before (“country”), number of contrasting communities they have lived in (“community”), number of friends they have from cultural/racial/ethnic backgrounds different than their own (“friend”), and number of courses in intercultural communication they have had (“course”). In addition, it also included questions such as how often the respondents enjoy media and art from different cultures (“media”), how often they pay attention to news about the world beyond the U.S.A (“news”), and how much they enjoy trying food from other countries (“food”). All these questions were adapted from the Multicultural Experiences Questionnaire (MEQ) (Narvaez, Endicott, & Hill, 2009), except for the question of trying food. This question was added as two disgusting scenarios used in current study directly involved “bizarre” food of other cultures. All these questions were rated on 5 point scales (0-4).

The means of the seven multicultural experiences questions (country, community, friend, course, media, news, food) were 1.82 (SD = 1.59), 1.21 (SD = 1.73), 3.00 (SD = 1.36), 1.25 (SD = 1.34), 2.53 (SD = 1.07), 2.33 (SD = 1.05) and 3.05 (SD = 1.10) respectively. Reliability analysis was conducted and found the Cronbach's alpha to be .62. Since the removal of "food" would lead to a small improvement in Cronbach's alpha ($\alpha = .65$) and the corrected item-total correlation value was low (.11), this item was separated from the others and was only used to further analyze individuals' reactions to the scenarios involving strange food (core disgust scenarios).

Disgusting Scenarios

Six scenarios were adopted in this study and all of them were carefully designed aligning with the three kinds of disgust defined by Olatunji, et al. (2007). These scenarios were piloted in a smaller sample ($n = 36$) first and were found to be able to elicit disgust successfully. The first two scenarios involved traditional food in Korea and Indonesia respectively. The behaviors described in these two scenarios were used to elicit core disgust:

Octopus: A man brought live octopuses to a potluck dinner and ate them when they were still wriggling.

Rat: At a dinner party, the host served fried rats to the guests.

For the animal-reminder disgust, funeral customs in some regions of China were depicted. The first one can be commonly seen in rural areas of many provinces and the second one is called "sky burial" practiced in Tibetan area:

Coffin: After a person died, his family kept him in a well-sealed coffin at home for several days.

Eagle: A family carried a deceased family member to the top of a mountain and let the eagles eat the corpse.

The last two scenarios portrayed the scenes that people share bath water or food. Although they are not uncommon in Japan and some areas of China respectively, they should cause contamination disgust to people from other cultures:

Bath: After taking showers to clean themselves, a family took baths in turn in a same bathtub without changing the water.

Soup: A group of people drank soup from one big bowl using their own spoons directly.

Procedure

The study material was administered online via Qualtrics. At the Welcome page, subjects were informed to finish the questionnaires in one sitting with minimum distraction. They were then required to enter their campus-wide ID to confirm their agreement to participate in the research. The survey included four sections: disgusting scenarios, DIT-2, DS-R, and demographic questions. The presentation of the DIT-2 and DS-R was counterbalanced. In the disgust scenarios section, the participants were required to read the scenarios and indicate their judgments of the protagonists' behaviors. Each question was presented on one page with the scenario shown at the top of the page. Take the Rat story as an example, the scenario was followed by a series of rating scale questions (from 0 to 6), including:

1. Please try to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel. (“disgust rating1”)
2. Do you think the host's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0. (“seriousness”)

3. In some cultures, the host's behavior is very common. Suppose that the host was born, raised, and lived in one of those cultures. Do you think the host's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0. (“social transcendence”)
4. Do you think the host should feel guilty for what he did? If yes, please rate how guilty; if no, please select 0. (“guilt”)
5. Do you think the host's character has been tainted by his action? If yes, please rate how seriously; if no, please select 0. (“character”)
6. Was anyone negatively affected by the host's action (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0. (“harm”)
7. Will anyone be negatively affected by the host's action IN FUTURE (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0. (“future harm”)
8. Please take the time now to read the scenario once again, trying to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel. (“disgust rating2”)

The six scenarios were presented in random order. In order to confirm the lack of patterning in the presentation of scenarios a six (scenario) by six (order) frequency table was constructed and assessed for dependency using a chi-square test (Preacher, 2001). The results indicated no relationship between dilemma and order $\chi^2(25, N = 185) = 31.06, p = .19$.

A hidden timer was added to record the time participants spend on each question (in milliseconds). After making judgments about all six scenarios, the participants were presented with a separate page on which the scenarios were displayed again, and they needed to indicate

their level of familiarity with each custom or practice (“I have never heard about this kind of behaviors before”, “I knew this kind of behaviors exist in some cultures”, or “I have seen or experienced this kind of behaviors”). Following the first three sections, the demographic questions including age, gender, race/ethnicity, level of education, parents’ levels of education, political orientation (very liberal, somewhat liberal, neither liberal nor conservative, somewhat conservative, very conservative), citizenship and language were asked, as well as the questions of multicultural experiences. Finally, a series of options on test-taking environment were provided and the participants were required to choose the one that best describe the environment in which they completed the survey (see Appendix B for the full survey).

Research Questions and Data Analysis

The responses of the survey were analyzed and the results are presented in the next chapter. After reporting the preliminary results (such as descriptive data) and their consistency with previous findings, the main findings of the current study were organized around the four research questions. In terms of the variables used in the data analysis, the questions can be restated as follows:

1. Are the DIT-2 scores related to the seriousness and social transcendence scores?
2. Are the DS-R scores related to the seriousness and social transcendence scores?
3. Do the DIT-2 scores moderate the relationship between the DS-R scores and the seriousness and social transcendence scores?
4. Are the DIT-2 scores related to the response time participants spend on making the judgments of seriousness and social transcendence?

Correlation (zero-order and partial) and regression (simple and multiple) were the major methods used in the data analysis. It was expected that cognitive moral development as

measured by the DIT-2 would negatively predict the judgments of seriousness and social transcendence, whereas disgust sensitivity as measure by the DS-R would positively predict these judgments. It was also predicted that individuals with more advanced moral thinking would be less influenced by their feeling of disgust (as a moral emotion) and spend more time on making moral judgments of highly disgusting behaviors. Although this study was most interested in individuals' judgment of all six scenarios in general, some analyses were also conducted on each kind of disgusting scenarios separately in order to investigate whether the domain of disgust caused any differences. In addition, the factors such as perceived harm, familiarity with customs/practices, multicultural experiences, and political orientation were also included in the analysis to further the understanding of moral functioning. Finally, a structural equation model, using seriousness and social transcendence as latent dependent variables, was built to summarize and test the main findings.

CHAPTER 4

RESULTS

DIT Scores

The average Personal Interests Schema score, Maintaining Norms Schema score, P score and N2 score of the participants were 30.83 (SD = 12.55), 34.91 (SD = 13.17), 27.07 (SD = 14.39), and 27.42 (SD = 13.23) respectively. No difference was found between the DIT scores of the participants who were presented with the DIT first and the ones presented with the DS-R first. Based on the type indicator, 54 (29.2%) students preferred Personal Interests schema, 81 (43.8%) students preferred Maintaining Norms schema, and 50 (27.0%) students preferred Postconventional Schema. In general, although norm-based reasoning seemed to be predominant in this sample, the data was able to represent a good range of differences in schema preference.

In consistence with former studies, significant relationships were found between DIT scores and the level of education (e.g. for P score $r(180) = .13$, $p < .05$; and for Personal Interests schema score $r(180) = -.19$, $p < .01$). A one-way ANOVA was conducted to compare the P scores of subjects with different political orientation (liberal, neither liberal nor conservative, and conservative). As expected (see Narvaez, Getz, Thoma & Rest, 1999; and Crowson, Debacker & Thoma, 2007), a significant difference was found in the three groups, $F(2, 181) = 6.24$, $p = .002$. Post hoc comparisons using Scheffe test indicated that the P score of the liberal group ($M = 32.76$, $SD = 15.35$) was significantly higher ($p = .003$) than the conservative group ($M = 23.85$, $SD = 12.65$).

It should be pointed out that the P and N2 scores of this sample were lower than those in the normative information generated in 2002 (Bebeau, 2002). What's more, within the undergraduate years, these two scores did not show a significant increase. These results are consistent with the findings of a study conducted at the same setting more recently (Mechler, 2010). The low scores could be due to a declining trend of DIT scores over the last decade or the regional differences as it is believed that the Southeastern students are likely to have lower DIT scores than the other regions (Derryberry, 2006). The limited developmental difference could imply some potential problems and challenges in today's college education, which will be discussed in the next chapter.

The DS-R Scores

The average DS-R score of this sample was 2.35 (SD = .59). For the three subscales, the average scores were: core disgust 2.50 (SD = .57), animal-reminder disgust 2.50 (SD = .74), and contamination disgust 1.74 (SD = .85). All these scores were higher than the normative scores calculated by Haidt (2012) using data from 2007 to 2010. The subscales were significantly correlated with each other at .01 level, r 's ranged from .53 to .67. There was no difference between the DS-R scores of the participants who did the DIT first and the ones who did the DS-R first.

Since many researchers in psychology and political science are interested in whether disgust sensitivity is related to political attitudes in recent years, although this is not a main research question in the current study, it was tested in the hope to make some contribution to the controversial topic. Regressing the DS-R scores on self-reported political orientation showed that only animal-reminder disgust could barely predict conservatism, $\beta = .22$, $t(182) = 2.01$, $p = .046$. This result does not strongly support Inbar, Pizarro and Bloom's finding (2009) that

disgust sensitivity as measured by the original Disgust Scale is correlated with self-reported conservatism. In fact, it is more consistent with the studies (e.g. Tybur, Merriman, Hooper, McDonald, & Navarrete, 2010; and Smith, Oxley, Hibbing, Alford, & Hibbing, 2011) that failed to replicate the relationship between disgust sensitivity as measured by the DS-R (with or without the items of animal-reminder disgust subscale) and self-reported political ideology. One explanation of the different findings would be the change of measure. However, since researchers (Inbar, Pizarro, Iyer, & Haidt, 2012) using a very large sample (more than 25,000) were able to establish the positive link between DS-R and political conservatism, it is possible that this relationship is not strong and hard to be detected in a smaller sample.

Multicultural Experiences

The average multicultural experiences score (the sum of country, community, friend, course, media, and news) was calculated as 12.13 (SD = 4.97). A regression analysis found that multicultural experiences score was a significant predictor of P score, $\beta = .54$, $t(182) = 2.58$, $p = .011$. It is consistent with former studies (Narvaez & Hill, 2009; Endicott, Narvaez, & Bock, 2003) and suggests that experiencing diversity may help individuals adopt a more complex and flexible way of thinking and promote moral development. No relationship has been found between multicultural experiences and disgust sensitivity (neither the general DS-R score nor the subscale scores).

Disgust Ratings of Scenarios

As participants were required to rate how grossed out they felt twice for each scenario --- one right after reading the scenario and the other after answering all the questions associated with that scenario --- there were two sets of disgust ratings and each set consisted of 6 items. Cronbach's alphas for the first set and the second set of disgust ratings were .71 and .78

respectively. The results also showed that removal of any question would result in a lower Cronbach's alpha. Therefore, the total score for each set of disgust ratings was calculated by adding up the ratings of all six scenarios. The means and standard deviations for each scenario together with the total scores are reported in Table 1. The Rat scenario was considered as most disgusting (5.10 and 4.45 out of 6) whereas the Soup scenario was found to be least disgusting (2.46 and 1.97 out of 6). No order effect was found in the disgust ratings of scenarios.

Table 1.

Ratings of Disgust for the Six Scenarios

| Scenario | Disgust Ratings | | | | | |
|----------|-----------------|------|-----|-------------|------|-----|
| | 1st Ratings | | | 2nd Ratings | | |
| | Mean | SD | N | Mean | SD | N |
| Rat | 5.10 | 1.41 | 185 | 4.45 | 1.69 | 185 |
| Octopus | 4.71 | 1.72 | 185 | 4.13 | 1.83 | 185 |
| Coffin | 3.55 | 1.92 | 185 | 3.06 | 1.94 | 185 |
| Eagle | 4.74 | 1.62 | 185 | 4.28 | 1.86 | 185 |
| Bath | 4.15 | 1.75 | 185 | 3.31 | 1.89 | 185 |
| Soup | 2.46 | 1.76 | 185 | 1.97 | 1.78 | 185 |
| Total | 24.71 | 6.52 | 185 | 21.21 | 7.58 | 185 |

To make sure the scenarios had successfully elicited the three kinds of disgust, correlation analyses were conducted between disgust ratings of each scenario and the DS-R subscale scores. All the disgust ratings were significantly correlated with their corresponding subscale score at .01 level (i.e. Rat and Octopus with core disgust subscale, Coffin and Eagle with animal-reminder subscale, and Bath and Soup with contamination subscale). Although there were also positive relationships between disgust ratings and other subscales, which is sensible given the three subscales were significantly correlated, the correlation coefficients

tended to be smaller and sometimes not significant (see Table 2 for details, the data highlighted were the correlations between matching scenarios and subscales, and the other data in the same columns were the correlations between scenarios and other subscales). Therefore, the scenarios are determined as appropriate for the current study.

Table 2.

Correlations between Disgust Ratings and DS-R Subscale Scores

| | | Rat | Octopus | Coffin | Eagle | Bath | Soup |
|-----------------|-----|-------|---------|--------|-------|-------|-------|
| Core | 1st | .32** | .31** | .17* | .28** | .41** | .28** |
| | 2nd | .29** | .25** | .21** | .28** | .33** | .26** |
| Animal-reminder | 1st | .30** | .23** | .27** | .31** | .38** | .22** |
| | 2nd | .25** | .18* | .24** | .29** | .32** | .21** |
| Contamination | 1st | .26** | .10 | .16* | .10 | .40** | .33** |
| | 2nd | .13 | .04 | .16* | .16* | .35** | .29** |

* $p < .05$. ** $p < .01$ (2-tailed)

Paired-samples t-tests were conducted to compare the two sets of disgust ratings. Specifically, there were four pairs of comparison --- core ratings (the sum of Rat and Octopus), animal-reminder ratings (the sum of Coffin and Eagle), contamination ratings (the sum of Bath and Soup), and total disgust ratings. The results revealed that there were significant differences (after Bonferroni correction for multiple t-tests) between the 1st and 2nd disgust ratings of all four pairs: core ratings $t(184) = 8.14, p < .001$; animal-reminder ratings $t(184) = 7.41, p < .001$; contamination ratings $t(184) = 9.96, p < .001$; total disgust ratings $t(184) = 11.35, p < .001$. Thus, participants found the scenarios to be less disgusting after making a series of judgments, even though they were required to read the scenarios again and visualize clearly what was described. At the same time, the correlation coefficients between the first set of disgust ratings and their corresponding subscales were always larger than the ones for the second set (as shown

in the highlighted parts of Table 2). Although the differences between the two sets of correlations may not be statistically significant, the pattern was consistent throughout all six scenarios. Taken together, these findings suggest that perceived disgust can be influenced by cognitive processing.

Since the first set of ratings more accurately measured participants' initial feeling of disgust without being influenced by subsequent questions, they were used in all analyses concerning state disgust. Therefore, "disgust ratings" always refers to the first set in the rest of this paper unless otherwise stated. Animal-reminder ($r(183) = -.26, p < .01$) and contamination ($r(183) = -.24, p < .01$) disgust ratings were found to be negatively correlated with participants' level of familiarity with the customs or practices described in the scenarios. However, the core disgust rating was neither related to familiarity nor to how much the participants enjoy trying different food (the "food" item from the multicultural experiences questions). Instead, it could be predicted by general multicultural experiences, $\beta = -.20, t(182) = -2.68, p = .008$.

Judgments of Seriousness and Social Transcendence

The judgment of seriousness was assessed by requesting the participants to indicate the degree to which the protagonist's behavior was wrong (from 0 "not wrong at all" to 6 "extremely wrong"). As reported in Table 3, the behaviors described in the Rat and Soup scenarios were rated as the most and least wrong respectively. The internal consistency for these items was good ($\alpha = .74$) and all items contributed to the total alpha, therefore they were summed to form the general seriousness score.

The judgment of social transcendence was measured by asking the participants whether the behaviors would still be wrong and how seriously wrong (0-6) if the protagonists were born, raised and lived in a culture where these people's behaviors were very common. As reflected in

Table 3, in this case letting the eagles eat the corpse was deemed to be most wrong. Cronbach's alpha for the items of the six scenarios was .81 and all items contributed to the overall reliability. Given the evidence that the scenarios were strongly related to each other, a general social transcendence score was computed by adding up the six items.

Table 3.

Judgments of Seriousness and Social Transcendence

| Scenario | Moral Judgments | | | | | |
|----------|-----------------|------|-----|----------------------|------|-----|
| | Seriousness | | | Social Transcendence | | |
| | Mean | SD | N | Mean | SD | N |
| Rat | 3.88 | 1.94 | 185 | 2.04 | 2.13 | 185 |
| Octopus | 3.01 | 2.10 | 185 | 1.81 | 1.96 | 185 |
| Coffin | 2.42 | 1.97 | 185 | 1.38 | 1.68 | 185 |
| Eagle | 3.76 | 2.04 | 185 | 2.19 | 2.16 | 185 |
| Bath | 2.62 | 2.06 | 185 | 1.34 | 1.71 | 185 |
| Soup | 1.53 | 1.55 | 185 | .81 | 1.31 | 185 |
| Total | 17.21 | 7.72 | 185 | 9.57 | 7.96 | 185 |

In general, the behaviors described in the scenarios were judged as moderately wrong in ordinary situations, but only slightly wrong if they were widely practiced in a society. Therefore, it appears that instead of being treated as moral violations, the disgusting behaviors were seen as relative to social context. However, it does not mean that disgust as a moral emotion has no influence on moral judgment. In fact, intense feeling of disgust may lead to harsher judgments, but it does not necessarily result in the offensive actions being distinguished from conventional violations in all dimensions (especially in terms of social transcendence).

Multicultural experiences, level of familiarity, and political orientation were found to be correlated with seriousness and social transcendence scores at .01 level. The participants who

had more experiences with other cultures tended to be more “open-minded” about the offensive behaviors (for seriousness $r(182) = -.28$ and for social transcendence $r(182) = -.34$) as they were more likely to view these behaviors as cultural conventions instead of moral failings, and this finding was consistent for all three kinds of scenarios. Also, higher levels of familiarity with the described customs were associated with less severe judgments (for seriousness $r(183) = -.33$ and for social transcendence $r(183) = -.21$), but these relationships seemed to be stronger for the animal-reminder scenarios. In terms of political orientation, conservative participants were more likely to moralize the disgusting behaviors (for seriousness $r(182) = .23$ and for social transcendence $r(182) = .20$), and this tendency was also more prominent for the animal-reminder scenarios.

Consistency with Royzman’s Findings

Since some parts of the current study was modeled after Royzman et al.’s study (2009), it would be meaningful to test whether the current data could produce similar findings before conducting analyses for the main research questions. As reviewed in Chapter 2, by investigating subjects’ judgments of disgusting scenarios concerning dining etiquette and sexual practices, Royzman and his colleagues strongly suggested to go back to Turiel’s harm-oriented approach -- they found that ratings of current harm and social transcendence were significantly correlated. This finding was replicated in the current study. It was found that the seemingly harmless actions described in the scenarios were actually perceived as harmful in a broader theoretical sense as they “negatively affected” others, and the perceived harm was significantly correlated with social transcendence ratings across all three kinds of disgusting scenarios and in general (r ’s ranged from .64 to .67, $p < .01$). In addition, the positive relationship between disgust scores and

aretaic judgment (a sum score of “guilt” and “character”) established in Royzman’s study was also found in this study, $r(183) = .29, p < .01$.

Possibly because of increased sensitivity of measures (Royzman’s study used many binary questions and then converted the answers into percentage), some relationships that failed to be significant in the original study were noted in the current analyses. For instance, significant correlations between future harm and social transcendence were found in the current study (r ’s ranged from .62 to .66, $p < .01$). Meanwhile, both harm and future harm were significantly related to aretaic judgment, $r(183) = .81$ and $.77$ respectively, $p < .01$. The means and standard deviations of harm, future harm, guilt, and character are reported in Table 4 ($n = 185$).

Table 4.

Ratings of Harm, Future Harm, Guilt, and Character

| | | Harm | Future Harm | Guilt | Character |
|-----------------|------|-------|-------------|-------|-----------|
| Core | Mean | 5.29 | 4.54 | 4.23 | 4.12 |
| | SD | 3.34 | 3.37 | 3.47 | 3.52 |
| Animal-reminder | Mean | 4.68 | 4.65 | 3.92 | 4.05 |
| | SD | 3.44 | 3.42 | 3.54 | 3.37 |
| Contamination | Mean | 2.39 | 2.71 | 1.63 | 1.82 |
| | SD | 2.42 | 2.61 | 2.30 | 2.36 |
| Total | Mean | 12.36 | 11.90 | 9.78 | 10.00 |
| | SD | 7.48 | 7.67 | 7.74 | 7.75 |

Along with the findings that harm and future harm were also correlated with seriousness ratings across all three kinds of disgusting scenarios and in general (r ’s ranged from .53 to .69, $p < .01$), which for some reason were not reported in Royzman’s study, this preliminary analysis has confirmed that perceptions of harm play a substantial role in the construction of the moral

domain. Thus, in the main analyses that follow, harm should be taken into account to help us better understand the influences of cognitive moral development and emotion on moral/conventional distinction. While emphasizing the importance of perceived harm in moral judgment, Royzman argued that disgust sensitivity was not associated with the judgment of social transcendence. The results of the current study suggested a more complex relationship between these two notions, which will be discussed in detail in Research Question 2.

Main Research Questions

Question 1: Does Cognitive Moral Development Contribute to the Moral/Conventional Distinction?

To examine whether cognitive moral development plays a role in the moral/conventional distinction, correlation analyses were first conducted between P score of the DIT and participants' moral judgments. The results suggested that P score was negatively correlated with both seriousness and social transcendence scores at .01 level. Correlations between participants' judgments on each kind of scenario and P scores did not find noteworthy difference: the relationships between P scores and seriousness ratings were significant at .05 level (except for the contamination scenarios which resulted in a statistical tendency, $p = .051$), and the relationships between P score and social transcendence ratings were always significant at .01 level.

Since it was already found that multicultural experiences and political orientation were related to the DIT scores and judgments of the scenarios, to ensure that the relationship between P score and the judgments could not be totally attributed to the effects of these two factors, partial correlations were computed while controlling for multicultural experience scores and self-reported political orientation. As shown in Table 5, the relationship between P score and social transcendence score remained significant at .01 level and the relationship between P score and

seriousness score was significant at .05 level. Therefore, consistent with expectations, cognitive moral development was associated with more lenient judgments of offensive behaviors. In other words, with the development of postconventional moral thinking, participants were inclined to consider the disgust violations as less severe, especially if they happened in a society where these kinds of actions were largely accepted.

Because the influence of perceived harm on moral judgment was supported in both Royzman’s study (2009) and previous analyses, it was also included in the current analysis of the relationship between P score and seriousness/social transcendence scores. After controlling for the effect of harm, P scores were still significantly correlated with social transcendence at .01 level. However, interestingly, the correlation between P scores and seriousness dropped to non-significant levels after partialling out harm (also see Table 5).

Table 5.

Correlations between P score and Judgments of Seriousness and Social Transcendence

| | Control Variables | | | |
|----------------------------------|-------------------|--------------------------|-----------------------|--------|
| | None | Multicultural Experience | Political Orientation | Harm |
| P score and Seriousness | -.21** | -.18* | -.17* | -.10 |
| P score and Social Transcendence | -.28** | -.25** | -.25** | -.20** |

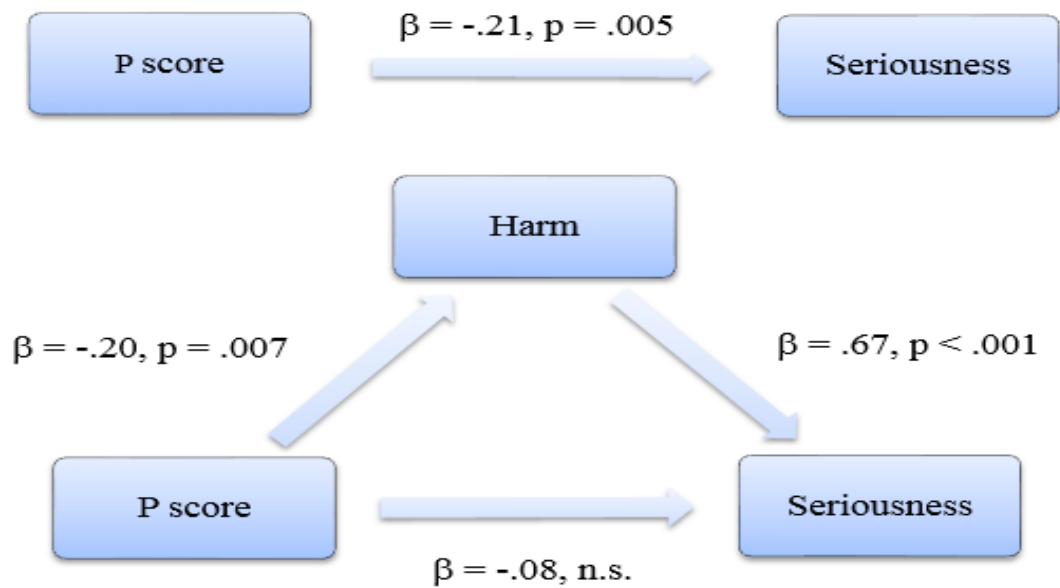
*p < .05. **p < .01 (2-tailed)

To further explore the mechanism through which cognitive moral development affects the judgment of seriousness, mediation analysis was conducted using perceived harm as a mediator. Step 1, a simple linear regression was calculated to predict seriousness score based on P score. The results indicated that P score was a significant predictor of judgment of seriousness, $\beta = -.21$, $t(183) = -2.87$, $p = .005$. This step established that there was an effect that could be

mediated. Step 2, regressing P score on rating of harm showed that P score negatively predicted perceived harm, $\beta = -.20$, $t(183) = -2.74$, $p = .007$. Step 3, using seriousness as the dependent variable and both P score and harm as predictors in a multiple regression analysis found that P score was no longer a significant predictor of seriousness ($\beta = -.08$, $t(182) = -1.37$, $p = .172$) after controlling for harm ($\beta = .67$, $t(182) = 12.05$, $p < .001$).

Figure 1.

The Mediating Role of Perceived Harm in the Effect of P score on Seriousness



These results were consistent with a full mediational model as shown in Figure 1.

Approximately 46.8% of the variance in judgment of seriousness was accounted for by the predictors ($R^2 = .468$). The indirect effect was tested using the Monte Carlo Method with 5000 samples (Selig & Preacher, 2008). The results suggested the indirect effect was nonzero, 95% CI = $-.13, -.02$. Therefore, the development of postconventional thinking influences individuals' perception of harm about offensive behaviors, which in turn influences their judgment of seriousness. In fact, similar procedure also found that perceived harm mediated the relation between P score and judgment of social transcendence. However, the results only supported a

partial mediation: P score ($\beta = -.15$, $t(182) = -2.78$) and harm ($\beta = .64$, $t(182) = 11.77$) simultaneously predicted social transcendence score at .01 level ($R^2 = .477$).

Question 2: Does Disgust as a Moral Emotion Contribute to the Moral/Conventional Distinction?

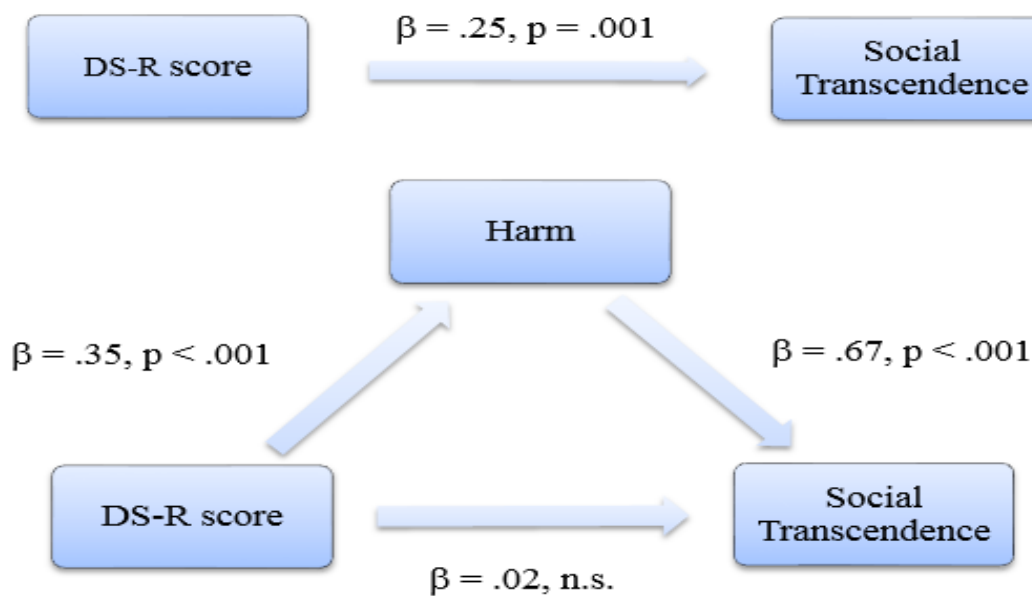
First, correlation analyses were conducted between the general DS-R score and participants' moral judgments. As expected, the results indicated that disgust sensitivity was significantly related to both the seriousness score ($r(183) = .35$, $p < .01$) and social transcendence score ($r(183) = .25$, $p < .01$). Similarly, correlations between the DS-R subscale scores and judgments of their corresponding scenarios were also found to be significant (r 's ranged from .15 to .33). With regard to state disgust, participants' disgust ratings of the three kinds of scenarios were always positively correlated with their judgments of seriousness and social transcendence, even when the level of familiarity was controlled (r 's ranged from .38 to .65, $p < .01$). In general, these results suggested that disgust, as a moral emotion, did play a role in the moral/conventional distinction.

With the research question answered, some extra efforts were made in order to understand "how" disgust influences individuals' moral judgment. Existing literature has been focused on the direct effect of disgust on the moral/conventional distinction and rarely studied the process of the effect. However, if moral development weakens perceived harm as individuals tend to concentrate on whether the actions violate ethical principles, then it is reasonable to consider that disgust sensitivity may strengthen the perception of harm as individuals are more likely to be negatively affected by the disgusting behaviors, which in turn influences their moral judgments. Mediation analyses were performed to test these ideas. As shown in Figure 2, DS-R score predicted social transcendence score ($\beta = .25$, $t(183) = 3.45$, $p = .001$). In addition, DS-R score predicted perceived harm ($\beta = .35$, $t(183) = 5.00$, $p < .001$). Finally, when perceived harm

and DS-R score were entered simultaneously as predictors of social transcendence score, perceived harm remained a significant predictor ($\beta = .67, t(182) = 11.46, p < .001$) while the DS-R score did not ($\beta = .02, t(182) = .26, p = .798$), which was consistent with full mediation. About 45.5% of the variance in social transcendence score was accounted for by the predictors ($R^2 = .455$). The indirect effect was nonzero (95% CI = 1.83, 4.63), tested by the Monte Carlo Method with 5000 samples. Thus, the perception of harm mediated the relation between disgust sensitivity and the judgment of social transcendence.

Figure 2.

The Mediating Role of Perceived Harm in the Effect of DS-R score on Social Transcendence

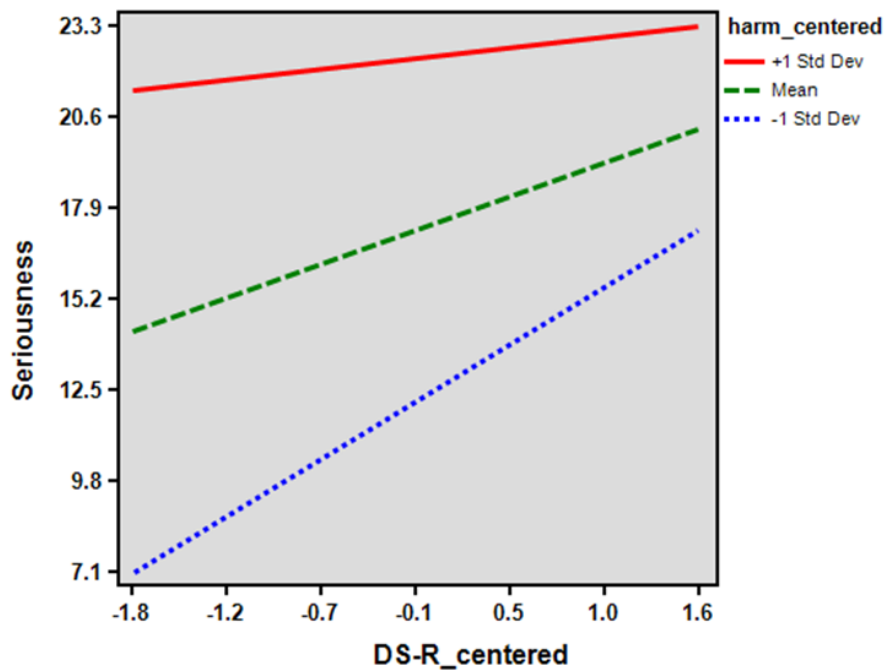


Perceived harm was also found to partially mediate the relation between disgust sensitivity and the judgment of seriousness: DS-R score ($\beta = .13, t(182) = 2.30, p = .023$) and harm ($\beta = .64, t(182) = 11.11, p < .001$) significantly predicted seriousness score at the same time ($R^2 = .478$). In addition, an interaction of DS-R score (centered) and perceived harm (centered) was found in explaining the seriousness score ($\beta = -.11, t(181) = -2.08, p = .039$), suggesting that the effect of disgust sensitivity on the judgment of seriousness depended on the

level of perceived harm (Aiken & West, 1991). Simple slopes for the association between DS-R score and seriousness were tested for low (-1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of perceived harm. The simple slope for low harm was 3.09 ($p = .002$), moderate harm was 1.83 ($p = .015$), and high harm was .57 ($p = .538$), which suggested that disgust sensitivity was more strongly related to seriousness score when the behaviors were not considered as very harmful (see Figure 3). In other words, if individuals believed that an action could cause strong negative effect, their disgust feeling became less important when they were making decision about how seriously wrong the action was.

Figure 3.

Simple Slopes of DS-R Score Predicting Judgment of Seriousness



Thus, perceived harm may both mediate and moderate the relationship between disgust sensitivity and judgment of seriousness. However, although some researchers support the view that a variable can be both a mediator and a moderator (e.g. Baron & Kenny, 1986), some others do not and they refer to this situation as a form of mediation (see Kraemer, Wilson, Fairburn, &

Agras, 2002). Due to the disagreement over this issue and the fact that the interaction only caused a .012 increase of R^2 , the potential moderation was not added to the model. It was tested and reported here because it may advance our understanding about the relationship between emotion and moral judgment and may have implications for future study.

Question 3: Does Cognitive Moral Development Moderate the Relationship between Moral Emotion and Moral/Conventional Distinction?

To explore this research question, the current study examined whether P score moderated the relation between the DS-R score and moral judgments. Hence, the P score and DS-R score were entered in the first step of the regression analyses. For the judgment of seriousness, it was found that P score and the DS-R score explained a significant amount of variance in seriousness score, $F(2,182) = 15.81$, $p < .001$, $R^2 = .15$. Both the P score ($\beta = -.16$, $t(182) = -2.30$, $p = .023$) and DS-R score ($\beta = .33$, $t(182) = 4.73$, $p < .001$) significantly predicted the seriousness score. For the judgment of social transcendence, a significant regression equation was also found ($F(2,182) = 12.59$, $p < .001$), with an R^2 of .12. Both the P score ($\beta = -.25$, $t(182) = -3.54$, $p = .001$) and DS-R score ($\beta = .21$, $t(182) = 2.99$, $p = .003$) were significant predictors of the social transcendence score. In the second step of the regression analyses, the interaction term between the P score and DS-R score was entered. The results showed that it did not explain a significant increase in variance in either seriousness or social transcendence score.

However, regressing the DS-R subscale scores on the judgments of the three kinds of scenarios separately found that the DS-R scores did not predict the judgments made by participants with the preference of Postconventional Schema (based on the type indicator that indicates which schema a respondent prefers), except for the seriousness rating of contamination scenarios ($p = .005$). More specifically, for the core scenarios, their corresponding DS-R score only significantly predicted the seriousness rating of participants who favored Personal Interests

schema ($p = .002$), and did not predict the social transcendence rating of any group. For the animal-reminder scenarios, their DS-R score also just predicted the seriousness ($p = .002$) and social transcendence ($p = .014$) ratings of participants who were more likely to use Personal Interests schema. Finally, for the contamination scenarios, although their DS-R score was a significant predictor for the seriousness ratings of all groups, it only predicted the social transcendence ratings of participants who preferred Personal Interests schema ($p = .003$) or Maintaining Norms schema ($p = .034$).

To sum up, although the interaction term between P score and DS-R score was not significant, across the three kinds of scenarios, disgust sensitivity generally could better predict the moral judgments made by participants who were not equipped with advanced type of moral thinking. One may suspect that these results were due to a smaller sample size of the Postconventional group ($n = 50$). But it was unlikely the case as the Personal Interests group had a similar sample size ($n = 54$), which was also the suggested sample size calculated using the conventional parameter values (i.e. effect size .15, power .80, probability level .05). In addition, some significant results of the Personal Interests group were not found in the Maintaining Norms group which had a larger sample size ($n = 81$), and the Postconventional group was still able to yield a significant finding in the contamination scenarios.

Question 4: Does Cognitive Moral Development Influence the Amount of Time Individuals Use to Make the Moral/Conventional Distinction?

Before conducting the data analysis on the time participants spent making moral judgments, participants who indicated that English was not their primary language ($n = 11$) were removed from the dataset because of a concern that these participants may have slower reading skills and would therefore skew the data. Since it was also possible that some participants lost their attention while answering the questions of interest (the 6 seriousness questions and 6 social

transcendence questions), outliers were eliminated to reduce their effects on the findings. Due to the nature of the reaction time distribution (usually right-skewed), it was suggested that using a specific cutoff value to eliminate a small percentage of responses would be more appropriate than other methods (e.g. using standard deviation cutoffs) for dealing with reaction time outliers (Ratcliff, 1993). Based on the 95 percentile of the 12 response times (ranged from 16.54 to 24.70 seconds), 20s was determined as the cutoff value --- if a participant spent more than 20s on a question, this response time would be deemed as abnormally long and be excluded from the data analysis.

The response times of the seriousness questions and social transcendence questions were then added up respectively to form the general seriousness and social transcendence response times. In addition, the six scenarios were divided into two sets according to their disgust ratings: the more disgusting set consisted of the Rat (core), Eagle (animal-reminder), and Bath (contamination) scenarios; and the less disgusting set consisted of the Octopus (core), Coffin (animal-reminder) and Soup (contamination) scenarios. The seriousness and social transcendence response times for each set of scenarios were also calculated. Since each set included all three kinds of scenarios, any specific findings about one set should result from the level of disgust instead of the category of disgust.

Regression analyses suggested that P score could positively predict the response time of seriousness questions ($\beta = .24$, $t(133) = 2.79$, $p = .006$) at .01 level and could also predict the response time of social transcendence questions ($\beta = .18$, $t(135) = 2.06$, $p = .041$). What's more, by analyzing the response times of the two sets of scenarios separately, it was found that P score could significantly predict the response time of seriousness questions for the more disgusting scenarios ($\beta = .19$, $t(150) = 2.36$, $p = .019$), but not for the less disgusting scenarios. These

results were consistent with the prediction that with the development of postconventional moral thinking, individuals would use more time to make moral/conventional distinctions of highly disgusting behaviors. Interestingly, a correlation analysis revealed that the general response time of social transcendence questions was positively related to the difference between participants' 1st and 2nd disgust ratings ($r(135) = .27, p < .01$). That is, when participants used longer time to decide whether an action would still be wrong if it was very common in a culture, the disgust ratings they gave after answering all these questions were likely to be much lower than the disgusting ratings they gave at the very beginning. In other words, the participants' perception of disgust changed as they spent time in making social transcendence judgments.

A Structural Equation Model for the Moral/Conventional Distinction

Finally, the research findings of the current study were summarized and tested in a structural equation model. Instead of simply adding all the ratings together to form the general scores, seriousness and social transcendence as latent dependent variables were defined by using three indicator variables in the measurement model: seriousness ("serious") was measured by the seriousness ratings of core ("core_s"), animal-reminder ("anrem_s"), and contamination ("contam_s") scenarios; and social transcendence ("socialtr") was measured by the social transcendence ratings of core ("core_st"), animal-reminder ("anrem_st"), and contamination ("conta_st") scenarios. Since it was found in Question 1 and 2 that perceived harm ("harm") played an important role in moral judgments, it was also included in this model and was defined by the harm ratings of core ("core_h"), animal-reminder ("anrem_h"), and contamination ("contam_h") scenarios. Therefore, in the measurement model there were nine equations in total. The factor loadings of three observed variables (core_s, core_st, and core_h) were set to 1.

Based on the findings of the relationships between cognitive moral development, disgust sensitivity, perceived harm, and moral judgments, three equations for the structural model were hypothesized:

harm = structural coefficient * PSCORE + structure coefficient * DS-R + prediction error

serious = structure coefficient * DS-R + structure coefficient * harm + prediction error

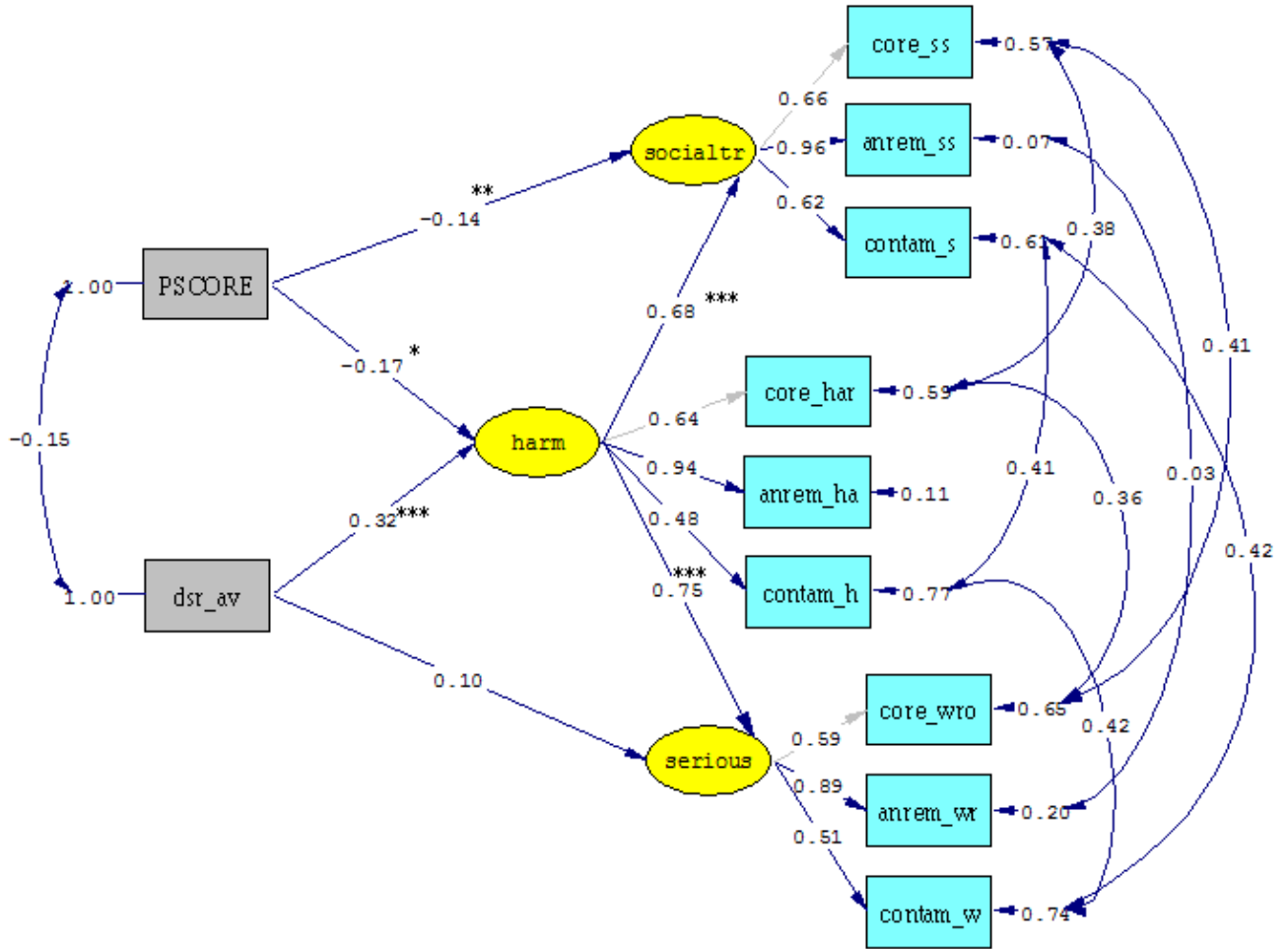
socialtr = structure coefficient * PSCORE + structure coefficient * harm + prediction error

The initial model was run in LISREL 8.8 and the model-fit indices were less than satisfactory. After adding the measurement error covariance terms (e.g. the measurement error covariance between core_s and core_st), the χ^2 statistic (technically a measure of badness of fit) was equal to 44.28, with 31 degrees of freedom, and $p = .058$. The chi-square statistic was not significant, so the final model was supported by the sample variance-covariance data (the model was diagrammed in Figure 4 with estimates). The root-mean-square error of approximation (RMSEA) was equal to .048, which met the typical acceptable level of model fit (criterion $RMSEA < .08$ or $.05$). The goodness-of-fit index (GFI) was .96, which was also above the acceptable range of model fit (criterion $GFI > .95$).

All of the parameter estimates were significantly different from zero ($p < .05$), except for the path between DS-R (disgust sensitivity) and serious (judgment of seriousness) ($t = 1.78$). Because this structure coefficient was of substantive theoretical interest, it was not removed from the model. The LISREL syntax (including the sample variance-covariance matrix for the data) was reported in Appendix C for one to replicate the analysis and verify the results.

Figure 4.

The Structural Equation Model for Judgments of Seriousness and Social Transcendence



*p < .05. **p < .01. ***p < .001 (2-tailed)

CHAPTER 5

DISCUSSION

For years researchers have been debating whether selective moralization is driven by higher cognition or affective intuition. By taking the neo-Kohlbergian notion of moral development into consideration, the purpose of the current study was to increase the understanding of the mechanisms underlying the moral/conventional distinction. Although the neo-Kohlbergian approach gives emphasis to moral reasoning, it does not reject the role of emotion in moral functioning. Thus, instead of purely arguing for the importance of cognitive moral development, this study also paid considerable attention to the influence of affective processes on moral decision making. In general, it was found that both “thinking” and “feeling” contribute to moral judgment; and the developmental dimension should be taken into account while studying individuals’ ability to make the moral/conventional distinction. This chapter will begin with the discussion of the findings.

The Major Findings

Cognitive Moral Development

In this study, cognitive moral development was measured by the DIT-2. More specially, it was indicated by the commonly used Postconventional Schema score, i.e. the P score. The results suggest that cognitive moral development negatively relates to individuals’ judgments of seriousness and social transcendence about disgusting behaviors. In other words, with the development of postconventional moral thinking, individuals are likely to be more tolerant of these behaviors and rate them more like conventional violations. In addition, perceived harm

was found to play a mediating role between cognitive moral development and moral judgments (especially the judgment of seriousness) --- the development of postconventional thinking lowers the perceived harm of the disgusting behaviors, which results in the behaviors being judged as not seriously wrong.

These findings are consistent with the prediction and can be explained by an element of Postconventional Schema, namely, primacy of moral criteria. According to the neo-Kohlbergian researchers, the Postconventional Schema has four elements, including primacy of moral criteria, appeal to an ideal, sharable ideals, and full reciprocity (Rest et al., 1999). Among them, primacy of moral criteria emphasizes the “realization of the alterability and relativity of social norms” (p. 41). In terms of this study, although the customs described in the scenarios may not be accepted by many societies, they can be practiced in some other cultures. At the postconventional level, people realize that although there are traditions or rules prescribing certain behaviors, it does not entail that they “ought” to obey them; and an action violating the existing social practice may not be really harmful to others and is not necessarily wrong from the moral point of view.

Meanwhile, the elements of the Postconventional Schema are in line with the concepts that Turiel (2008) found to be important for justifying moral issues. According to Turiel, individuals reason about moral and social conventional issues in different ways --- harm, welfare, fairness and rights are the main concerns for the moral domain whereas rules and authority are the bases for the domain of social convention.

The relationships between DIT scores and seriousness and social transcendence scores have supported the view that Turiel’s social domain theory is compatible with the neo-Kohlbergian theory. Specifically, the distinction of social convention from morality can be well understood within the concept of the Postconventional Schema. When taken together, the

interpersonal harm emphasized by Turiel (2002) and the developmental notion featured in the neo-Kohlbergian theory could better account for selective moralization. Therefore, as stated by Rest et al. (1999), “to start off a theory of social cognition by separating morality and social convention into independent modules obscures their relationships, even if one tries to build bridges between the two later on” (p. 158).

Disgust Sensitivity

Disgust sensitivity as measured by the DS-R was found positively related to the judgments of seriousness and social transcendence, which has demonstrated the role of emotional processes in moral judgments. However, further analysis revealed that perceived harm fully mediated the effect of the DS-R score on social transcendence score. That is, higher disgust sensitivity leads to a higher perception of harm, which in turn causes a more severe judgment of social transcendence. A partial mediation effect was also found in the relationship between disgust sensitivity and the seriousness judgment.

On one hand, the relationships found between disgust sensitivity and moral judgments are consistent with the findings of other researchers who support the view that there is an affective mechanism underlying the moral/conventional distinction (e.g. Nichols, 2002; Eskine, Kacirik, & Prinz, 2011). On the other hand, it poses a challenge to Haidt’s social intuitionist model (Haidt, 2001), which claims that automatic emotional processes directly cause moral judgments. Although the findings of the current study are inconsistent with Royzman et al.’s finding (2009) that disgust sensitivity does not play a contributory role in the construction of the moral domain, they have confirmed the importance of interpersonal harm in the process of selective moralization. First, just as argued by Royzman, the seemingly harm-free disgusting behaviors can be actually considered as harmful in a broader sense, as they may negatively affect others.

Second, disgust sensitivity influences the judgment of social transcendence through affecting the perceived harm of the behaviors. Therefore, in a way, the findings of how disgust sensitivity influences moral judgments support the content-specific account of the moral/conventional distinction --- “the process of selective moralization is effected by a system oriented towards a particular rule content and that this content is largely defined by acts or dispositions deemed intrinsically harmful to others” (Royzman et al., p. 172).

Mechanisms of the Moral/Conventional Distinction

Generally speaking, both moral cognition and moral emotion contribute to the moral/conventional distinction. Other researchers who proposed similar views have made some attempts to interpret how these mechanisms work together. For example, Cushman, Young, and Greene (2010) have argued for a dual-process model. According to this model, emotionally driven intuitions take primacy in moral judgment, but can be overridden by deliberative reasoning. Some evidence was found to support this model by studying individuals’ judgments of the “harmless” offensive behaviors (e.g. Feinberg et al., 2012) --- giving harsh judgments was seen as a proof of affective mechanism whereas considering the behaviors as acceptable indicated that affective intuition was overridden by effortful reasoning. Since it was found that these behaviors are not really perceived as harm-free by participants, although these studies have made meaningful contribution to the literature, they may have underestimated the role of higher cognition in moral judgment.

The findings of the current study suggest that moral cognition and moral emotion work together in a more complex way, and the developmental dimension of moral thinking should be an important component of the mechanisms underlying selective moralization. First, as discussed before, the perception of harm (a cognitive process) mediates the effect of disgust and

cognitive moral development on moral judgments. Second, the findings of the response time indicate that as the postconventional moral thinking develops, individuals tend to spend more time to make the seriousness judgment of highly disgusting behaviors, which may reflect a tension between the two mechanisms working at the same time. Third, the way cognitive moral development and disgust sensitivity influence the two criterion judgments may be different. Putting together the findings of how DIT and DS-R scores contribute to moral judgments, on the general picture, cognitive moral development seems to be more directly associated with the judgment of social transcendence, whereas disgust sensitivity appears to be more essential to the judgment of seriousness. Fourth, although across the three kinds of disgusting scenarios (core, animal-reminder, and contamination) disgust sensitivity can better predict the moral judgments made by individuals who use less sophisticated moral schemas than those made by individuals who prefer the Postconventional Schema, there are still some differences among the specific findings of each kind of scenarios. Thus, there is a possibility that the interplay between cognitive moral development and disgust sensitivity in selective moralization may vary, to a certain degree, for different domains of disgust. Finally, cognitive processes can change the feeling of disgust towards a certain behavior. There was a significant difference between the two disgust ratings of the scenarios and the extent of the difference was positively related to the time individuals spent on making social transcendence judgments. Since all participants were required to read the scenarios once again before giving the 2nd disgust ratings, it was unlikely that a bigger difference between the two disgust ratings was simply due to a longer time interval. Instead, it is more possible that thinking about the fact that the described behaviors are accepted in some other cultures encourages individuals to further understand and analyze the behaviors, which causes the change of disgust feeling.

To sum up, instead of being a post hoc construction, cognition not only directly influences moral judgments but also affects the influences of emotion on moral judgments. An account of the moral/conventional distinction should at least include three parts: emotion, perception of harm, and the developmental dimension of moral thinking. The structural equation model built based on the findings roughly captures the influences of the three factors on moral judgments and can help explain the existing findings. For example, the effect of SES (a demographic correlate of DIT scores) on moral judgments that Haidt et al. (1993) and Horberg et al. (2009) found hard to explain may actually reflect the role of cognitive moral development in moral judgments. Hopefully, this model can be applied to other samples of data in future to validate that it is a meaningful and substantive theoretical structural model.

Implications for Moral Education

Although Haidt (2001) stresses that his social intuitionist model describes how moral judgments are actually made instead of how they ought to be made, he suggests to use intuitive ethics in moral education. To him, moral education “is a matter of linking up the innate intuitions and virtues already learned with a skill that one wants to encourage” (Haidt & Joseph, 2004, p. 65). Therefore, Haidt recommends to use indirect approaches rather than direct routes to cultivate virtues, including adults interpreting stories with emotion to trigger children’s innate moral modules and making sure that children receive consistent messages about what is good and bad from different sources. While agreeing with Haidt on the limits of directly focusing instruction on rules and principles, the current study maintains that it is necessary to stimulate cognitive moral development because 1) the approach proposed by Haidt limits the possibility for a new generation to challenge the unjust laws or religious codes commonly practiced in a society, which can be very dangerous in some extreme situations (e.g. the emotion of disgust was

used in the moral legitimation of the mass murder of Jewish population during WWII. Karstedt, 2002); 2) the findings of this study and many former researches indicate that the reasoning processes play an essential role in moral functioning; and 3) excessive dependence on intuition or emotion could sometimes lead to unwanted results such as finding a suspect guilty of a crime even if the evidence is ambiguous (Jones & Fitness, 2008).

At the same time, the current study has revealed a worrisome situation of the cognitive moral development of today's college students. As stated in Chapter 4, this study and another study that sampled from the same university (Mechler, 2010) both found that the DIT scores of the participants were lower than the normative scores calculated in 2002 based on the students at the same level of education. What's more, little developmental change was observed between freshmen and seniors in these two studies. An earlier study (Thoma & Bebeau, 2008) also suggests that there could be a declining trend of the DIT scores in adolescence and young adult populations, which may be associated with decreased social interaction and interests in political issues. These findings together bring up a concern of the ineffectiveness of moral education.

Traditionally, it is believed that by challenging students' thinking and stimulating them to formulate more defensible arguments, educators can facilitate students' moral development (Kohlberg, Kauffman, Scharf, & Hickey, 1975). In other words, active engagement in moral discussion drives moral development. Therefore, creating opportunities for students to communicate their opinions about various moral issues should be important in moral education. Additionally, the findings of the current study suggest that experiencing cultures different than their own may be helpful to the development of moral thinking. As shown in the results, multicultural experiences can positively predict the DIT scores. That is, even if not talking about moral issues in particular, immersing students in environments that comprise people and

information from diverse cultures may assist them developing more elaborated moral concepts. Therefore, moral education should not be restrained in the classroom. The schools and universities in general should build an atmosphere that values diversity and encourages cultural exchanges.

Limitations of the Current Study

The primary limitation of the current study is that it was not able to investigate whether there is a gender difference in the mechanisms of the moral/conventional distinction. As reported in the demographics, the sample of this study has a large percentage of females. Therefore, one may doubt the generalizability of the results to males. In the history of moral study, there was a debate over gender differences in moral judgment. After Kohlberg proposed his developmental theory, some researchers (e.g. Holstein, 1976; Gilligan, 1982) claimed that Kohlberg's theory is not appropriate to be used to explain the moral reasoning of females because it was derived from a sample of white males. However, with the accumulation of empirical evidence, it has been commonly accepted that men and women are similar in Kohlbergian justice reasoning (Lapsley, 1996). Therefore, the imbalance of gender in the sample should not pose a serious damage to the validity of the results about cognitive moral development. In terms of moral emotion, women are typically found to be more disgust sensitive than men (Druschel & Sherman, 1999; Haidt et al., 1994). If also considering Holstein's view that emotional response to moral conflict is exemplified by females more than males (1976), it is possible that the role of disgust in moral judgments suggested in this study has been exaggerated to a certain degree.

Another limitation of this study is that the participants were mainly undergraduate students who were majored in education and human development, and had relatively low DIT

scores. It could lead to that some phenomena supposedly should be more prominent at the higher end of the developmental continuum were failed to be found. For example, there is a possibility that the insignificant interaction between P score and DS-R score was due to a lack of high P scores. Therefore, a sample of individuals in other disciplines and with a wider distribution of moral development would be necessary for further exploration of the mechanisms underlying selective moralization.

Directions for Future Research

The current study used the DS-R and disgust ratings to assess individuals' trait and state disgust. Although these self-report measures of disgust are most commonly used in existing studies, they are not as straightforward as they seem to be (Chapman & Anderson, 2013). To study the potential interplay between moral reasoning and disgust feeling in the moral/conventional distinction, future studies may consider to adopt other methods to examine moral disgust. For example, disgust was found to be associated with changes in facial electromyography (EMG) and heart rate (e.g. Olatunji et al., 2008; Vrana, 1994; Stark, Walter, Schienle, & Vaitl, 2005). Thus, it would be interesting to explore the relationship between psychophysiological responses to disgusting behaviors and moral judgments of individuals with different levels of cognitive moral development.

Another direction for future research is to investigate the moral judgments about behaviors that elicit other moral emotions. Currently, most researchers who study moral emotion have been focused on disgust, and the role of disgust in moral functioning has often been generalized to illustrate the relationship between affective intuition and moral judgments. However, some findings have indicated that the influences of different moral emotions on moral decision making are not the same. For instance, anger but not disgust could predict harsher

judgments about crimes against persons (Seidel & Prinz, 2013); and harmfulness was found to predict moral anger better than moral disgust (Gutierrez & Giner-Sorolla, 2007; Russell & Giner-Sorolla, 2011). Therefore, it would also be meaningful to study whether cognitive moral development plays a role in making judgments about irritating behaviors. In general, the current study is only a starting point to include the development dimension of moral thinking in the exploration of the mechanisms underlying moral/conventional distinction. It leaves open a wide range of possibilities for future studies to further examine how these mechanisms work together to produce moral judgments.

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APPENDIX A

The survey of the pilot study included three sections: 1. the spitting scenario adapted from Nichols' study 2 (2002) and Royzman et al.'s study 1 (2009) ---“Michael is sitting at a dinner party and he picks up a paper napkin, snorts, and spits into the napkin”; 2. the incest scenario adapted from Haidt et al.'s study (1993) --- “Mark and Julie are brother and sister. They kiss each other passionately at a party. Everyone at the party knows that they are siblings”; and 3. the DIT-2. To control for potential order effects, four versions of survey were created (123, 213, 312, 321) and the subjects were randomly assigned to one of them. Each scenario was followed by a set of questions derived from Royzman et al.'s study 2 (2009). Taking the spitting scenario as an example, it was first followed by a question measuring the subjects' judgments of permissibility and seriousness (e.g. “Do you think Michael's behavior was wrong? If yes, on a scale of zero to ten, please rate how seriously wrong.”) Three hypotheticals were provided after this, including: “Suppose that there were NO social norm against a behavior such as Michael's...” (“no norm”); “Suppose that the majority of people in this country decided that a behavior such as Michael's was OK...” (“this country”); and “Suppose that the majority of people in another country decided that a behavior such as Michael's was OK. Suppose that Michael was born, raised, and lived in this other country...” (“another country”) The subjects were asked to judge if the behavior would still be wrong under these situations. Then they were required to indicate whether they thought the prohibition against a behavior such as Michael's should be explicitly encoded as part of a community's norms; whether Michael should feel guilty for what he did (“guilt”); whether Michael's character had been tainted by his action

(“character”); whether Michael should be punished for what he did; and whether Michael’s action should be deemed illegal. The subjects were also asked to answer “Was anyone negatively affected by Michael’s action (physically, psychologically, emotionally or otherwise)?” (“current harm”) and “Will Michael’s behavior increase the likelihood of such negative effects occurring in the future?” (“future harm”). Finally, they were required to read the scenario again and rate how grossed out it made them feel.

Two hundred and six undergraduates took the survey and 176 of them (28 males, 145 females, three not identified) completed it as well as passed the various reliability checks of the DIT-2. Across stories, findings indicated that these behaviors were perceived as moral violations. Specifically, the mean of social transcendence score (the sum of “no norm” “this country” and “another country”, endorsement of an item was coded as 1 and non-endorsement was coded as 0) for spitting scenario was 1.86 out of 3 (SD = 1.19) and for incest scenario was 2.09 (SD = 1.19), indicating that the depicted violation was not conditional on the setting. The means of seriousness ratings for spitting scenario and incest scenario were 7.19 (SD = 2.40) and 9.44 (SD = 1.28) respectively, which suggested a high level of seriousness typically found for moral violations. The Aretaic judgment score (the sum of “guilt” and “character”) ranged from 0 to 2. For both scenarios, the Aretaic judgment scores were found to be positively correlated with current harm (for spitting $r = .317$ and for incest $r = .209$) and future harm (for spitting $r = .260$ and for incest $r = .264$) at .01 level. But the correlations between Aretaic judgment scores and ratings of disgust were more modest (for spitting $r = .135$, $p < .05$; and for incest $r = .141$, $p < .05$).

APPENDIX B

Disgusting Scenarios

Scenario Rat

At a dinner party, the host served fried rats to the guests.

1. Please try to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.
2. Do you think the host's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.
3. In some cultures, the host's behavior is very common. Suppose that the host was born, raised, and lived in one of those cultures. Do you think the host's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.
4. Do you think the host should feel guilty for what he did? If yes, please rate how guilty; if no, please select 0.
5. Do you think the host's character has been tainted by his action? If yes, please rate how seriously; if no, please select 0.
6. Was anyone negatively affected by the host's action (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.
7. Will anyone be negatively affected by the host's action IN FUTURE (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.

8. Please take the time now to read the scenario once again, trying to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.

Scenario Octopus

A man brought live octopuses to a potluck dinner and ate them when they were still wriggling.

1. Please try to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.
2. Do you think the man's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.
3. In some cultures, the man's behavior is very common. Suppose that the man was born, raised, and lived in one of those cultures. Do you think the man's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.
4. Do you think the man should feel guilty for what he did? If yes, please rate how guilty; if no, please select 0.
5. Do you think the man's character has been tainted by his action? If yes, please rate how seriously; if no, please select 0.
6. Was anyone negatively affected by the man's action (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.
7. Will anyone be negatively affected by the man's action IN FUTURE (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.

8. Please take the time now to read the scenario once again, trying to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.

Scenario Coffin

After a person died, his family kept him in a well-sealed coffin at home for several days.

1. Please try to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.

2. Do you think the family's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.

3. In some cultures, the family's behavior is very common. Suppose that the family members were born, raised, and lived in one of those cultures. Do you think the family's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.

4. Do you think the family should feel guilty for what they did? If yes, please rate how guilty; if no, please select 0.

5. Do you think the family members' characters have been tainted by their action? If yes, please rate how seriously; if no, please select 0.

6. Was anyone negatively affected by the family's action (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.

7. Will anyone be negatively affected by the family's action IN FUTURE (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.

8. Please take the time now to read the scenario once again, trying to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.

Scenario Eagle

A family carried a deceased family member to the top of a mountain and let the eagles eat the corpse.

1. Please try to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.
2. Do you think the family's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.
3. In some cultures, the family's behavior is very common. Suppose that the family members were born, raised, and lived in one of those cultures. Do you think the family's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.
4. Do you think the family should feel guilty for what they did? If yes, please rate how guilty; if no, please select 0.
5. Do you think the family members' characters have been tainted by their action? If yes, please rate how seriously; if no, please select 0.
6. Was anyone negatively affected by the family's action (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.
7. Will anyone be negatively affected by the family's action IN FUTURE (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.

8. Please take the time now to read the scenario once again, trying to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.

Scenario Bath

After taking showers to clean themselves, a family took baths in turn in a same bathtub without changing the water.

1. Please try to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.
2. Do you think the family's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.
3. In some cultures, the family's behavior is very common. Suppose that the family members were born, raised, and lived in one of those cultures. Do you think the family's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.
4. Do you think the family should feel guilty for what they did? If yes, please rate how guilty; if no, please select 0.
5. Do you think the family members' characters have been tainted by their action? If yes, , please rate how seriously; if no, please select 0.
6. Was anyone negatively affected by the family's action (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.
7. Will anyone be negatively affected by the family's action IN FUTURE (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.

8. Please take the time now to read the scenario once again, trying to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.

Scenario Soup

A group of people drank soup from one big bowl using their own spoons directly.

1. Please try to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.

2. Do you think these people's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.

3. In some cultures, these people's behavior is very common. Suppose that these people were born, raised, and lived in one of those cultures. Do you think these people's behavior was wrong? If yes, please rate how seriously wrong; if no, please select 0.

4. Do you think these people should feel guilty for what they did? If yes, please rate how guilty; if no, please select 0.

5. Do you think these people's characters have been tainted by their action? If yes, please rate how seriously; if no, please select 0.

6. Was anyone negatively affected by these people's action (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.

7. Will anyone be negatively affected by these people's action IN FUTURE (physically, psychologically, emotionally or otherwise)? If yes, please rate how seriously; if no, please select 0.

8. Please take the time now to read the scenario once again, trying to visualize clearly what is described. On a scale of zero to six, rate how grossed out it made you feel.

Familiarity

Below are the scenarios you just rated. Please indicate your level of familiarity with each custom or practice described in these scenarios.

1. I have never heard about this kind of behaviors before.
2. I knew this kind of behaviors exist in some cultures.
3. I have seen or experienced this kind of behaviors.

DIT-2

The following questionnaire is concerned with how you define the issues in a social problem. Several stories about social problems will be described. After each story, there will be a list of questions. The questions that follow each story represent different issues that might be raised by the problem. In other words, the questions/issues raise different ways of judging what is important in making a decision about the social problem. You will be asked to rate and rank the questions in terms of how important each one seems to you.

EXAMPLE of the task.

Imagine you are about to vote for a candidate for the Presidency of the United States. Before you vote, you are asked to rate the importance of five issues you could consider in deciding who to vote for. Rate the importance of each item.

Rate the following issues in terms of importance.

1. Financially are you personally better off now than you were four years ago?

2. Does one candidate have a superior moral character?
3. Which candidate stands the tallest?
4. Which candidate would make the best world leader?
5. Which candidate has the best ideas for our country's internal problems, like crime and health care.

Consider the 5 issues above and rank which issues are the most important.

(Most important item, Second most important item, Third most important item, Fourth most important item)

Again, remember to consider all of the items before you rank the four most important items and be sure that you only rank items that you found important.

Note also that before you begin to rate and rank items you will be asked to state your preference for what action to take in story.

Thank you and you may begin the questionnaire!

Famine

A small village in northern India has experienced shortages of food before, but this year's famine is worse than ever. Some families are even trying to feed themselves by making soup from tree bark. Mustaq Singh's family is near starvation. He has heard that a rich man in his village has supplies of food stored away and is hoarding food while its price goes higher so that he can sell the food later at a huge profit. Mustaq is desperate and thinks about stealing some

food from the rich man's warehouse. The small amount of food that he needs for his family probably wouldn't even be missed.

What should Mustaq Singh do? Do you favor the action of taking food?

Rate the following issues in terms of importance.

1. Is Mustaq Singh courageous enough to risk getting caught for stealing?
2. Isn't it only natural for a loving father to care so much for his family that he would steal?
3. Shouldn't the community's laws be upheld?
4. Does Mustaq Singh know a good recipe for preparing soup from tree bark?
5. Does the rich man have any legal right to store food when other people are starving?
6. Is the motive of Mustaq Singh to steal for himself or to steal for his family?
7. What values are going to be the basis for social cooperation?
8. Is the epitome of eating reconcilable with the culpability of stealing?
9. Does the rich man deserve to be robbed for being so greedy?
10. Isn't private property an institution to enable the rich to exploit the poor?
11. Would stealing bring about more total good for everybody concerned or wouldn't it?
12. Are laws getting in the way of the most basic claim of any member of a society?

Consider the 12 issues above and rank which issues are the most important.

(Most important item, Second most important item, Third most important item, Fourth most important item)

Reporter

Molly Dayton has been a news reporter for the Gazette newspaper for over a decade. Almost by accident, she learned that one of the candidates for Lieutenant Governor for her state, Grover Thompson, had been arrested for shop-lifting 20 years earlier. Reporter Dayton found out that early in his life, Candidate Thompson had undergone a confused period and done things he later regretted, actions which would be very out-of-character now. His shoplifting had been a minor offense and the department store dropped the charges against him. Thompson has not only straightened himself out since then, but built a distinguished record in helping many people and in leading constructive community projects. Now, Reporter Dayton regards Thompson as the best candidate in the field and likely to go on to important leadership positions in the state. Reporter Dayton wonders whether or not she should write the story about Thompson's earlier troubles because in the upcoming close and heated election, she fears that such a news story could wreck Thompson's chance to win.

Do you favor the action of reporting the story?

1. Doesn't the public have a right to know all the facts about all the candidates for office?
2. Would publishing the story help Reporter Dayton's reputation for investigative reporting?
3. If Dayton doesn't publish the story wouldn't another reporter get the story anyway and get the credit for investigative reporting?
4. Since voting is such a joke anyway, does it make any difference what reporter Dayton does?
5. Hasn't Thompson shown in the past 20 years that he is a better person than his earlier days as a shoplifter?

6. What would best service society?
7. If the story is true, how can it be wrong to report it?
8. How could reporter Dayton be so cruel and heartless as to report the damaging story about candidate Thompson?
9. Does the right of "habeas corpus" apply in this case?
10. Would the election process be more fair with or without reporting the story?
11. Should reporter Dayton treat all candidates for office in the same way by reporting everything she learns about them, good and bad?
12. Isn't it a reporter's duty to report all the news regardless of the circumstances?

Consider the 12 issues above and rank which issues are the most important.

(Most important item, Second most important item, Third most important item, Fourth most important item)

School Board

Mr. Grant has been elected to the School Board District 190 and was chosen to be Chairman. The district is bitterly divided over the closing of one of the high schools. One of the high schools has to be closed for financial reasons, but there is no agreement over which school to close. During his election to the School Board, Mr. Grant had proposed a series of "Open Meetings" in which members of the community could voice their opinions. He hoped that dialogue would make the community realize the necessity of closing one high school. Also he hoped that through open discussions, the difficulty of the decision would be appreciated, and that the community would ultimately support the school board decision. The first Open Meeting was

a disaster. Passionate speeches dominated the microphones and threatened violence. The meeting barely closed without fist-fights. Later in the week, school board members received threatening phone calls. Mr. Grant wonders if he ought to call off the next Open Meeting.

Do you favor calling off the next Open Meeting?

1. Is Mr. Grant required by law to have Open Meetings on major school board decisions?
2. Would Mr. Grant be breaking his election campaign promises to the community by discontinuing the Open Meetings?
3. Would the community be even angrier with Mr. Grant if he stopped the Open Meetings?
4. Would the change in plans prevent scientific assessment?
5. If the school board is threatened, does the chairman have the legal authority to protect the Board by making decisions in closed meetings?
6. Would the community regard Mr. Grant as a coward if he stopped the open meetings?
7. Does Mr. Grant have another procedure in mind for ensuring that divergent views are heard?
8. Does Mr. Grant have the authority to expel troublemakers from the meetings or prevent them from making long speeches?
9. Are some people deliberately undermining the school board process by playing some sort of power game?
10. What effect would stopping the discussion have on the community's ability to handle controversial issues in the future?
11. Is the trouble coming from only a few hotheads, and is the community in general really fairminded and democratic?

12. What is the likelihood that a good decision could be made without open discussion from the community?

Consider the 12 issues above and rank which issues are the most important.

(Most important item, Second most important item, Third most important item, Fourth most important item)

Cancer

Mrs. Bennett is 62 years old, and in the last phases of colon cancer. She is in terrible pain and asks the doctor to give her more pain-killer medicine. The doctor has given her the maximum safe dose already and is reluctant to increase the dosage because it would probably hasten her death. In a clear and rational mental state, Mrs. Bennett says that she realizes this; but she wants to end her suffering even if it means ending her life. Should the doctor give her an increased dosage?

Do you favor the action of giving more medicine?

1. Isn't the doctor obligated by the same laws as everybody else if giving an overdose would be the same as killing her?
2. Wouldn't society be better off without so many laws about what doctors can and cannot do?
3. If Mrs. Bennett dies, would the doctor be legally responsible for malpractice?
4. Does the family of Mrs. Bennett agree that she should get more painkiller medicine?
5. Is the painkiller medicine an active heliotropic drug?

6. Does the state have the right to force continued existence of those who don't want to live?
7. Is helping to end another's life ever a responsible act of cooperation?
8. Would the doctor show more sympathy for Mrs. Bennett by giving the medicine or not?
9. Wouldn't the doctor feel guilty from giving Mrs. Bennett so much drug that she died?
10. Should only God decide when a person's life should end?
11. Shouldn't society protect everyone against being killed?
12. Where should society draw the line between protecting life and allowing someone to die if the person wants to?

Consider the 12 issues above and rank which issues are the most important.

(Most important item, Second most important item, Third most important item, Fourth most important item)

Demonstration

Political and economic instability in a South American country prompted the President of the United States to send troops to "police" the area. Students at many campuses in the U.S.A. have protested that the United States is using its military might for economic advantage. There is widespread suspicion that big oil multinational companies are pressuring the President to safeguard a cheap oil supply even if it means loss of life. Students at one campus took to the streets in demonstrations, tying up traffic and stopping regular business in the town. The president of the university demanded that the students stop their illegal demonstrations. Students then took over the college's administration building, completely paralyzing the college. Are the students right to demonstrate in these ways?

Do you favor the action of demonstrating in this way?

1. Do the students have any right to take over property that doesn't belong to them?
2. Do the students realize that they might be arrested and fined, and even expelled from school?
3. Are the students serious about their cause or are they doing it just for fun?
4. If the university president is soft on students this time, will it lead to more disorder?
5. Will the public blame all students for the actions of a few student demonstrators?
6. Are the authorities to blame by giving in to the greed of the multinational oil companies?
7. Why should a few people like Presidents and business leaders have more power than ordinary people?
8. Does this student demonstration bring about more or less good in the long run to all people?
9. Can the students justify their civil disobedience?
10. Shouldn't the authorities be respected by students?
11. Is taking over a building consistent with principles of justice?
12. Isn't it everyone's duty to obey the law, whether one likes it or not?

Consider the 12 issues above and rank which issues are the most important.

(Most important item, Second most important item, Third most important item, Fourth most important item)

Disgust sensitivity

Please indicate how much you agree with each of the following statements, or how true it is about you.

0 Strongly disagree (very untrue about me)

1 Mildly disagree (somewhat untrue about me)

2 Neither agree nor disagree

3 Mildly agree (somewhat true about me)

4 Strongly agree (very true about me)

1. I might be willing to try eating monkey meat, under some circumstances.
2. It would bother me to be in a science class, and to see a human hand preserved in a jar.
3. It bothers me to hear someone clear a throat full of mucous.
4. I never let any part of my body touch the toilet seat in public restrooms.
5. I would go out of my way to avoid walking through a graveyard.
6. Seeing a cockroach in someone else's house doesn't bother me.
7. It would bother me tremendously to touch a dead body.
8. If I see someone vomit, it makes me sick to my stomach.
9. I probably would not go to my favorite restaurant if I found out that the cook had a cold.
10. It would not upset me at all to watch a person with a glass eye take the eye out of the socket.
11. It would bother me to see a rat run across my path in a park.
12. I would rather eat a piece of fruit than a piece of paper.
13. Even if I was hungry, I would not drink a bowl of my favorite soup if it had been 14. stirred by a used but thoroughly washed flyswatter.

14. It would bother me to sleep in a nice hotel room if I knew that a man had died of a heart attack in that room the night before.

How disgusting would you find each of the following experiences?

0 Not disgusting at all

1 Slightly disgusting

2 Moderately disgusting

3 Very disgusting

4 Extremely disgusting

15. You see maggots on a piece of meat in an outdoor garbage pail.

16. You see a person eating an apple with a knife and fork.

17. While you are walking through a tunnel under a railroad track, you smell urine.

18. You take a sip of soda, and then realize that you drank from the glass that an acquaintance of yours had been drinking from.

19. Your friend's pet cat dies, and you have to pick up the dead body with your bare hands.

20. You see someone put ketchup on vanilla ice cream, and eat it.

21. You see a man with his intestines exposed after an accident.

22. You discover that a friend of yours changes underwear only once a week.

23. A friend offers you a piece of chocolate shaped like dog-doo.

24. You accidentally touch the ashes of a person who has been cremated.

25. You are about to drink a glass of milk when you smell that it is spoiled.

26. As part of a sex education class, you are required to inflate a new unlubricated condom, using your mouth.

27. You are walking barefoot on concrete, and you step on an earthworm.

Demographic Questions

Please provide the following information about yourself:

Age in years?

Sex?

Which best describes your race/ethnicity?

What's your level of education?

What's your mother's level of education?

What's your father's level of education?

In terms of your political views, how would you characterize yourself?

Are you a citizen of the U.S.A?

Is English your primary language?

Multicultural Experience

Please answer these questions according to your experience:

I have visited other countries: (0, 1 country, 2 countries, 3 countries, more than 3 countries)

I have lived in a contrasting community (with a very different culture from my own): (0, 1-2 months, 3-6 months, 6-9 months, over 9 months)

I have friends from cultural-racial-ethnic backgrounds different than my own: (0, 1 friend, 2 friends, 3 friends, more than 3 friends)

I have had courses in intercultural communication: (0, 1 course, 2 courses, 3 courses, more than 3 courses)

I enjoy trying food from other countries: (Not at All, Not Really, Undecided, Somewhat, Very Much)

I enjoy media and art from different cultures: (Never, Rarely, Sometimes, Frequently, Always)

I pay attention to news about the world beyond the U.S.A.: (Never, Rarely, Sometimes, Frequently, Always)

Test-taking Environment

Compared to how I take surveys in the classroom I took these questionnaires:

The same way - not different at all.

About the same way - I had a minimal amount of distractions.

Not the same way - I had distractions that made me stop and start the questionnaire.

Not at all the same way - I completed the questionnaire when I could while doing other things.

APPENDIX C

LISREL Syntax for the Structural Equation Model

Observed variables: core_s anrem_s contam_s core_st anrem_st conta_st core_h anrem_h
contam_h PSCORE DS_R

Covariance matrix:

11.11

5.57 11.33

4.08 4.33 9.17

8.01 4.85 4.22 12.25

4.64 7.94 4.16 7.18 11.22

2.61 3.77 5.34 4.33 5.19 6.54

7.00 5.07 2.88 7.48 4.47 2.85 11.18

4.36 7.95 3.49 4.53 7.52 3.76 6.52 11.86

2.01 2.23 4.25 2.75 2.84 3.92 3.32 3.66 5.84

-8.29 -8.51 -6.26 -10.10 -13.96 -8.02 -8.15 -9.58 -3.64 206.96

0.47 0.56 0.56 0.38 0.43 0.33 0.46 0.66 0.39 -1.25 0.34

Sample size: 185

Latent Variables: serious socialtr harm

Relationships:

core_s = 1.00*serious

anrem_s = serious

contam_s = serious

core_st = 1.00*socialtr

anrem_st = socialtr

conta_st = socialtr

core_h = 1.00*harm

anrem_h = harm

contam_h = harm

serious = harm

socialtr = harm

serious = DS_R

socialtr = PSCORE

harm = PSCORE DS_R

Set the Error Covariance of socialtr and serious Free

Set the Error Covariance of core_st and core_s Free

Set the Error Covariance of anrem_st and anrem_s Free

Set the Error Covariance of conta_st and contam_s Free

Set the Error Covariance of core_h and core_s Free

Set the Error Covariance of core_h and core_st Free

Set the Error Covariance of contam_h and contam_s Free

Set the Error Covariance of contam_h and conta_st Free

Path Diagram

End of Problem

* The model presented in the text was calculated based on the raw data directly instead of the variance-covariance matrix. Therefore, very minor differences may exist between the reported data and the results produced by this syntax.

APPENDIX D

IRB Approval Letter

Office for Research
Institutional Review Board for the
Protection of Human Subjects



March 3, 2015

Yangxue Dong
ESPRMC
College of Education
Box 870231

Re: IRB#: 15-OR-063 "Feeling and Thinking: Towards a Developmental Account of the Moral/Conventional Distinction"

Dear Yangxue Dong:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Your application will expire on March 2, 2016. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Request for Study Closure Form.

Please use reproductions of the IRB approved information sheet to obtain consent from your participants.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,



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Stuart Usdan, PhD
Chair, Non-Medical Institutional Review Board