

Explorations in the Role of Emotion in Moral Judgment

Arthur Yan

Abstract—Recent theorizations on the cognitive process of moral judgment have focused on the role of intuitions and emotions, marking a departure from previous emphasis on conscious, step-by-step reasoning. My study investigated how being in a disgusted mood state affects moral judgment.

Participants were induced to enter a disgusted mood state through listening to disgusting sounds and reading disgusting descriptions. Results shows that they, when compared to control who have not been induced to feel disgust, are more likely to endorse actions that are emotionally aversive but maximizes utilitarian return

The result is analyzed using the 'emotion-as-information' approach to decision making. The result is consistent with the view that emotions play an important role in determining moral judgment.

Keywords—Disgust, mood induction, moral judgment, emotion-as-information.

I. INTRODUCTION

THERE has been long standing debate on how people form moral judgments. The two major contrasting positions on this issue are represented by two classic philosophers, Kant and Hume. Kant's philosophy of 'categorical imperative' conceives humans as having the ability to act on purely conscious moral reasoning and act according to universal moral imperatives; Hume, on the other hand, believed that morals are not derived from passions but instead are determined by moral sentiments: passions that we feel immediately which are akin to other bodily feelings such as hunger [1].

Kohlberg's Stage Theory of Moral Development

The debate continues today in the field of psychology, the most prominent account of morality is Kohlberg's theory of moral development, which placed its emphasis squarely on conscious, rational reasoning [2]. Kohlberg argued that moral reasoning forms the basis of our morality and he studied how children justified their moral judgments when presented with moral dilemmas. He proposed that moral development can be differentiated in six stages, which are grouped into three levels: pre-conventional, conventional and post-conventional; each stage demands more sophisticated formal reasoning ability and can better account for the judgments people make on moral dilemmas.

However, recent researches cast doubts on Kohlberg's viewpoint. Hauser and colleagues have found that people generally seem able to make moral judgments that conform to

moral principles such as judging intentionally afflicting harm as morally worse than harm done as an unintended consequences; and harm done through direct physical contact with a victim is judged as worse than harm done without physical contact [3]. However, subjects are often unable to answer why they give such a pattern of response and when informed that they have judged that harm done directly is worse than done indirectly, they often reject this principle and think they have made a mistake. These results show that moral judgments are unlikely to be made by conscious reasoning; rather, they are probably based on intuition.

Another piece of evidence against the importance of conscious reasoning in moral judgments occurs in 'moral dumbfounding', wherein people who take a moral position on a certain issue, despite trying in vain to seek an arguable reason to support their position, still hold on to their position even in the absence of a valid reason. An example provided by Haidt [4] describes a hypothetical case in which a brother and a sister have consensual sex under circumstances in which it is absolutely impossible for conception to occur. Most people responded swiftly and judged the act as immoral but most failed to articulate successfully why it was the case. Examples like this clearly show that conscious reasoning cannot be the sole cause of moral judgments; something else must be causing them.

While Kohlberg's theory views moral judgment as a wholly rational, conscious process, recent developments in theories of moral judgment have tended to lay more emphasis on their intuitional, emotional aspects. These theories often employ an evolutionary perspective in accounting for the development of the morality of our species.

Social Intuitionist Model

Haidt's social-intuitionist approach is an important theoretical treatment on how moral judgment works [4]. In it, moral judgments are considered to be influenced by two separate and separable processes, one emotional and the other rational. The essence of the theory is the claim that intuitive, emotional reactions to moral situations are more important than rational reasoning. Haidt argues that while humans possess the ability to engage in conscious, step-by-step moral reasoning, most of the time moral judgments are made automatically by a process akin to perception, where people see directly, intuitively moral rights and wrongs without any sequential, conscious evaluative processing. They engage in moral reasoning only *post hoc*, justifying the judgments they make like a lawyer building up his case. Only rarely, as in with moral philosophers, are moral decisions made by conscious rational deliberation.

Manuscript received May 28, 2008.

A. Yan is with the Department of Psychology, the University of Hong Kong (phone: 852-61821136; e-mail: arthuryan1984@gmail.com).

Haidt argued that the two systems have different evolutionary roots. The abstract, language based reasoning process could only have come along very late evolutionarily, since language has evolved only very recently. Haidt reasoned that a system differentiating right and wrong behaviors among group members must have been in place much earlier and this plays a dominant role in our moral judgment.

In particular, Haidt argued that the emotion of disgust plays an important role in contributing to moral intuitions. Analyzing moral rules across different cultures, it has been found that only very few people completely dissociate feelings of disgust from moral judgment. In most cultures, that an action is disgusting is enough for it to be labeled morally wrong.

Given the predominant role moral intuitions play in moral judgment, it is natural to inquire how moral intuitions functions in determining the judgments that people make. A recent study by Koenigs and colleagues into a group of patients whose ventromedial prefrontal cortex (VMPC) was damaged suggests that emotions play a pivotal role in determining our moral judgments [5]. VMPC damaged patients in general display to a remarkable degree psychopathic characteristics such as losing social tact and propriety, unsolicited sexual behavior and aggressive behavior [6]. They also show a marked reduction in social emotions such as shame and guilt and a lack of empathy for others. Despite these dysfunctions, these patients typically have normal baseline mood states and have fully functional normal intelligence and reasoning ability, just like psychopaths.

Koenigs and colleagues revealed an intriguing feature of moral judgment made by VMPC damaged patients. When making moral judgments that involve deciding whether or not to perform an action that maximizes group welfare but is emotionally aversive (for example, whether or not to push a person off a bridge to stop a train from hitting 10 people), they are much more likely than normal people to choose to perform such an action.

Koenigs and colleague argued that when faced with a situation such as having to choose whether or not to push a man off the bridge to save 10 people's lives, because the action involves pushing an innocent man off a bridge which arouses aversive emotional reactions in normal people, most would follow their instincts and choose not to perform the action. However, since VMPC damaged patients are deficient in the social emotions that are critical for normal moral reasoning and therefore rely solely on utilitarian social norms to make their judgments, they are much more likely than normal people to choose to push the man off the bridge, which is exactly what Koenigs and colleagues found. This suggests that emotions are critical in the normal functioning of our moral faculty, though the exact role of, or distinction between intuitions and emotions remains unclear.

Greene's Dual Process Model

In a similar vein, Greene and colleagues agreed that the process of evolution has equipped humans with both the ability to respond automatically to respond moral situations and to engage in more 'cognitive', abstract reasoning depending on the situations [7]. Instead of arguing in general which process is more important, Greene tried to distinguish under what

circumstances the two processes of moral judgment are more evoked. It is argued that when confronted with situations that are up-close and personal -- situations that are more familiar to our primate ancestors -- people are more likely to respond using their emotional intuitions and in situations that are more 'impersonal', people are likely to respond in a more cognitive way.

Greene and colleagues used fMRI to study the neural processes at work when participants pondered over two classes of moral dilemma [7]. One class is Personal moral dilemma, an example of which is that one has to choose between smothering one's own crying baby to death or getting detected by enemy soldiers that will kill you and the persons around; the other class is Impersonal moral dilemma, an example of which is the trolley problem, in which one has to decide whether or not to pull a trigger to divert an out-of-control trolley to another road so that it would kill one instead of five innocent bystanders.

In their study, it was observed that decisions that endorse a personal moral violation to attain greater aggregate welfare take on average a longer reaction time than those that find the response inappropriate. FMRI results also showed that such decisions involve more activation in areas related to abstract reasoning and cognitive control.

Greene and colleagues interpreted the data as supporting a synthesis of the cognitive and emotionalist accounts of moral judgment. They argued that when confronted with a difficult personal moral dilemma, the participants first experienced an emotional intuition that directs them to disapprove of the situation, as according to the emotionalist account of moral judgment. However, they believe that those who took longer time to react to be engaging in the abstract reasoning process of conducting a cost-benefit analysis. Since in the dilemmas presented the benefit far outweighed the cost, their abstract reasoning favors the endorsement of personal moral violation and shows that people do engage in abstract, conscious reasoning that can change their initial reactions to moral situations.

Greene reasoned that emotions are important in moral decision making since our ancestors lived intensely social lives guided by emotions in the apparent absence of conscious moral reasoning. It is believed that such emotions still guide our sense of morality. Conscious reasoning, which came in only very recently in evolutionary terms, plays a secondary role when it comes to matters that engages our primal social-emotions. Since impersonal moral dilemmas are more abstract in nature, the processes involved in making judgments in impersonal moral dilemmas can be less emotional and conscious reasoning can play a larger role. In sum, Greene's conception posits that two separable processes, one involving emotions, the other conscious reasoning, are at work when we form moral judgments and that situations that are more physically close engage our emotions to a greater extent than do situations that are less direct.

The above evidence, when taken as a whole, suggests that it may be possible to change/ affect a person's moral judgments not by the traditional route of reasoned persuasion but rather by affecting the intuitive emotions aroused by the situation.

In particular, Wheatley and Haidt demonstrated that by evoking hypnotically induced disgust, judgments on moral

transgressions can be made more severe [8]. This suggests that the feeling of disgust plays an important role in determining moral judgment. Also, the study also supported the social-intuitionist model's claim that most moral reasoning is done post hoc, since many participants struggled to provide implausible explanations for why their condemnation, which was caused by the effect of induced disgust feeling, was rationally justified.

Wheatley and Haidt made use of hypnosis to induce feelings of disgust in participants. However, as they acknowledge, hypnosis has a controversial history; further validation is clearly needed to establish that the feeling of disgust, generated from sources that bear no relation to the moral decision at hand, could be effective in determining participants' moral judgment.

This experiment hypothesizes that by inducing the feeling of disgust, which is arguably a negative emotional reaction people experience when they consider endorsing a personal moral violation, we can affect the participants' moral judgments in such a way that they are less likely to consider actions that produce the greater good but entail a personal moral violation as morally appropriate than people in a normal mood state. The hypothesis is based on Greene's research that suggested that, when considering moral dilemmas that engage both our emotional intuitions and rational reasoning, the two systems could go into a contest [9]. Active cognitive control is needed if the subject is to consider an offensive action to be appropriate in view of greater good. It is reasonable to conjecture that if the emotional reaction is reinforced by extra induced disgust, subjects are more likely to consider the actions to be inappropriate.

The experimental condition is that subjects are induced to feel disgusted and are then asked immediately to make a moral judgment of an action being appropriate or inappropriate for a number of moral dilemmas. It is hypothesized that a greater percentage of the experimental group would find the actions as inappropriate because the disgust they feel would interfere with their decision making process and bias them to favor rejecting the view that there has been a personal moral violation.

II. METHOD

39 undergraduate students participated in the study. They either participated voluntarily with no reward or participated to gain course credit for an introductory psychology course they enrolled in.

Participants were instructed to read through a consent form containing a general description of the test and sign the form to acknowledge that they understood the content of the experiment and were willing to participate in it. The experimental group were then induced to feel disgust through a mood induction procedure described below, whereas a control group did not undergo the procedure.

Marzillier and Davey compared the effects of 3 different mood induction procedures used by previous researchers and found them to have similar effects [10]. Previous studies such as that of Mayer, Allen, & Beaugard found that a combination of auditory inputs and guided imagery vignettes are effective in inducing a specific mood [11]. The induced mood demonstrated external validity by causing judgments that

are congruent with those made by people experiencing natural moods [12]

The vignettes used here were developed by Marzillier & Davey and have been employed in other research [13]. They have been shown to be effective in arousing targeted moods. The sound effect used, as with [10], was selected from the CD *More rude noise effects*.

The vignettes consisted of eight one to two sentences long descriptions. An example of the vignettes was 'You go into a public toilet and find it has not been flushed. The bowl of the toilet is full of diarrhea.' At the same time when the participants were viewing the slides, subjects was played sequences of sound effects that include such sounds as burping, someone throwing up and farting.

As a manipulation check, participants were asked to fill in visual analogue scales (VAS) before and after the mood induction process and after they completed the questionnaire. The VAS consists of six 10cm lines representing six different mood states (anxiety, sadness, anger, happiness, disgust, and contempt) on which participants are instructed to mark down how they feel by making a cross on each line. The scales gave a rating of 0-100 for each of the measured emotions. McCormack, Horne, and Sheather have shown that VAS generally had high level of validity and of reliability [14].

The stimuli consisted of 12 moral dilemmas developed and employed in Greene and colleagues [7]. The dilemmas are structured so that in each case, a person has to choose whether or not to commit an act of moral violation in order to maximize aggregate welfare. An example of the dilemma is whether a submarine captain should kill an injured crew member, who would die anyway, to maintain oxygen supply for the rest of the group to survive. Subjects made decisions on whether it is morally appropriate to perform the act.

III. RESULT

Participants who have undergone the mood induction procedure reported a significant increase in level of disgust when their scores before ($M = 7.8$, $SD = 10.6$) and after ($M = 48.6$, $SD = 28.4$) the induction procedure were compared, $t(23) = 7.77$, $p < 0.001$, $r = 0.69$, Cohen's $d = 1.9$.

Participants in the control group also showed a significant increase in their reported disgust level after they had made judgments on the moral dilemmas, $t(15) = 2.50$, $p = .025$, $r = 0.54$, Cohen's $d = 1.29$. The experimental group showed no further significant increase when their disgust scores after they completed the questionnaire were compared with their scores after the mood induction, $t(22) = .364$, $p = .72$, $n. s.$

To test the hypothesis that the induced disgust would heighten participants' emotional reactions against endorsing actions that involved a moral violation, subjects' responses towards the moral dilemmas were computed into an aggregate score and the scores were compared between the experimental and control groups. Contrary to our expectation, the experimental group were found to support significantly more actions ($M = 7$) that entail moral violation in view of aggregate welfare than the control group ($M = 5.25$), $t(37) = 2.4$, $p < 0.05$, $r = 0.36$, Cohen's $d = 0.77$.

IV. DISCUSSION

The results show that participants in a disgusted mood state made more utilitarian judgments than participants in a neutral mood state. This is contrary to our hypothesis that participants in the experimental group would make less utilitarian judgments than the control group. The result goes against the idea that because of the additive effect of the disgust mood state and the natural revulsion against doing harmful act, participants in the experimental group would have a heightened sense of aversion against accepting utilitarian judgments.

Why is this? It would seem that the result is amenable to interpretation using the 'feeling-as-information' approach to understanding the inter-relationship between feeling and cognition [15]. This approach hypothesizes that experiential elements such as mood, emotions and other bodily sensations are important determinants of people's evaluative judgments, with people using their apparent affective response to the problem at hand as information in forming judgments. In simple terms, this can be understood as people asking themselves 'How do I feel about this?' either consciously or unconsciously when they make evaluative judgments.

This approach has its foundation in Schwarz and Clore's classic 1983 research, in which participants were induced to feel either happy or sad and then were asked about their life satisfaction in two studies [16]. Participants in a happy mood state reported higher overall satisfaction toward life than those in a bad mood. Importantly, the negative effect of the bad mood was eliminated when participants were led to attribute (correctly) what they felt to transient, external factors (such as the continuously bad weather that served as the mood induction). This research demonstrated that not only were mood and emotion important sources of information in our decisional process, but also that this information could only be relied on when its informational value was not discredited, a finding that has since received much empirical replication [15].

Another important finding in this line of research that informs the interpretation of the present study is that while people generally make judgments according to the information provided by the affect and thus make mood congruent judgments, those judgments that contradict a person's mood can be observed when people have reason to discount and ignore the informational value of their feelings [17].

Using the 'feeling as information' approach, participants in the experimental group in the present study can be understood to have over-discounted their feeling of disgust when they are judging moral dilemmas. Participants in the control group felt disgusted at the moral violations and thus rejected adopting the actions; participants induced to feel disgust misattributed what they felt when judging the moral dilemmas to be the result of mood induction procedure and ignored it when making the judgments, thus endorsing more moral violations than participants in the control group. Evidently, participants in the experimental group failed to effectively use the information provided by their emotional reactions toward the situation to reach judgments that they normally would have reached because of the mood induction procedure.

In an indirect manner, the present research provided some support to the idea that the feeling of disgust plays a special role

in determining people's judgement towards moral situations. The above interpretation suggests that one possible way in which the induced disgust, which were induced from descriptions and sounds related to human excrements and unhygienic situations, affected participants' judgments is that participants misattributed the emotional reactions against the moral violations as arising from the mood induction procedure. For this to take place, the two kind of feelings must share a high enough degree of similarities; therefore, this result lends itself well to supporting the idea that disgust is an important emotional reaction aroused by moral violations that motivated people to follow the cultural norms of what should and should not be done [18]. Further research is necessary to see how other induced emotions affect moral judgments, thus verifying whether disgust do play a special role in affecting moral judgments. For the present study, the 'feeling as information' approach to understanding the interplay of emotions and cognitions is found to be useful in accounting for the result. This suggests that theorizations the cognitive processes involved in making moral judgments should take account not only of how moral judgments are 'special', but should also pay attention to how moral judgments may in fact have much in common with other kinds of judgment. The present study is a case showing that principles intended to cover general evaluative judgments are useful in explaining the cognitive process of making moral judgments.

In fact, the two groups of theories, theories of moral judgments and theories of general evaluative judgments sit well together: both have moved from an a prior emphasis on conscious reasoning to a more recent focus on the interplay between conscious thinking and other conscious or unconscious processes such as affect and intuitions [15], [4]. A productive synthesis may prove fruitful in view of the overlapping of their areas of study.

For example, social cognition researchers, particularly those who study the relationship between affect and cognition, have made useful distinctions between mood and emotion. Mood and Emotions usually have distinctly different motivational effects, since people usually can identify the source of their emotions and thus be aware of it with much more ease than the mood states they are in [15]. Theories on moral judgments seem to have omitted this fact. Haidt's and Greene's dual process theories of moral judgment both focused on the emotional reactions towards moral situations, ignoring the effect mood may have on moral judgments.

On the other hand, research on the effect of affects on evaluative judgments has mainly focused on the 'positive'(happy) and 'negative'(sad) emotions [15], thus overlooking many other emotions. Extending findings from these areas of study to the 'moral emotions' may prove fruitful and may enhance our knowledge on the processes involved in moral judgment [18]. The present study can be seen as a contribution to this.

REFERENCES

- [1] Cohon, R. (Ed.) (2004) *The Stanford Encyclopedia of Philosophy*.
- [2] Kohlberg, L. (1981). *The philosophy of Moral Development*. (Vol. 1). New York: Harper Row.

- [3] Hauser, M., Cushman, F., Young, L., Jin, R. K., and Mikhail, J. (2007). Dissociation between Moral Judgments and Justifications. *Mind and Language*, 22(1), 21
- [4] Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, 108, 814-834.
- [5] Koenigs, M., Young, L., Adolphs, R., Tranel, D., Cushman, F., Hauser, M., et al. (2007). Damage to the prefrontal cortex increases utilitarian moral judgements. *Nature, advanced online publication*.
- [6] Mendez, M. F., Anderson, E., & Shapira, J. S. (2005). An Investigation of Moral Judgement in Frontotemporal Dementia. *Cognitive & Behavioral Neurology*, 18(4), 193-197.
- [7] Greene, J. D., Nystrom, L. E., Engell, A. D., Darley, J. M., & Cohen, J. D. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron*, 44, 389-400.
- [8] Wheatley, T., & Haidt, J. (2005). Hypnotic disgust makes moral judgments more severe. *Psychological Science*, 16(10), 78-784.
- [9] Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M. and Cohen, J. D. (2001). An fMRI investigation of emotional engagement in moral judgment. *Science*, 293, 2105-2108.
- [10] Marzillier, S. L., & Davey, G. C. L. (2005). Anxiety and disgust: Evidence for a unidirectional relationship. *Cognition and emotion*, 19(5), 729-750.
- [11] Mayer, J. D., Allen, J. P., & Beauregard, K. (1995). Mood inductions for four specific moods: A procedure employing guided imagery vignettes with music. *Journal of mental imagery*, 19, 133-150.
- [12] Fiske, S., & Taylor, S. (1991). *Social cognition* (2nd ed.). New York McGraw Hill.
- [13] Davey, G. C. L., Bickerstaffe, S., & MacDonald, B. A. (2005). Experienced disgust causes a negative interpretation bias: A causal role for disgust in anxious psychopathology *Behaviour Research and Therapy* 44, 1375-1384.
- [14] McCormack, H. M., Horne, D. J. D. L., & Sheather, S. (1988). Clinical applications of visual analogue scales: a critical review. *Psychological Medicine*, 18, 1007-1019
- [15] Schwarz, N., & Clore, G. L. (2006). Feelings and phenomenal experiences. In A. Kruglanski, & Higgins, E.T. (Ed.), *Social psychology. Handbook of basic principles* (2 ed., pp. 385-407). New York: Guilford.
- [16] Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology*, 45, 513-523.
- [17] Isbell, L. M., & Wyer, R. S. (1999). Correcting for mood-induced bias in the evaluation of political candidates: The roles of intrinsic and extrinsic motivation. *Personality and Social Psychology Bulletin*, 25, 237-249.
- [18] Haidt, J. (2003). The moral emotions. In R. J. Davidson, Scherer, K. R., & Goldsmith H. H. (Ed.), *Handbook of affective sciences* (pp. 852-870). Oxford: Oxford University Press.