

AN ABSTRACT OF THE THESIS OF

Frederick R. Whitman for the degree of Honors Baccalaureate of Science in Psychology and Honors Baccalaureate of Science in Sociology presented on May 30, 2014. Title: Karmic Effects: How Aggressive Behavior Toward Important People Changes the Perception of Others.

Abstract approved:

John Edwards

Synthesizing perspectives from Bruner (1957), and the Mind Only School of Buddhism, the current study examined the effect of a persons' own behavior on knowledge activation. Both social cognitive psychology and the Mind Only School posit that perception is based on previously learned knowledge. Knowledge is accumulated through an individual's experience, and information is categorized by the mind. Once mental categories are constructed they are ready for use in interpreting stimuli. Some categories, such as hostility, have shown to be activated through a person's own behavior (Chandler and Schwarz, 2009). Methods of the current study partially replicated those by Chandler and Schwarz (2009), where extension of the middle finger activated constructs of aggression. Participants extended their middle-fingers (as if flipping off) toward a photo of their mothers, or a photo of a different female, and subsequently rated a character on hostility related characteristics. The hypothesis of the study was that those who extended their middle-finger toward a photo of their mother would perceive the character as more aggressive than those who extended their middle finger toward a photo of a different female. The hypothesis was not statistically supported.

Key Words: Buddhism, Construct Activation, Karma, Perception

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Karmic Effects: How Aggressive Behavior Toward Important
People Changes the Perception of Others.

by

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I understand that my project will become part of the permanent collection of Oregon State University, University Honors College. My signature below authorizes release of my project to any reader upon request.

Frederick R. Whitman, Author

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DEDICATION

I am dedicating this thesis to my family: Tanisha, Gerry, Malikye, Kacey Mae, Nicholas, and my beautiful wife Starr Whitman. You have endured much hardship for me to become a better person, and I love you all very much.

Most of all, this thesis was for my parents Gerald and Joanne Whitman. I remember that you believed in me when I wasn't able to believe in myself. I still love you And I still miss you every day.

Karmic Effects: How Aggressive Behavior Toward Important People Changes the Perception of Others.

INTRODUCTION

Throughout history there has been a common belief that people should hold their parents in high regard and shall respect them, or experience negative outcomes as a result. Often this message is disseminated through the philosophies of religion.

Christianity offers many examples in the **Bible** that support this notion. “Children, obey your parents in the Lord, for this is right. ‘Honor your father and mother’-which is the first commandment with a promise” (Ephesians, 6:1-2). In addition, disrespect and disobedience have been considered sins which take a person outside of the grace of their higher power.

“[Evil people] have become filled with every kind of wickedness, evil, greed and depravity. They are full of envy, murder, strife, deceit and malice. They are gossips, slanderers, God haters, insolent, arrogant and boastful; they invent ways of doing evil; they disobey their parents; although they know God’s righteous decree that those who do such things deserve death, they not only continue to do these very things but also approve of those who practice them (Romans, 1:29-32).

Doctrines in other western religions have shown similarities to the ideas laid out by Christianity. In the Islamic faith and the Noble Quran (Surah, 31:14) the spiritual command of respecting parents surfaces in scripture as: “We commanded man (to be good) in respect of his parents. His mother carried him (in her womb) despite weakness upon weakness, and his weaning is in two years. (We said to man,) “Be grateful to Me, and to your parents....” The Jewish faith states in the sacred text of the Torah “Honor thy father and thy mother, as the LORD thy God commanded...” (Deuteronomy, 5:16). The major western religions show respect for their parents, and are not alone in this common

belief from a spiritual standpoint. Eastern religions have strong similarities to this type of belief about respecting ones parents.

In particular, Buddhism has specific beliefs about immediate results of behavior toward parents effecting future experience (Tsongkhapa, 2000; Roach, 2000). The belief that behavior subsequently affects experience is referred to as karma, and is a complex explanation of cause and effect which posits that our mind, body, and speech effect later experiences. The experiences proposed by the Buddhist philosophy are not vague, but suggest that a person's own behavior has morally concordant results (i.e. hostile speech would lead a person to perceive hostility from others). This theory also offers a list of factors that increase the strength of karma. Among this list of factors is committing behavior toward a person who has really helped you in your life (e.g., a parent, mentor, or a pastor).

When behavior is performed toward a parent it is said to have a stronger effect rather than behavior toward other types of people. Parents are held in very high regard in the Buddhist faith due to their role in the lives of their children. Parents are the ones people learn from and should be treated with respect much like the Buddha, or Gurus, who are the ones that help people on the path to enlightenment. Sopa and Patt (2004) demonstrate, in detail, the supreme importance of parents by indicating the nurture and protection that is involved in raising a child to an age of independence. Therefore, no one contributes to the life of an individual more than their own parents, and behavior toward them should show increased strength of karmic results. The idea that behavior influences perception parallels the theories put forth by social-cognitive psychology.

Perception of stimuli, and events, can be thought of as a practice of categorization. Bruner (1957) first wrote about the categorization of learned constructs. He proposed that environmental cues help activate learned categories for use in interpreting stimuli in the world. There is currently a growing body of social-cognitive studies that have supported the idea that a person's behavior can activate learned constructs and effect a person's perceptions. Chandler and Schwarz (2009) activated the mental construct of hostility in participants by simply having them extend their middle finger. Cacioppo, Priester & Berntson (1993) showed changes in participant's attitudes toward ambiguous ideographs (Chinese written images without meaning) after extending or retracting their arms, which is symbolic of pushing bad things away or pulling good things towards in embrace. In a study by Mussweiler (2006) participants made motions as if being overweight, and subsequently rated people higher on related characteristics. The aforementioned research suggests that the behavior of a person can activate concepts related to previously learned constructs, which in turn changes the interpretation of relevant stimuli for the person. This idea is very similar to the way the Buddhist theory of karma proposes that future events are determined by one's own behavior; psychological research has shown this to be true using different forms of priming (i.e., that priming influences perception and responses). Since empirical studies have supported the idea that perception is directed by a person's previous behavior, there is an effortless connection between the psychological research and the philosophies put forth by Buddhism.

The current project is an attempt to join together the disciplines of karmic theory and social psychology, and to understand how much influence behavior has on

perception. This study is a partial replication of Chandler and Schwarz (2009), who studied the effect of gestures on the subsequent perceptions of other people.

The current study followed the methods by Chandler and Schwarz (2009). Participants were asked to extend digits of their hands, moving them up and down through a light beam, while reading texts about various topics. The independent variable of the Chandler and Schwarz (2009) study was the extension of the middle-finger (physical behavior which activated the construct of hostility) compared to extension of other fingers. The dependent variable was the rated level of perceived hostility of a man in the text which was coupled with the extension of the middle finger. The methods of the current study deviated from Chandler and Schwarz (2009) by targeting the direction of the gestures made by participants toward a photo.

The inspiration for the current study came from the work completed by Allen (2011), who connected the Buddhist theory of karma with construct activation. The study by Allen (2011) hypothesized that eliciting prosocial behavior from participants would cause a concordant change in perception. In Allen's study (2011), participants were primed by the reading of a story that activated constructs related to either cooperativeness or competitiveness. Subsequently participants competed in a Prisoners Dilemma task (PD), which is a task originally designed to assess levels of cooperativeness and competitiveness. PD is set up to appear as a game where participants can engage in cooperative behavior with another player to achieve the highest possible payout. Players could also choose to be competitive, taking lower payout than if they were to cooperate. The payout for the game was nothing if both players decided to compete with one another. After participation in PD the participants read a story about a person that could

be viewed as either cooperative or competitive and rated the character on related qualities (cooperativeness or being a pushover). Allen's (2011) hypothesis was that once participants committed prosocial/cooperative behavior, they would then rate the character from the subsequent reading as more cooperative. The Allen (2011) study had some issues with manipulation of participant behavior. Participants did not consistently cooperate during the PD task, and this issue affected results for the study. Much like the study of Chandler and Schwarz (2009), Allen's (2011) study supported the idea that a person's behavior would then color their perception of events.

Both of the aforementioned studies support the notion of behavior affecting perception in a manner that parallels the Buddhist theory of karma. Knowing that extending the middle finger activates the construct of hostility led to the hypothesis of the current study. The current hypothesis is that participants who extend their middle-finger in the direction of a photo of their mother will show higher level of perceived hostility than the participants who make the same gesture toward a photo of someone other than their mother.

BUDDHISM

The hypothesis for the current study rests heavily on Buddhist philosophy of karma. The next sections will give an overview of the history of the Buddha, his teachings, and factors of the philosophy relevant to the current study.

Philosophical History

Buddhist philosophy has a beginning around the fifth century BCE. The philosophy was born when the Hindu-born prince Siddhartha Gautama, at about age 30, traveled outside of the royal palace and witnessed suffering, aging, and death that he had been sheltered from witnessing inside the palace. Being exposed to suffering, aging, and death for the first time, the prince had great internal conflict and a desire to understand the purpose of suffering in the world. The prince left his royal home in a journey to find answers to the questions that troubled him so heavily. Prince Siddhartha went to teachers for answers, and turned to asceticism (rigorous self denial or extreme abstinence from food, drink, and sleep) to become more spiritual and bring him closer to the answers he was seeking (Malloy, 2010). After a period of time practicing asceticism, and in a horrible physical state of emaciation, prince Siddhartha was taken in by a woman who gave him food and nursed him back to health. A close brush with death caused the prince to decide that a middle way (a path of moderation between lavish living and asceticism) was the path that was the most beneficial.

Prince Siddhartha still did not have answers to his questions, so he resolved to meditate until he had the understanding that he had desired. He sat facing the East for an extended period of time until one morning he had a different, and profound, understanding of the struggles of life. This was the moment that the prince awakened in

understanding, and he became enlightened. From that time he referred to himself as the one who woke up, and this was the source of his new title - the Buddha. Suffering, aging, and death were then viewed by the Buddha as something that was part of life, yet there was also a way to be released from them. The Buddha developed his understanding and promoted this understanding in his teachings (Malloy, 2010).

Foundations of Buddhist thought

The Buddha proposed a path that would allow for liberation from the sorrows that are experienced in the lives of everyone. The foundation for this path, and for all the Buddhist teachings, is the four noble truths. The first noble truth is that to be alive is to suffer, or the inevitability of suffering. Suffering is said to start at birth, and then the physical and mental troubles of the world are to be had from that moment on. Physically, this makes sense because there is truly no release from aging, ailment, and death. During the development throughout life there are also mental troubles and anguish that come about from time to time that people cannot escape from (e.g., anxiety, discouragement, and heartbreak).

The second noble truth is that suffering is caused by desire. Desire comes from living a life that seeks satisfaction from conventional means. A thirst for worldly ways of making a person happy is one that can never be fully quenched, so there is a never ending cycle of desire. It is of great importance to note that not all desires bring suffering, but only desire that comes from a form of ignorance about reality. With this idea in mind, good desires based in compassion and love does not cause suffering (i.e., desire for others to prosper and be happy).

The third and fourth noble truths are connected by hope to end suffering. The third noble truth is that suffering can be ended. The fourth noble truth is that there is a path to the end of suffering, which is called the eightfold path. With an understanding of where suffering originates from, and that there are antidotes for causes of suffering, there is a path of life that can arrest the troubles that people meet in their lifetimes (Malloy, 2010).

The Eight-Fold Path

The Buddha suggested a way of living that would decrease the amount of mental and physical anguish a person experiences, and increase life satisfaction and personal peace. The eightfold path is the suggested steps to live by. They are not actually steps to be practiced in sequence, but rather a combination of efforts to be practiced at the same time while attempting to live a meaningful life. These suggestions are put forth as a merger for mind, body, and speech to be more pure, and foster a successful life set combining all physical and mental activities that can be engaged in.

The eightfold path can be considered antidotes for impure ways of living which bring troubled times into the lives of people through non-virtuous behavior and thinking. The eightfold path's steps are: (1) right understanding, (2) right intention, (3) right speech, (4) right action, (5) right work, (6) right effort, (7) right meditation, (8) right contemplation. Right understanding, intention, effort, meditation, and contemplation have to do with efforts toward purity of the mind, whereas right work, speech, and action have to do with actual behavior that a person commits. Right speech and action reference the actual way we engage with other people, and these are the steps that are most important to the current study. All of the steps of the eight fold path are important in Buddhism, due

to behavior causing a person to experience morally concordant outcomes as results of the behavior type (negative or positive) one engages in.

The Mind Only School

The Mind Only School of Buddhism is unique in the perspective it takes on experiencing objects, people, and situations. The primary text for exposition of this philosophy is Tsongkapa's *Essence of Eloquence on the Art of Interpretation*, and information was attained from English translations of the text (Hopkins, 2003; Thurman, 1991). The mind only philosophy of Buddhism closely resembles the ideas of categorization put forth by Bruner (1957). This school of thought proposes that objects do not exist independently of the person perceiving them, and that the mind operates, while perceiving, on cognitive constructs that have been previously learned as a means to interpret stimulus in the environment. Objects in the world are ambiguous in the fact that many different labels can be placed on them, and they can fall into many different categories constructed by the mind. The stance taken by the Mind Only School is that things exist outside of our mind in an objective reality, but we cannot tap into an objective form of experiencing the object due to the coloring of perception that is based on previously accumulated categories, or constructs. Therefore, the item is categorized and then viewed through the lens of the activated construct that is mentally utilized (e.g., not being able to experience a dry erase marker without the label of "marker" being involved in the thought process). Further, the label that is placed on the object being perceived is often believed by the perceiving person to be of an intrinsic quality attached to the object.

Karma

The Buddhist philosophy employs a theory that actions of virtuous, nonvirtuous, and neutral nature have morally concordant outcomes and direct future experiences. This theory is also shared by other eastern faiths (e.g., Hinduism, Jainism), and is referred to as karma (action). Although the different schools of Buddhist thought have differences in perspective about karma, there are certain elements of karma that are present in all karmic theories according to Ramanujan: 1) causality (virtuous and non virtuous behavior), 2) ethicization (belief that ethical and nonethical behavior result in concordant outcomes in one or more lives), and 3) rebirth (as cited by O’Flaherty, 1980). It is noteworthy that the effects of karma can be seen in the current life of the individual, and are not limited to effects in the process of rebirth, or in the next life (Nagarjuna, 2nd century/1998, p. 41; Nagarjuna & Gyatso, 1975). Focus of karma in the current study does not include rebirth as it is outside the realm of scientific inquiry.

There are three phases that are said to take place as behavior is committed: the preceding intention (moral decision) of the behavior, the specific behavior (physical or verbal), and the imprint that remains on the mind of the individual after the intended act is completed (Dargay, 1986). Imprints are often likened to, or referred to as, a “seed” (*bija*), that is planted and will later sprout bearing a concordant fruit to that of the original behavior (e.g., to covet would lead to being unsatisfied with what one has, and killing would lead to a shorter life) (Tsongkhapa, 2000). The proposed process of karma suggests that engagement in activities is the cause of all experiences.

The theory of karma plays two significant roles in this literature review: first is that the teaching of the Buddha, in regard to the cessation of suffering, is the basis for the idea of karma. Cultivating wisdom about causes of experience is at the center of freedom

from suffering. The application of wisdom about nonvirtuous behavior happens while the individual is following the eight-fold path and attempting to attain a more virtuous lifestyle. The second role of karma significant to the current study is how it relates to the mind only view of perceiving the world. Because the mind only school proposes that there is a psychological filter that is used in interpreting the world, karma is then explained as the mechanism that influences the filter of the human mind.

Karmic Weight

The theory of karma additionally offers factors that are believed to enhance the effect of karma, or increase the “karmic weight” of the action. The karmic weight refers to the rate at which the karmic effect will be experienced by the individual. That is, the mental construct is activated and then colors the perception of the individual. A complete list of factors that are thought to increase karmic weight are given by Allen, Edwards, and McCullough (2014), which are: 1) action done with strong emotion (anger, or joy), 2) action done with strong intention and effort, 3) action done resulting from the three poisons of attachment, aversion, and ignorance, 4) action done deliberately, premeditated, without restraint (verses involuntary), 5) owning the action, having no regret, 6) bragging about the action to others, 7) action done repeatedly, 8) pulling others into the bad deed, 9) action done toward a holy object (a divine being, spiritual teachers, or a symbol of your spiritual life), 10) action done toward a person who has really helped you (your parents, your pastor/teacher etc.), 11) action done toward someone who is in great need.

The most relevant factor to the current study is targeting behavior toward the person who has helped an individual the most in their lives, a person’s parents. This factor makes sense in the fact that virtuous or nonvirtuous behavior toward someone of

great importance to your life will activate morally concordant constructs of the behavior at higher levels than when committing the same behavior towards someone less important. As previously mentioned, there is no one who gives more help to an individual than their own parents. Karmic weight is the basis for the hypothesis of the current study. Those who make hostile gestures toward a photo of their mother will have a greater level of perceived hostility compared to those who make the gestures toward a photo of someone else.

SOCIAL COGNITION

Terminology

There are many terms used in social psychology to describe a set of ideas that individuals hold inside of their minds, such as mental representation, cognitive structure, or schemas (Smith, 1998; Carlston 2010; Sedikowski and Skowronski, 1991). These terms often overlap in definition and function in psychological literature, and are used somewhat interchangeably, depending on the theoretical framework of the researchers. For the purposes of this paper, the term construct will be used to describe the learned cognitive categories that are accessible for use in interpreting stimuli.

Attention

In the daily life of any individual there are an infinite number of perceptions that could be made, depending on what is attend to. Focusing attention is a central executive function, or a process managed by the brain, to attend to particular stimulus based on relevance and past experience. This process is needed due to a constant stream of information being let into the senses and into the mind (e.g., light, sound, and temperature). At any given time, there is too much information for any person to encode all that is going on around them. This raises the question of the mechanism that allows people to attend to, or pay attention to, certain aspects of their environment, while leaving other pieces unattended to. Attention has many different definitions, but in this context includes the process of selecting some information for further processing, and inhibiting other information from receiving further processing (Smith & Kosslyn, 2007). Posner and Boies (1971) proposed that there are three components to attention: (1) orienting to sensory events, (2) detecting signals for focused processing, and (3) maintain a vigilant or

alert state. The mentioned processes combines stimuli being brought into awareness through the senses, mental detection of those sensory signals (thoughts about the physical event), and a state of purposeful observation of the event. There is also a process of the mind expecting, or waiting, to attend to what will come in to the senses from the environment that is driven from cognitive processes.

There are two ways that information is let into attention: endogenous or “top-down” processing and exogenous or “bottom-up” processing. Endogenous/top-down processing is a goal-oriented form of attention, and is present when a person is attentive to what is important in achieving a goal (i.e., this is important to me, I will attend to it). Endogenous/bottom-up processing occurs when stimuli from the environment is driving attention (i.e., detection of stimuli through receptor cells, encodes physical sensations as neural signals, and then is transmitted to the brain). It is worth noting that according to Bruner’s theory of construct activation, perception is dependent on both endogenous and exogenous processing (1957). Attention and perception are dependent upon the mental aspect of past experience, while there must be the information actually coming into awareness through the senses. Constructs that are most easily accessible will be activated and used as they are most relevant for the individual at that time.

Perception as Construct Activation

As people orient themselves in their daily lives, they must be able to categorize stimuli in the environment in order to function and thrive. This act of stimuli categorization and interpretation is referred to as perception, which occurs on both a mental and physical level. More specifically, perception is considered “the interpretation of sensory information to yield a meaningful description or understanding,” (Galotti,

2008). Perceived stimulus are sorted into and interpreted by cognitive constructs, allowing individuals to make fast and easy inferences about the world. Without this ability to quickly categorize the vast amount of sensory stimulus in any given environment, survival would not be possible, as it would take too much cognitive energy and time to orient oneself while navigating through life.

Bruner (1957) first wrote of perception being a practice of categorization. Any stimulus that can be experienced is ambiguous in the fact that multiple categories and labels can be applied to them at any time. Inferences about items are made according to whether or not qualities and conditions of a stimulus that fit well with categories that are already constructed and are ready for use in the individual's mind. It is important to note that most categories seem not to be innate, but are learned. This idea of learned constructs influencing perception goes back to the philosophical work of Emanuel Kant (1781/2003), in which there must be a pre-constructed (learned) idea to be able to perceive anything in our world.

Behavior Effecting Construct Activation, and Perception

The majority of work on construct activation has been done on situational determinants of construct accessibility. Accessibility, according to Higgins (1996), refers to "the activation potential of available knowledge." Frequent and recent use of constructs has been shown to make knowledge more accessible. Srull and Wyer (1979) showed that the number times participants viewed trait related words in priming tasks influenced the likelihood of participants to interpret ambiguous targets along the primed traits. During the study of Srull and Wyer (1979) recently activated trait-related constructs showed greater accessibility, and there was a decrease in accessibility as time

elapsed. The focus of the current study was derived from the larger body of work done on construct accessibility. Accessibility is related to karma in the fact that it can be used for an explanation of the mechanism by which karmic effects occur. Situational activation of constructs has been the focus of most previous research, but there are a few studies that examine the effect of behavior on the activation constructs.

There is a body of research that supports the idea that one's own behavior causes automatic (thoughtless) activation of learned constructs. Cacioppo, Priester & Berntson (1993) were the first to empirically support the notion of behavior affecting attitudes. Participants were asked to push down on the top of a desk (a behavior that is symbolic of pushing away), or pull up from the bottom of the desk (a behavior symbolic of pulling toward in embrace) while they were rating ideographs on levels of favorability. Cacioppo, Priester & Berntson (1993) found that those who were pulling the desk toward themselves rated the ideographs as more favorable than those who were pushing the desk away from themselves.

In a study by Mussweiler (2006), participants believed they were participating in a life vest design study. Participants were asked to wear ankle weights and a life vest, and move about as if they were on a boat. Participants were not aware that the behavior they were committing was that of an overweight person (i.e., they swayed and moved slower). Having participated in overweight movements activated the construct of heavier individuals, and participants subsequently rated people on characteristics associated with obesity compared to those participants that did not make the overweight movements. The aforementioned studies support the notion that behavior easily activates constructs, affects attention, and then effects perceptions.

The research most relevant to the current study is by Chandler and Schwarz (2009). Chandler and Schwarz (2009) showed that behavior related to hostility activated associated constructs and colored the interpretation of an ambiguous target character. Participants in this study extended their middle finger while reading a text about a character that could be categorized as either assertive or hostile. The findings showed that simply extending the middle finger activated the construct of hostility, and participants then rated the target character higher on hostility related characteristics compared to control characteristics.

The aforementioned studies give compelling evidence to suggest that one's perception is dependent upon their own behavior. This idea parallels the Buddhist theory of karma in that the lens we use to interpret the world is dependent upon the behavior in which we engage in.

CURRENT STUDY

In the current study participants made hand gestures toward photographs while reading texts about various topics. The study utilized a 2(motor movement: middle-finger vs. ring-finger) \times 3(photo type: mother vs. familiar motherly figure vs. unfamiliar motherly figure) factorial design.

The primary condition of interest was the one in which participants were asked to extend their middle finger (*an aggressive gesture*) during the second reading, and moved that finger up and down in front of photograph of their own mothers (*as if flipping off the photograph*). To use as a comparison for the middle-finger gesture, there was a condition in which participants made the same motion, but utilized the ring-finger. There were three photo conditions used in this study. The mother photo condition was the primary photo condition for the study. There were two non-mother photo conditions: one utilized photos of females that scored high in familiarity, and high in motherliness, and; one that utilized photos of females that scored low in familiarity, and high in motherliness. The two non-mother photo conditions were attempts to control for effects of familiarity and motherliness as possible explanations for expected results.

METHOD

Participants

168 right-handed and 16 left-handed Oregon State University (OSU) undergraduates (140 female) participated during individual sessions for course credit.

Selection of Stimulus

Prior to participation, all participants sent electronic photographs (pictures) of their mothers via email to the research lab email. All photographs used in the study were either inserted into a word document and printed (conditions one and two; mother photo conditions). Photos of participant's mothers that were not used were viewed in the email and matched to one of the preselected familiar or unfamiliar motherly photos; this was based on race (conditions three through six). All mother and non-mother photos were used as targets for gestures directly (For example of photo see appendix A).

To select the non-mother control photographs, a sample of photos of women varying in perceived familiarity and motherliness (N=33) were selected from the internet using Google Images. These photographs were rated by 15 people (seven male, eight female) on the qualities of motherliness and familiarity. The raters consisted of research assistants and social network members of the researcher.

Photos were selected that were rated high in motherliness to match a general schema of mothers. The photos were also rated high and low in familiarity in order to rule out familiarity as a confounding variable. In addition, because we wanted to match the race of the non-mother photos to the race of the participants' mothers, photos were selected representing Caucasian, African American, and Hispanic women only. Races/ethnicities that were not previously mentioned were matched to white, due to white

being the majority of population sampled from. Excluding photos of minority races was based on low levels of perceived familiarity by raters. Participants were randomly assigned to either a photo of their mother, a photo of a motherly woman high in familiarity, or a photo of a motherly woman low in familiarity, with the latter two photo types matched to the participants' mothers race.

Procedure

To rule out demand characteristics (cues to participants of expected behavior by researchers) and self-perceptions (perception of self that may guide behavior according to the individuals beliefs about themselves in regard to the hypothesis) as explanations for results of the motor movement effects, *deception* was used. Participants were led to believe that the study was designed to understand the connection that motor movements and familiar/supportive figures have on reading comprehension and learning. In an effort to deter participants from figuring out the hypothesis, participants were told the following:

“This study is designed to examine how motor movements affect reading comprehension and vice-versa. Because processed information is in part stored in the modal systems that are employed when learning, fine motor movement and reading are theoretically closely linked. Studies also show that learning is optimal when a supportive and familiar figure is present. The present study is designed to examine the relative effects of both phenomena.”

Participants next completed an informed consent document and a demographics questionnaire prior to administration of the experimental movements, readings, and scales. The demographics questionnaire was used to lead participants to believe the cover

story about reading comprehension, and to collect demographic information (i.e., race, age, and gender). The demographics questionnaire was altered excluding personal information questions about the participants G.P.A., and was taken from Chandler & Schwarz (2009) (See appendix B). The demographics questionnaire was used, solely, to follow as closely as possible the methods of Chandler and Schwarz (2009). Participants were run individually in an experimental room. A poster hung in the experimental room that showed a right-hand with all fingers labeled with letters (A-thumb, B-index finger, C-middle finger, D-ring finger, E-pinky). The poster was designed to show what digits were used for the duration of the motor movements (See Appendix C).

Participants were then seated facing a motion sensor hanging on the wall directly in front of them. The motion sensor was designed by the researcher to appear as though it was collecting light information. The sensor was a 12"x48" picture frame with a photovoltaic image inside, and had an attached power cord leading to a power outlet, and audio video cord which was attached to a computer in the room. Sitting on a shelf behind the top of the participant's right shoulder was a construction laser level that projected a red-horizontal-laser-light over the top of the participant's right shoulder, that lined up to the center of the fake motion sensor in front of them. The laser level also had wires that connected to the computer in the room. To the left of the seat was a desk with the previously mentioned computer, which had the cables and wires connected to the laser level and motion sensor. There were two computer programs used during the study: a Gieson drum beat metronome, which was downloaded from the internet as an audio guide for the movements of participants while they were reading, and Direct RT. This program was simply opened and minimized to appear as though the computer was collecting data

from the movements by participants. The entire set up of the motion sensor, laser level, computer, wires, and programs was used to hide the hypothesis of the study, and none of these items actually functioned, contrary to what was expressed to participants.

After participants were seated, they were guided through practice trials by research assistants to the beat of the metronome. Participants were asked to face their palm of their right hand toward their face and to extend a particular digit placing it below the laser level beam. Then they were asked to move the their hand upward through the laser level beam, to the point of the wrist, and then move the whole hand downward below the laser level beam to complete the movement. Participants completed four practice movements including all digits except for the thumb to familiarize them with the task. The participants were told the computer tracked the rhythm of their movements.

Once participants had an understanding of the process, the photo for the condition was attached to a clip board directly in front of them, and they were left alone to read a short text while making the motor movements. There were three trials during each experimental session. Different digits were coupled with each text. The order for the digits used was: index-finger, middle-finger, pinky-finger (conditions 1, 3 & 5), or index-finger, ring-finger, pinky-finger (conditions 2, 4, & 6). The first two texts were fillers taken from Chandler & Schwarz (2009). The first text was a story about a fictitious man named Frank Bowers. The second was an informational text about panda bears. During the reading of the second text was when participants used either the middle-finger, or the ring-finger. Coupling the middle-finger/ring-finger movements with the second text was a deviation from the methods of Chandler and Schwarz (2009). This deviation gives a delay between the hostile gesture of participants and the point when participants are

hypothesized to perceive hostility in a character of the third text. The Theory of karma suggests that the delay of a few minutes should not cause results to be significantly different from those attained by Chandler and Schwarz (2009). The third text was the primary text of interest. This text was a narrative story about a day with a man named Donald, and contained ambiguous information about Donald's behavior. Donald's behavior could be considered, or categorized, as either assertive or aggressive. This text has been utilized often in social psychology to detect the accessibility of thoughts of aggression and hostility of participants once conceptually primed. It was used as the main measure to assess the effects of the middle finger movements on aggression for the current study. It was also used for this purpose by Chandler & Schwarz study (2009). Once the reading of each text was completed, participants answered questions about the texts, the movements, and about themselves (See appendix D).

There were three types of questions which were answered by participants. The questions were in the form of six likert scale questions, two multiple choice, and two more likert scale. The first six questions were likert ratings of participants' agreement with statements about the texts (11-point scale; with 1=disagree and 11=agree). The two multiple choice questions were based on the factual content of the text. The last two questions were in regard to participants' levels of difficulty in movement and distraction of movements (11-point scale; 1=easy/not distracting and 11=difficult/distracting). The six likert scale questions about the Donald text asked participants to rate Donald on traits related to aggression (hostile, unfriendly, and considerate-reverse coded), and control traits (intelligent, boring, honest), which were the same control characteristic ratings that were compared in the previous research by Chandler and Schwarz (2010). After the

Donald questions there were five more scale questions on the affective state of the participant at that moment (alertness, irritability, confidence, happiness, and ease), which was also an 11-point scale. The affective state questions were used for the purpose of following the methods of Chandler and Schwarz (2009), and were not used in statistical analysis.

Once all movements, readings, and questions were completed, the participants answered a 10-question questionnaire about the importance of their mother in their lives; the Mother Measure of Importance (M.M.I.). This evaluative measure was created by the researchers to assess the perceived importance of a mother in the lives of participants (see appendix E). According to the hypothesis of the study those who score high on the M.M.I. should show higher levels of perceived aggression in the middle-finger/mom photo condition, than those using the ring finger, or in the non-mom photo conditions. The M.M.I. was designed to assess the extent to which participants feel indebted, seek approval from, have reciprocal desire to care for, and generally feel about their mothers. Participants rated each question on the level that they agreed with statements about their relationship to their mother (ratings were in agreement from 1-10; 1=not true at all, and 10=completely true). Five questions were reverse scored. This measure was used to check whether there was a correlation between the level of perceived importance of the participant's mother and the effect of the aggressive motor movements. Once participants completed the M.M.I. they were questioned for understanding of the study, debriefed, and excused.

RESULTS

Results of this study were analyzed utilizing a 3(photo type: Mother, Unfamiliar Woman, Familiar Woman) x 2(Finger: Middle vs. Ring) x 2(trait type: perceived hostility trait ratings vs. control trait ratings) analysis of variance.

The main effect for trait type collapsed across photo type and finger type was significant, $F(1,178) = 19.39, p = 0.001$, where participants rated Donald higher ($M = 21.73, SD = 0.936$) on hostility related traits than the control traits ($M = 19.27, SD = 0.334$) (See Table 1). The interaction of trait type by photo condition also showed significance, $F(2,178) = 4.04, p = 0.02$ (See Table 1). The interaction was such that in the mom condition participants rated Donald significantly higher on hostility related traits ($M = 22.02, SD = 0.94$) than on the control traits, ($M = 19.59, SD = 0.58, p = 0.001$); the unfamiliar non-mother condition also showed significance. Participants rated Donald higher on hostility related traits than control traits, ($p = 0.001$) ($M = 22.01, SD = 0.946$ vs. $M = 19.05, SD = 0.582$); and the findings for the familiar non-mother were non-significant (*ns*).

Results showed a 3-way interaction of trait type by finger type by photo type that was also significant, $F(2,178) F = 4.04, p = 0.02$ (see Table 3). There were three conditions that had means of hostility related trait ratings of Donald that were significantly higher than the ratings of the control traits: the middle-finger/mom photo condition ($p = 0.026$), the middle-finger and unfamiliar/non-mother-photo condition ($p = 0.008$), and the ring-finger and unfamiliar/non-mother condition ($p = 0.006$). The middle-finger and familiar/non-mother condition, ring-finger and mom photo condition, and ring-

finger familiar/non-mother photo condition all had nonsignificant trait type ratings (*ns*) (see appendix F, and appendix G).

We also ran analysis including the M.M.I. Predicted effects were supported by mean ratings of perceived hostility being higher in the middle-finger/mother photo condition than in other groups; this was true to an even greater extent for those who scored high on the M.M.I., but not for those who scored low on the measure. Continuous MMI scores were added to the analyses reported above. There was a 2-way, trait type by M.M.I. score interaction which was significant, $F(1,171) F = 3.99, p = 0.047$ (See Table 3). To examine the direction of this effect, analyses were conducted examining effects at one standard deviation above and below the M.M.I. mean. We found that those who scored high on the M.M.I. rated Donald higher on perceived hostility related traits than on control traits. The 2-way interaction was qualified by a 4-way interaction: trait type by finger type by photo type by M.M.I. rating. For control traits there were no significant differences between photo types (*ns*). Looking only at hostility-related words, at low levels of M.M.I there were no significant effects. At high levels of M.M.I, hostility related traits in the ring finger condition were marginally higher in the unknown/unfamiliar condition ($M = 23.29, SD = 1.44$) as compared to the unknown familiar condition ($M = 19.47, SD = 0.90, p = 0.06$). There were no effects in the middle-finger condition.

GENERAL DISCUSSION

The social psychological design of the current study was selected to test Buddhist predictions of karmic weight, particularly the idea that behavior toward parents changes perception. The hypothesis of the study that participants who extended their middle-fingers toward a photo of their mothers would then rate Donald as more hostile than in other conditions was not supported in statistical analysis. There was a general effect that was consistent with the findings of Chandler and Schwarz (2009) in which extension of the middle-finger activated the learned construct of hostility and raised levels of perceived hostility in participants. However, this was not the case in the familiar/non-mother condition of the current study (see appendix F). This unexpected result seems to be due to the photo of Florence Henderson that was used in those two conditions. Florence Henderson's photo appears to be the cause of lower levels perceived hostility by participants. This effect was true for both the middle-finger and ring-finger conditions.

Addition of the M.M.I. to statistical analysis supported the Buddhist notion of a parent being import people in people's lives. There were higher levels of perceived hostility by participants in the middle-finger condition who scored at high levels of the M.M.I., but not for participants who scored low on the measure. It seems that those who consider their mothers to be of greater importance had higher activation of hostility related constructs, or a larger karmic effect.

Limitations

The current study did not have a no-photo control condition to use as a comparison to see how much of an effect there was by directing the hostile gestures toward photos, and to compare to the results of the Chandler and Schwarz (2009) study.

By not having a no-photo condition the analysis was limited in the ability to confirm that there was an effect of the photos compared to simply making the gestures without a directed target for the hostile behavior. There was a lack of pilot testing for positive and negative valence for familiar motherly photo types. The photo of Florence Henderson had an unexpected influence on the results of the study.

Future Directions

Future studies using these methods should include a no-photo condition to identify the effect of having the photos in the study. Having a condition with a no-photo condition will show the level of change there is in participant's perception of hostility compared to simply making the gestures without a target. There was also a clear issue with the familiar/non-mother photo condition in which there was activation of constructs related to positivity. The photo of Florence Henderson seemed to be more powerful in activating positive constructs than the activation of hostility constructs from the participants' own behavior. Attaining ratings of positivity for photos, prior to experimental trials, is of great importance to future studies. By controlling for positivity results will be closer to the current predictions for the familiar/non-mother photo conditions.

CONCLUSION

The Mind Only School of Buddhism and research in social cognitive psychology support the idea that a person's own behavior influences interpretation of future events. Research incorporating the methods from social psychological studies of construct activation, via behavior, like those by Chandler and Schwarz (2009), Mussweiler (2006), and Cacioppo, Priester & Berntson (1993) gives a solid foundation for studying karmic effects and can be utilized to further the knowledge base of these phenomena. The current study extended the work by Allen (2010) and Chandler and Schwarz (2009), and was an addition to the body of work which examines construct activation as the mechanism of karmic effects.

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Tables

Table 1

Trait Type x Finger Type x Photo Type (Within Subjects) Analysis of Variance

Source	Type III Sum of Squares	Df	Mean Square	F	<i>p</i>
Trait Type	468.28	1	468.28	19.388	0.00
Trait Type * Finger Type	9.86	1	9.86	0.408	0.52
Trait Type * Photo Type	195.03	2	97.52	4.037	0.02
Trait Type * Finger Type * Photo Type	31.96	2	16.0	0.662	0.52
Error (Trait Type)	4299.31	178	24.15		

Table 2

Trait Type x Finger Type x Photo Type (Between Subjects) Analysis of Variance

Source	Type III Sum of Squares	Df	Mean Square	F	p
Intercept	152589.67	1	152589.67	3015.65	0.00
Finger Type	0.29	1	.294	0.01	0.94
Photo Type	201.69	2	100.85	1.99	0.14
Finger Type * Photo Type	109.62	2	54.85	1.08	0.34
Error	9006.68	178	50.6		

Table 3

Trait Type x Finger Type x Photo Type x M.M.I. Rating (Within Subjects) Analysis of Variance

Source	Type III Sum of Squares	Df	Mean Square	F	<i>p</i>
Trait Type	40.89	1	40.89	1.70	0.19
Trait Type * M.M.I. Rating	95.89	1	95.89	3.99	0.05
Trait Type * Finger Type	1.54	1	1.54	0.06	0.80
Trait Type * Photo Type	13.64	2	6.82	0.28	0.75
Trait Type * Finger Type * Photo Type	148.13	2	74.06	3.08	0.05
Trait Type * Finger Type * M.M.I. Rating	2.76	1	2.76	0.12	0.74
Trait Type * Photo Type * M.M.I. Rating	21.17	2	10.59	.44	.65
Trait Type * Finger Type * Photo Type * M.M.I. Rating	152.20	2	76.10	3.16	.05
Error	4113.54	171.00	24.06		

Table 4

Trait Type x Finger Type x Photo Type x M.M.I. Rating (Between Subjects) Analysis of Variance

Source	Type III Sum of Squares	Df	Mean Square	F	p
Intercept	2910.16	1	2910.16	57.23	0.00
M.M.I. Rating	75.38	1	75.38	1.48	0.23
Finger Type	8.22	1	8.22	0.16	0.69
Photo Type	8.29	2	4.15	0.08	0.92
Finger Type * Photo Type	199.85	2	99.93	1.97	0.14
Finger Type * M.M.I. Rating	8.62	1	8.62	0.17	0.68
Photo Type * M.M.I. Rating	26.53	2	13.26	0.26	0.77
Finger Type * Photo Type * M.M.I. Rating	253.54	2	126.77	2.49	0.09
Error	8695.06	171	50.85		

Appendices

Appendix A. Photograph of a Familiar Motherly Figure



Appendix B: Demographics Questionnaire

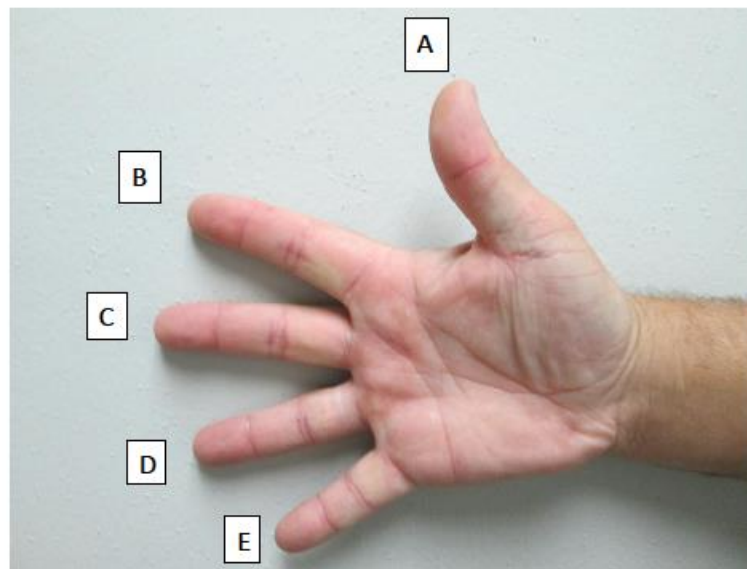
Demographic Questionnaire

1. Gender: Male Female
2. Age: _____
3. Which hand do you normally use to write? _____ Left _____ Right
4. Country where you attended high school:
 - a. U.S.
 - b. Other (please specify): _____
5. Country where you were born:
 - a. U.S.
 - b. Other (please specify): _____
6. How long have you lived in the United States? a. All my life b. _____ year(s)
7. How many of your parents were born in the U.S.? 0 1 2
8. If you are an American citizen, permanent resident, or have a green card, what is your racial/ethnic background? If you identify with more than one racial or ethnic group, please circle/write all that apply.
 - a. White/Caucasian b. African American c. Asian American
 - d. Hispanic/Latino e. Native American
 - f. Other (please specify): _____
9. If you are an international student, what is your ethnic background? If you identify with more than one ethnic group, please write all that apply.

10. What is/are your native language/s? (the language/s you speak at home)

11. What year are you currently in (check one):
 - ____ Freshman
 - ____ Sophomore
 - ____ Junior
 - ____ Senior
12. Major _____

Appendix C: Hand-Digit Display



Appendix D: Experimental Directions, Readings, and Questionnaires

On the next page is a passage selected from the SAT. Extend **Digit B** and move your finger through the sensor in time with the beat while reading the passage. Try to ensure that your finger passes in front of the laser sensor each time. After reading the passage, answer the questions on the following pages. **Do not** reread the passage once you have turned it over. Once you have read and understand these instructions, you may turn the page and begin.

Frank Bowers, have you ever heard of him? He is the questionable figure who supposedly survived three doomed ships in the 1900's. Some consider him one of the luckiest men alive. He was touted to be a middle-aged fireman in the engine room. Some considered him an ordinary, hardworking person, but he had the ability to avoid dying in some of the most horrendous ocean liner accidents ever recorded.

He was said to have once been a crewmember on the *Titanic* at the time that the ship hit the iceberg. Two years later, he was working on the *Empress of Ireland* when she collided with the *Storstad*. Over one thousand people died in that disaster. He was then employed in May of 1915 on the *Lusitania* when it was hit by a U-20 torpedo. He apparently lived through that without a scratch as well. If you are beginning to doubt this man's existence, you are probably not too far from the truth. No records have been found ever listing a man by Frank Bowers working on any of the three ships.

The legend of Frank Bowers seems to be another case of an urban folk tale, humanity's desire to see triumph over a tragic situation. Fact or fiction, Frank Bowers is one of the multiple characters that help color the history books.

---Once you have turned this page over, **do not** look at it again---

Frank Bowers was *hardworking*:

1 **2** **3** **4** **5** **6** **7** **8** **9** **10** **11**

disagree **agree**

Frank Bowers was *considerate*:

[illegible]

Frank Bowers was *unfriendly*:

1 **2** **3** **4** **5** **6** **7** **8** **9** **10** **11**

disagree **agree**

Frank Bowers was *ordinary*:

1 2 3 4 5 6 7 8 9 10 11
 disagree _____ agree

Frank Bowers was *hostile*:

1 **2** **3** **4** **5** **6** **7** **8** **9** **10** **11**

disagree **agree**

Frank Bowers was *lucky*:

1 **2** **3** **4** **5** **6** **7** **8** **9** **10** **11**

disagree **agree**

How much did you *like* Frank Bowers?

1 2 3 4 5 6 7 8 9 10 11

not at all very much

This article implies that *The Lusitania* was a:

- a.) Torpedo Boat
- b.) Zeppelin (blimp)
- c.) Ocean Liner
- d.) Train

The title of this article could be:

- a.) "Frank Bowers, a Man of Mystery"
- b.) "Surviving the Impossible"
- c.) "The Legend of Frank Bowers Debunked"
- e.) "Adrift at Sea"

Answer the following questions about movements you made while reading the passage.

How *difficult* were the movements:

1	2	3	4	5	6	7	8	9	10	11
easy					difficult					

How *distracting* were the movements:

1 2 3 4 5 6 7 8 9 10 11
not distracting **very distracting**

On the next page is a passage selected from the SAT. Extend **Digit C** and move your finger through the sensor in time with the beat while reading the passage. Try to ensure that your finger passes in front of the laser sensor each time. After reading the passage, answer the questions on the following pages. **Do not** reread the passage once you have turned it over. Once you have read and understand these instructions, you may turn the page and begin.

Pandas live in the bamboo forests of central China. There are currently 1600 giant pandas in the wild. Ever since the giant panda was discovered in the middle of the nineteenth century, a controversy has raged over its relation to other species. While the general public tends to view the giant panda as a kind of living teddy bear, biologists have not been sure how to classify this enigmatic animal. At different times, the panda has been placed alternately with bears, with raccoons, and in its own family.

The analysis of the panda's traits has raised more questions than it has answered. The panda may look like a bear, for example, but its appearance could just be an analogous trait; the panda also has many traits that bears do not possess. It has a more massive jaw than a bear since its diet consists primarily of bamboo. Giant pandas also have thumbs like raccoons that are used to strip leaves from bamboo stalks. Bears do not have a similar digit. Furthermore, most bears growl or roar, but giant pandas bleat.

Progress has been made on the panda mystery only through examination of its genetic material. Using a technique known as DNA hybridization, biologists have demonstrated that the giant panda is indeed a relative of the bear, but the relationship is distant indeed. Their most recent common ancestor lived over fifteen million years ago.

---Once you have turned this page over, **do not** look at it again---

Opposable thumbs are very important to Pandas:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

Pandas are *loud*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

Pandas are *sociable*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

Pandas *eat bamboo*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

Pandas are *territorial*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

Pandas are *intelligent*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

How much did you *like* Pandas?

1 2 3 4 5 6 7 8 9 10 11
not at all **very much**

In what way are Panda's the same as Bears?

- a.) Their jaw size
- b.) The sounds they make
- c.) Their hands
- d.) Their body shape

How long ago did the most recent common ancestor of Pandas and Bears live?

- a.) 10 million years ago
- b.) 15 million years ago
- c.) 25 million years ago
- d.) The article did not say

Answer the following questions about movements you made while reading the passage.

How *difficult* were the movements:

1	2	3	4	5	6	7	8	9	10	11
easy					difficult					

How *distracting* were the movements:

1	2	3	4	5	6	7	8	9	10	11		
not distracting											very distracting	

On the next page is a passage selected from the SAT. Extend **Digit E** and move your finger through the sensor in time with the beat while reading the passage. Try to ensure that your finger passes in front of the laser sensor each time. After reading the passage, answer the questions on the following pages. **Do not** reread the passage once you have turned it over. Once you have read and understand these instructions, you may turn the page and begin.

I ran into my old acquaintance Donald the other day, and I decided to go over and visit him, since by coincidence we took our vacations at the same time. When I got there, he told me that he had been meaning to call me since we met but had lost my phone number.

Soon after I arrived, a salesman knocked at the door, but Donald refused to let him enter. He also told me that he was refusing to pay his rent until the landlord repaints his apartment. We talked for a while, had lunch, and then went out for a ride. We used my car, since Donald's car had broken down that morning, and he told the garage mechanic that he would have to go somewhere else if he couldn't fix his car that same day.

We went to a park for about an hour and then stopped at the shopping mall. I was sort of preoccupied, but Donald bought some small gadget in one of the stores and then I heard him demand his money back from the sales clerk. I couldn't find what I was looking for, so we left and walked to another store. In the mall, the Red Cross had set up a stand. When we passed they asked us to donate blood. Donald smiled and said that he had diabetes and therefore could not give blood. It's funny that I hadn't noticed it before, but when we got to the store, we found that it had gone out of business.

It was getting kind of late, so I took Donald to pick up his car and we agreed to meet again as soon as possible.

---Once you have turned this page over, **do not** look at it again---

Donald was *hostile*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

Donald was *intelligent*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

Donald was *considerate*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

Donald was *unfriendly*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

Donald was *honest*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

Donald was *boring*:

1 2 3 4 5 6 7 8 9 10 11
disagree **agree**

How much did you *like* Donald?

1 2 3 4 5 6 7 8 9 10 11
not at all **very much**

Which of the following place did Donald *not* go to?

- a.) The garage
- b.) The mall
- c.) The post office
- d.) The park

Why did the narrator go and visit Donald?

- a.) So they could go shopping.
- b.) Because they had their vacations at the same time.
- c.) Because Donald didn't have a car.
- d.) Donald's store went out of business.

Answer the following questions about movements you made while reading the passage.

How *difficult* were the movements:

1 2 3 4 5 6 7 8 9 10 11
easy **difficult**

How *distracting* were the movements:

1 2 3 4 5 6 7 8 9 10 11
not distracting **very distracting**

The following questions are about how you *feel* right now. Please answer each question as best as you can. If you are not sure, just guess.

Right now I feel....

Alert:

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
not alert					very alert					

Irritable:

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
not irritable					very irritable					

Confident:

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
not confident					very confident					

Happy:

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
unhappy					very happy					

Uneasy:

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
at ease					very uneasy					

Appendix E: Mother Measure of Importance

M. M. I.

Please answer your agreement to the following statements on a scale from 1-10. One (1) being not true at all, and ten (10) being completely true.

Example:

_____ I consider my mother's feelings prior to making decisions in my personal life.

Answer the next 10 statements as you did in the example. (1-10 scale)

_____ I have very negative feelings toward my mother.

_____ I strive to make my mother proud.

_____ I feel very indebted to my mother.

_____ I do not seek my mother's approval in my decisions about my education.

_____ I do not ask my mother for guidance.

_____ I chose not to date people that my mother would not approve of.

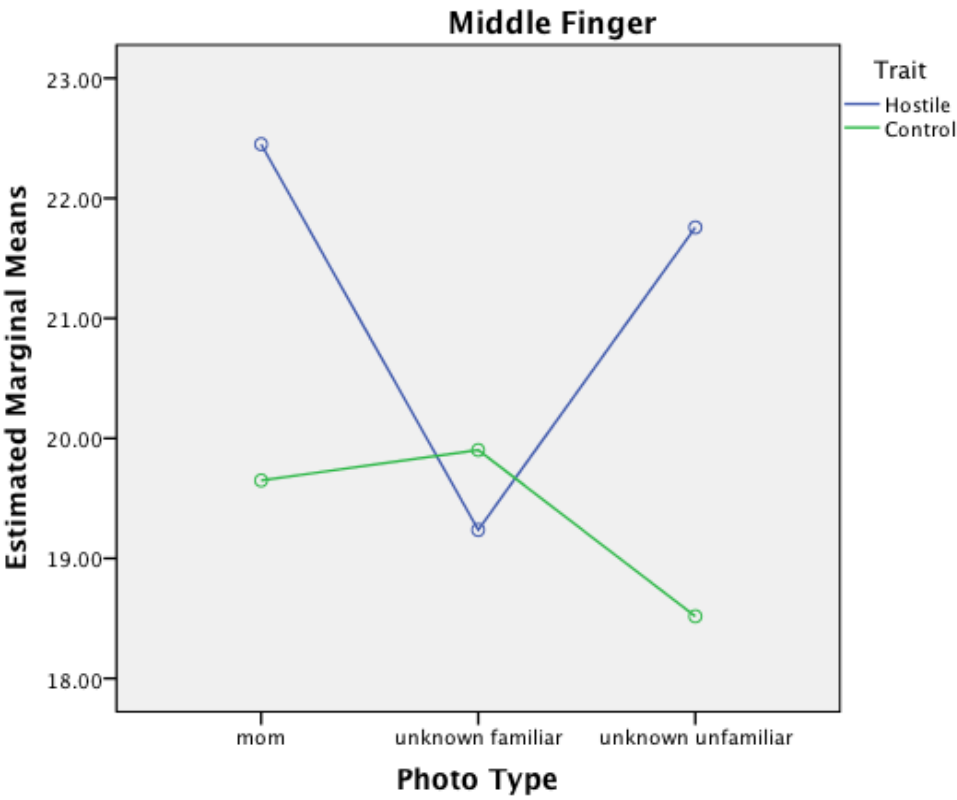
_____ I have not considered my mother's opinion while selecting my future career.

_____ My mother has been my greatest supporter.

_____ My mother has not supported me very well throughout my life.

_____ I want to help take care of my mother in the same ways she has taken care of me.

Appendix F: Graph Depicting Means for Middle-Finger conditions



Appendix G: Graph Depicting Means for Ring-Finger Conditions

