

THE RELATIONSHIP BETWEEN CHINESE COLLEGE STUDENTS' LEVEL OF
GRATITUDE, MORAL JUDGMENT DEVELOPMENT AND
INDEBTEDNESS ON PROSOCIAL OUTCOMES

by

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ABSTRACT

Gratitude as an important construct of moral emotions drew great attentions of scholars' across the world in the last few decades. In Asian cultures, especially Chinese culture, gratitude is one of the moral norms that have been discussed since the ancient time. Gratitude, which involves one's reasoning process, was reported to promote prosocial tendencies or behavioral responses (Zhao, 2010; Cohen, 2012; McCullough & Tsang, 2004a). Moral judgment, which enables individuals to tell what is right, may affect gratitude and prosocial outcomes through the reasoning process. However, few empirical studies addressed the relationship between moral judgment and gratitude. Furthermore, the previous study found only indebtedness, which is stem from gratitude, was significantly correlated with moral judgment indices (Liu & Thoma, 2013). Therefore, it was reasonable to examine how moral judgment affects gratitude and prosocial outcomes through indebtedness.

This study attempted to examine if three manifestations formed gratitude as one latent variable, to determine the relationship between gratitude and prosocial outcomes; to test how moral judgment and indebtedness worked together by forming a cluster variable; and to figure out if moral judgment and indebtedness influenced gratitude and prosocial outcomes. Three manifestations of gratitude were measured by three scales respectively. Emotional gratitude, emotional indebtedness and behavioral responses were measured after participants recalled their most grateful experiences.

The results revealed that three manifestations can be merged to measure gratitude as one single latent variable. Gratitude was found to significantly influence helping tendencies only in the path model. The k-means clustering method was used to group moral judgment and indebtedness indices and $k = 3$ was identified as an ideal option. In the moderation model, the interaction effect was reported to be significant which indicated that moral judgment and indebtedness did moderate the way how gratitude affected prosocial outcomes. Cluster MN and P were reported to have significant interaction effects. It meant that grateful people, who preferred Maintaining Norms schema and Post-conventional schema, tend to help others. Alternatively, for those who preferred personal interest schema, their gratitude and prosocial outcomes were not related.

DEDICATION

This dissertation is dedicated to everyone who helped me through the whole process of creating this manuscript. In particular, this is dedicated to my family, my committee chair, committee member, graduate school staff, and friends who supported and guided me to complete the dissertation.

LIST OF ABBREVIATIONS AND SYMBOLS

<i>a</i>	Cronbach's index of internal consistency
<i>β</i>	Standardized path coefficient
<i>CFI</i>	Comparative fit index
<i>df</i>	Degrees of freedom
Δ	Delta: difference in values
<i>F</i>	Fisher's <i>F</i> ratio: A ratio of two variances
<i>GFI</i>	Computed value of Goodness-of-fit (an index of model fit between the hypothesized model and the observed covariance matrix)
<i>M</i>	Mean
MN	Moral judgment index: maintaining norms score
<i>N</i>	Sample size
<i>p</i>	<i>p</i> -value: Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
<i>PI</i>	Moral judgment index: personal interest score
<i>P</i>	Moral judgment index: post-conventional score
<i>r</i>	Pearson product-moment correlation
<i>RMSEA</i>	Root means squared error of approximation
<i>SD</i>	Standard deviation
<i>SRMR</i>	Computed value of Standardized Root Mean Residual
<i>T</i>	Computed value of regressive relationship in structural equation modeling model
χ^2	Computed value of Chi-square

< Less than

> Greater than

= Equal to

Δdf Computed value of difference between two degrees of freedom

$\Delta \chi^2$ Computed value of difference between two Chi-squares

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CHAPTER I: INTRODUCTION

Increased attention has been given to gratitude, not only because feeling grateful to people around, to God or the Cosmos, was a major part of spiritual life in many cultures and religions (Tsang, Schulwitz, & Carlisle, 2012; Harpham, 2004) or it promoted one's well-being and social relationship (McCullough, Emmons, & Tsang, 2002; Algoe, Kurtz, & Hilaire, 2016), but also because gratitude was identified as important in moral development (McCullough, Kilpatrick, Emmons, & Larson, 2001; Shelton, 2004). In Eastern cultures, gratitude was recognized as a virtue that has been highly expected since ancient times though indebtedness has always been accompanied (Zhao, 2010; Wang, Wang, & Tudge, 2015). However, few empirical studies have addressed the relationship among gratitude, indebtedness, moral judgment and prosocial tendency or behaviors, especially with the Eastern population. The aims of this study were to examine how each definition manifests gratitude and to test the relationship among gratitude, indebtedness, moral judgment and helping tendencies or behaviors by using the established measures with Chinese samples.

The role of gratitude in human functioning and development had been discussed for centuries across various disciplines including philosophy, sociology, anthropology, religion, psychology, psychiatry, and education, etc. (McCullough, Emmons, & Tsang, 2002; McCullough et al., 2001, Emmons, 2004). According to Western philosophers, such as Cicero, Seneca, and Adam Smith, gratitude was the essential virtue that enables people to become a better person – “not only the greatest of virtues, but the parent of all the others” (Cicero, as

quoted in McCullough et al., 2001, p. 249; Harpham, 2004). In Eastern culture, gratitude had been considered as a primary virtue that maintained an adaptive and harmonious social relationship. Also, it has been highly expected in a moral society – “the gift of a single drop of water yields a foundation of gratitude” (The Folk Philosophy, Zhu Family Disciplines) and “Forget injuries, never forget gratefulness” (Chinese proverb). Ingratitude was even identified as a top vice. Moreover, lacking of gratitude was claimed as the primary cause of problems found in social and interpersonal relationships. For example, the decline of filial piety was considered a result of a failure of gratitude cultivation in China (Li, 2014).

Based on Kohlberg’s thoughts, virtue was “a bag of arbitrarily chosen character traits” and “the meaning of virtue words was relative to conventional cultural standards and was hence ethically relative” (Lapsley, 1996, p. 207). Moral virtues, in particular, were “states of characters” or dispositions that lead human beings to act well (Lott, 2012, p. 407). Moreover, gratitude was found to be a virtue that would make people live well (Emmons, 2009). The two-item subscale of the Ideal Moral Self Scale adopting 20 moral traits that best described a moral person was used to measure the virtuous gratitude (Hardy et al., 2014).

Having been defined as an emotional disposition, the positive function of gratitude had been gradually recognized in recent studies and it became a primary member of positive psychology (McCullough et al., 2002; Fredrickson, 2004; Algoe, Haidt, & Gable, 2008). Besides the contribution to one’s personal growth (e.g., the positive correlation with personalities of agreeableness, openness, extraversion, and conscientiousness and the adaptive coping; good prediction for general and academic well-beings; and the association with happier, more satisfying and less stressful life) gratitude, which indicated a sincerely positive reaction in interpersonal experiences, cultivated positive attitudes towards life and social interactions

(Anderson, Giacalone, & Jurkiewicz, 2007; McCullough et al., 2002; Watkins, Woodward, Stone, & Kolts, 2003; Wood, Maltby, Gillett, Linley, & Joseph, 2008a). It took effect by developing recipients or beneficiaries' perceptions of social support, sense of belonging; increasing altruistic and prosocial behaviors; maintaining harmonious close relationships; reinforcing the moral-related actions; and promoting one's transpersonal world – spiritual and religious lives (Algoe, Gable, & Maisel, 2010; Bartlett & DeSteno, 2006; Bonnie & Waal, 2004; Lombardi, 1991).

The moral function of gratitude was demonstrated by how it promoted moral-related tendencies or behaviors (Tsang, 2006a; Mikulincer & Shaver, 2010). According to Haidt (2003), either emotions that were elicited by moral transgression or emotions that were followed by moral actions or tendencies could be conceptualized as moral emotions. McCullough and his colleagues (2001) posited that gratitude can be identified as a moral emotion based on its three functions – moral barometer (be sensitive to one's kindness), moral motivator (fostering prosocial behaviors), and moral reinforcer (recipient's expression of gratitude increased the helper's prosocial behavior). In other words, the moral function of gratitude can be studied through the relationship of recipient's gratitude and his or her moral behaviors or action tendencies toward others (e.g., the tendency to help others; behavior response to the helper).

Various manifestations were created to describe different perspectives of gratitude. Interestingly, the popular notions of gratitude (e.g., gratitude as a virtue; or dispositional emotion; moral emotion) were found to be rooted in morality (Shelton, 2004). Usually, a grateful experience involved three components – recognizing the kindness, positive emotions or reactions, and active responses or behaviors towards the helpers (Fitzgerald, 1998). The gratitude-prosocial relationship could be examined by following the three steps.

Moral judgment, which was a reasoning process that enabled individuals to determine which is right, may affect one's perception of the grateful experience. This experience might be elicited by moral behaviors or would motivate prosocial tendencies or behaviors (Rest, 1986; Haidt, 2003).

Indebtedness, as an obligation for recipient to return a favor to the helper, was derivative from gratitude (Tsang, 2006b). The Chinese population was expected to have a high indebtedness since Chinese culture highlighted the obligation or responsibility to repay the helper. Though indebtedness was proved to be an independent construct (Zhao, 2010), indebtedness might still affect the relationship between gratitude and helping tendency or behavior. Also, a study conducted by Liu and Thoma (2013) found that there was a significant correlation between moral judgment and obligated feelings. It indicated that indebtedness might influence the relationship between gratitude and moral judgment.

Since the significant correlation was only found between indebtedness and moral judgment indexes (Maintaining Norms index), and moral judgment was not reported to have direct effects on gratitude, it was reasonable to see how moral judgment and indebtedness together affect the moral function of gratitude – the relationship between gratitude and helping tendencies or responsive behaviors. It was more likely that moral judgment affected the gratitude-helping tendency/behavior relationship through indebtedness. To find out how indebtedness and moral judgment worked together, k-means clustering method can be used to better capture the characteristics of each group with the different level of indebtedness and moral schemas. For example, cluster 1 could be grouped with individuals who were scored high on indebtedness and low on Maintaining Norms index and cluster 2 would include observations scored low on indebtedness and high on Maintaining Norms index, etc. After categorizing the

observations into groups based on moral judgment indices and indebtedness scores, the cluster variable then could be treated as the categorical variable which might moderate the relation between gratitude and the prosocial outcomes (helping tendency or behavioral responses).

Statement of the Problem

Noticed by Berger (1975), scholars started to realize the important role that gratitude plays in one's moral life. But the moral function had not been sufficiently stressed in the last few decades. Even though researchers like McCullough, Emmons, Kilpatrick, and Larson (2001) and Haidt (2003) identified the moral function of gratitude as a moral emotion, there were few empirical studies examining how gratitude affected other moral constructs. On the basis of Piaget's and Kohlberg's moral development theories, research of moral judgment had taken the dominant position. Morality enabled people to make sense of the world by judging which is right and which is wrong. Moral reasoning was to conceptually guide individuals to make decisions and take actions in different life situations. Individuals' moral behaviors or tendencies were led by their moral cognition. Nevertheless, moral behaviors were found to not only be affected by moral judgment but also emotions or compassions that were accompanied with reasoning (Rest, Narvaez, Bebeau, & Thoma, 1999a; Derryberry & Thoma, 2005; Thoma, Rest, & Davison, 1991). Feelings, attitudes, cognitive awareness and actions initiated by or leading to gratitude were related to one's moral development. Bartlett and DeSteno (2006) posited that gratitude somehow mediated one's prosocial behavior. Tsang (2006a) supported the claim in a laboratory experiment that gratitude motivated recipients who were benefited to behave prosocially towards the helper. A grateful experience involved cognitive processing, emotional reaction, and the followed behaviors. However, many gratitude studies focused on its nature as a positive emotion and social emotion. The cognitive perspective of gratitude "aroused by moral judgments" was

under-estimated (Buck, 2004, p. 109). It meant that little empirical evidence explained how gratitude and moral judgment were related. Liu and Thoma (2013) tried to test the relationship between gratitude and moral judgment with the participants recruited from a mid-sized university in the United States. Few significant results were found with the participants who were Caucasian, African American, and Latinos. But individuals, who preferred the Maintaining Norms schema, tend to agree more on the statement of obligated feelings (e.g., “I feel that I have the obligation to repay people who helped me”). Therefore, it is important to examine how moral judgment influences gratitude and prosocial behavior or tendency in China where gratitude had been highly praised and maintaining norms was important in moral development (Li, 2014; Cheung & Pan, 2006).

In many Asian cultures, gratitude is an important “social value” which contributed to one’s moral development and religious beliefs (Naito, Wangwan, & Tani, 2005). Confucianism emphasized the importance of gratefulness by enforcing the acknowledgement of repayment to benefactors. Failing to be grateful was against the four fundamental virtues (loyalty, filial piety, chastity, and righteousness) in Chinese ancient society and was also against the social expectation in a modern reciprocal relationship (Zhao, 2010).

Although the emphasis of virtues might vary in modern society, the core Chinese ethical principles including filial piety and loyalty, which indicated a high requirement of gratitude (filial piety reflects one’s gratefulness towards parents; and loyalty refers to one’s faithful and grateful feeling towards the authority or supervisors), were still recognized as social norms or even moral norms. However, some researchers pointed out that the younger generation was lacking of gratitude which might threaten one’s interpersonal, family and social relationships, and moral development (Li, 2014; Wang, Wang, & Tudge, 2015). Furthermore, Naito (2005) and

his colleagues found that gratitude of Eastern populations was usually associated with high indebted feelings and the level of indebtedness varied by different recipient-helper relationships. For example, both Japanese and Thai college students were reported to have the highest level of indebtedness toward strangers rather than friends or parents. Gender differences were also identified for both gratitude and indebtedness. Male students were reported to be more indebted and less positive while reading the same grateful scenarios.

Since gratitude and its associated construct, indebtedness, played such important roles in Asian society, the moral function of gratitude and its relationship with other moral constructs need to be further explored, especially with the Chinese population which could be a good representative of Eastern populations.

Purpose of the Study

Many studies have been done to examine the positive function of gratitude on general and academic well-being, and in a reciprocal relationship (McCullough et al., 2002; Emmons & McCullough, 2003; Adler & Fagley, 2005; Froh, Sefick, & Emmons, 2008; Froh, Yurkewicz, & Kashdan, 2009). With the increasing interests on gratitude, the moral function of gratitude has been gradually explored (McCullough et al., 2001; Shelton, 2004). Previous research confirmed that gratitude promoted prosocial behavior and altruism (Haidt, 2003; Shelton, 2004; Tsang, 2006a; McCullough et al., 2001; McCullough, Kimeldorf, & Cohen, 2008). Notwithstanding, most studies focused on Western populations and those conducted with Asian populations did yield cultural differences in results – a high level of indebtedness and gender difference in the results (Zhao, 2010; Naito et al., 2005).

Moreover, the study of moral judgment was the main trend in the morality research. However, few empirical studies examined the moral functions of gratitude and its relationship

with moral judgment. The pilot study which recruited US participants (Liu & Thoma, 2013), found few significant results except for the positive correlation between recipient's preference of Maintaining Norms schema and recipient's obligated feelings towards the helper. Additionally, the moral function of gratitude was demonstrated by promoting prosocial behaviors, helping tendency and behavioral responses toward the helper (Greater Good Science Center, 2012; Cohen, 2012; Zhao, 2010). Indebtedness, as a highly correlated (indebtedness occurred when benefits were received from the helper) but independent construct from gratitude, might influence the effects of gratitude on helping behaviors or tendencies (Zhao, 2010). The results found in the prior study (Liu & Thoma, 2013) implicated that moral judgment might affect the gratitude-helping tendency/behavior relation by working through indebtedness. It meant that moral judgement might not affect the gratitude-prosocial relation without engaging indebtedness. Furthermore, the effects of gratitude on prosocial outcomes were determined by its cognitive process – perceiving and understanding the good deeds from the helper (Bartlett & DeSteno, 2006; Tsang, 2006b).

Considering the multiple definitions of gratitude and the connections between gratitude, indebtedness, prosocial outcomes, and moral judgment, this study attempted to test how gratitude is manifested as one latent variable by engaging three different notions of gratitude; to look at the main effects that gratitude has on prosocial outcomes; to form a categorical variable by grouping observations on the basis of moral judgment indexes and indebtedness scores; and to test the interaction effects of the moral judgment-and-indebtedness cluster variable on the relationship between gratitude and prosocial outcomes.

Overview of the Constructs and Research Design in the Study

In order to find out the relationship between gratitude, indebtedness, moral judgment, and prosocial outcomes, it was important to explore people's understanding of gratitude first.

Participants' gratitude was examined from three aspects: dispositional emotion, situational emotion, and virtuous gratitude. After finishing several demographic questions, they were asked to take self-reporting scales that measured gratitude as a dispositional emotion and a moral virtue respectively. The scale for emotional gratitude was included in the last section of the survey package. Gratitude Questionnaire-6 (GQ-6) (McCullough, Emmons, & Tsang, 2002) was used to measure gratitude as a dispositional emotion; the two-item subscale of gratefulness in Moral Ideal Self Scale (MISS) was used to measure virtue gratitude; and the emotional state of gratitude was measured by the Gratitude Adjective Checklist (GAC) (McCullough, Emmons, & Tsang, 2002).

Then, participants responded to the indebtedness items from the Gratitude and Indebtedness Questionnaire-12 (GIQ-12) (Zhao, 2010) and the Helping Tendencies Check List (Zhao, 2010), which assessed participants' tendencies to help other people. The moral emotion function was explored by looking at the relation between gratitude and prosocial outcomes. Hereafter, moral judgment would be measured by the Defining Issues Test Version 2 (DIT-2) (Rest, Narvaez, Thoma, & Bebeau, 1999b) and only three stories out of five were used in the questionnaire.

Finally, to measure the emotional state of gratitude, participants were required to recall their most impressive grateful experience in details and to take the associated scales right after that. In the recalling process, participants were asked to describe the most "thankful, appreciative, or grateful" helper and experience in their memory by filling the General

Information Questionnaire and then they reported how they interpreted and reacted to the helper's good deeds by completing the select items from the Behavioral Responses to Benefits Checklist (Cohen, 2012). Also, two items of indebtedness were used to measure the emotional indebtedness after they recalled the most grateful experience.

Theoretical Model

The moral function of gratitude has been highlighted by many researchers in the last decade and the most popular notions of gratitude were identified as dispositional gratitude, virtuous gratitude and emotional gratitude (McCullough et al., 2002; Emmons, 2009; Carr, 2015; Emmons & McCullough, 2003; Fredrickson, 2004; Gulliford, Morgan, & Kristja'nsson, 2013; Kristja'nsson, 2015). As the moral emotion, gratitude was reported to correlate with prosocial behaviors, helping tendencies, active behavioral responses, such as interpersonal relation improvement (McCullough et al., 2001; Zhao, 2010; Bartlett & DeSteno, 2006; Tsang, 2006b; Cohen, 2012; Algoe, Gable, & Maisel, 2010; DeSteno, et al., 2010). The moral functions of gratitude as a "moral barometer", "moral motivator" and "moral reinforcer" were conceptually related to moral judgment, moral sensitivity, moral motivation and moral implement (McCullough et al., 2001; Shelton, 2004; Rest, 1979). The study of moral judgment has been the main focus in moral development research and moral judgment was found to be correlated with indebtedness, an independent variable that was derived from gratitude (Liu & Thoma, 2013). Therefore, there is a conceptual assumption that moral judgment might affect the relationship between gratitude and helping tendency through indebtedness. The study was built on the conceptual model based on the assumptions mentioned above (see Figure 1). The three notions were commonly used and could represent the moral features of gratitude: dispositional gratitude, emotional (state level) gratitude, and virtuous gratitude. The relation between gratitude and

helping tendencies or behavioral responses to the helper was tested to justify the moral function of gratitude as a moral emotion.

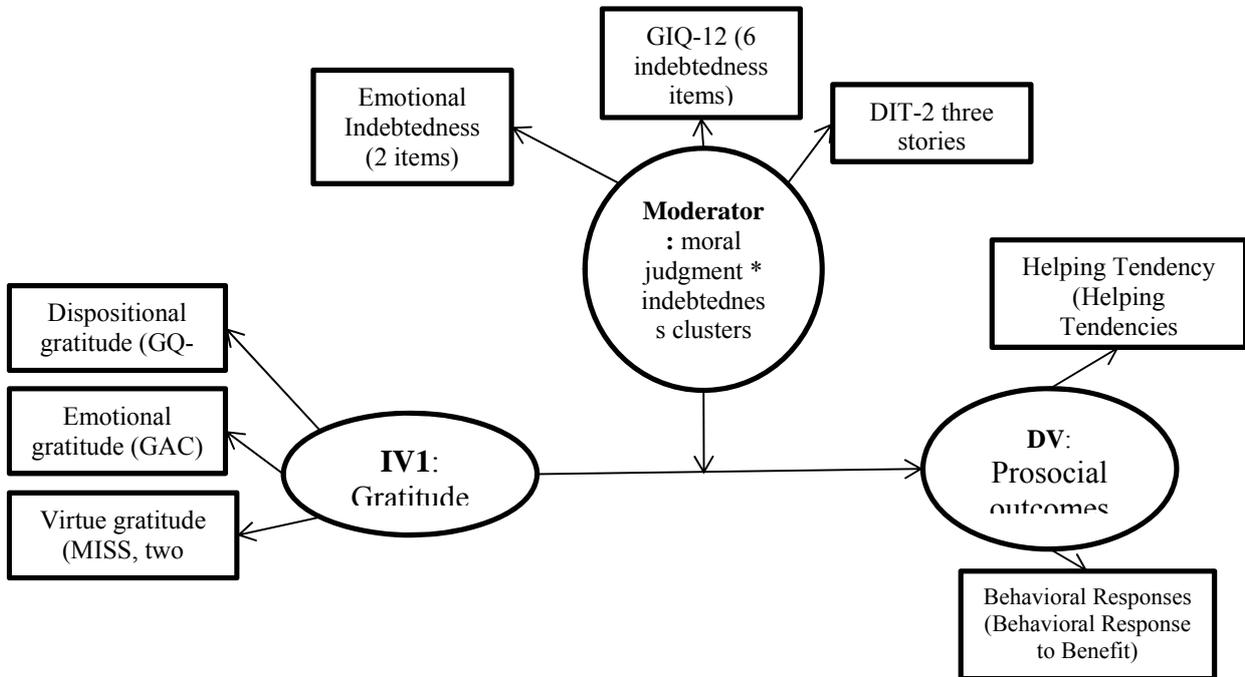


Figure 1. Conceptual model

Similar to gratitude, indebtedness was demonstrated by two observed variables: state level of indebtedness (2 items that were used in the study of Liu & Thoma, 2013); and dispositional indebtedness (6 items from GIQ-12). Working separately, neither indebtedness nor moral judgment can effectively explain the cognitive component of gratitude or the relationship between gratitude and prosocial outcomes. To capture the characteristics of both indebtedness and moral judgment for each observation, the k-means clustering method, which simply divided the observations by locating the centroids in each cluster, would be used.

The dispositional indebtedness and emotional indebtedness scores, P score (representing the post-conventional schema) and MN score (reflecting the maintaining norms schema) would be included for clustering. When examining the interaction effects of indebtedness and moral

judgment together, gratitude is the independent variable, prosocial outcomes becomes the dependent variables.

The primary focus of the study was to test how three manifestations contribute to gratitude as one latent variable; to examine the relation between gratitude and prosocial outcomes; and to find out if moral judgment and indebtedness together moderate the relation between gratitude and prosocial outcomes. The prosocial outcomes were displayed by two observed variables: the helping tendencies and behavioral responses toward a particular helper. The helping tendencies reflected one's general willingness to help others; whereas, the behavioral responses focused on one's situational responses toward a specific helper.

Research Questions

Question one asked if the three different gratitude variables, dispositional gratitude, emotional gratitude and virtue gratitude, manifest gratitude as a single form latent variable or each has its uniqueness. Although three manifestations emphasized different aspects of gratitude, they somehow overlapped conceptually. Moral virtue was a trait or psychological disposition that enabled good states of human beings and was exhibited in actions (Hartman, 2015; Carter, 2011). As a trait or moral virtue, gratitude promoted moral or prosocial tendencies or behaviors (Carr, 2015). On the other hand, dispositional gratitude and emotional gratitude shared the emotion part. Moreover, each notion of gratitude was found to be correlated with prosocial outcomes (Bartlett, & Desteno, 2006; Zhao, 2010). Therefore, confirmatory factor analysis would be used to assess gratitude as a latent variable.

Question two asked if gratitude can affect the helping tendency or behavioral responses. As a moral emotion, the moral function of gratitude can be identified through its relationship with the prosocial outcomes. It was reported that gratitude promoted individuals' helping

tendencies and was associated with the active behavioral responses, such as expressing gratitude to the helper or doing a favor to the helper, etc. (Zhao, 2010; Cohen, 2012; Grant & Gino, 2010). The structure equation modeling was used to test the relationship between gratitude and helping tendency or responses to the helper.

Question three asked if each cluster can represent the unique characteristics of observations with different levels of moral judgment and indebtedness. The previous study of gratitude and moral judgment with US samples indicated that moral judgment was significantly correlated with one's perceived obligation feelings (Liu & Thoma, 2013). Also, indebtedness might affect the way how gratitude influences prosocial outcomes, behavioral responses or helping tendencies, even though indebtedness was derivative from a grateful experience (Tsang, 2006b; Cohen, 2012). However, moral judgment might not have direct effects on gratitude or grateful-and-prosocial relationship alone (Liu & Thoma, 2013) but might take affect while working with indebtedness. To better reflect the features of both variables and the way how moral judgment and indebtedness work together on gratitude-and-prosocial relationship, observations were assigned to different clusters and for each cluster, observations had data points to be nearest to the "centroid" in this cluster. Similar characteristics of indebtedness scores and moral judgment indexes would be shared. For example, in one cluster, observations might share the features with a high P score (moral judgment index, reflecting post-conventional schema), high MN score (maintaining norms schema) and low dispositional indebtedness and emotional indebtedness. And in this particular cluster, participants' gratitude and the way how gratitude affected prosocial outcomes would be different from those in another cluster. K-means clustering method would be used to generate the question because it could effectively serve the "prototype"

for each cluster with few limitations and produce tighter clusters than hierarchy clustering (Improved Outcomes Software, IBM).

Question four asked if the cluster variable does (formed by moral judgment and indebtedness indexes) moderate the relationship between gratitude and prosocial outcomes. The way how individuals made decisions in moral situations would affect their moral responses or tendencies toward others. The grateful experience involved recipients' perceptions of moral actions, emotions and responses. The cognitive process of gratitude might somehow overlap with the moral reasoning process. However, the underline influences of moral judgment on gratitude and its relationship with prosocial outcomes might have to work through indebtedness.

It was also proved by the previous research that indebtedness functioned differently from gratitude, though it was incited by gratitude (Cohen, 2012; Tsang, 2006b; Zhao, 2010). Furthermore, indebtedness, defined as an obligation to repay the helper, was reported to be correlated with moral judgment (Liu & Thoma, 2013). Hence, instead of including two moderators which might not work effectively, the current study examines the interaction effects of moral judgment and indebtedness working together as one categorical moderator, on the relationship between gratitude and prosocial outcomes.

Significance of the Study

As recognized by the researchers, the influence of emotion started to emerge in the morality research. Even though moral judgment was still holding the primary position, multiple dimensions, such as moral emotion or moral virtue, was brought into the field. Gratitude, as an important member of positive psychology and moral emotion family, had been studied in multiple perspectives. The positive function, like promoting one's well-being, achievement, personal growth, social interaction, and even moral development, had been confirmed by a

growing number of empirical evidence. According to the Gratitude Survey Conducted for the Johns Templeton Foundation (2012), the power of gratitude had taken in effects widely across different areas, including public health, education, counseling, psychiatric clinics, and even business or workplace. Therefore, exploring the relationship among gratitude, moral judgment and other moral constructs might help with one's moral development and even contributed to moral education by implementing powerful but easily engaged gratitude intervention.

Furthermore, as the rapid development of global economies, there was a big cultural emerge of Eastern and Western society. As a melting pot, American society absorbed a large number of Asian immigrants which still increased. To decode the covered facts of gratitude and moral development by focusing on Chinese population, would help with understanding new immigrants' cultural origins and heritage as well as the thoughts, philosophies, and cultures that they brought to American society. Also, to study gratitude and its moral contribution would be important to different areas which were influenced by Asian cultures.

Limitations

First, the scales including Gratitude Adjective Checklist (GAC), Moral Ideal Self Scale (MISS), Defining Issues Test version 2 (DIT-2)-three story, and Behavioral Responses to Benefit Checklist, in the survey package were originally created in English. They were translated by following the back translation process – the researcher translated the scales into English and then two bilingual psychology instructors translated abovementioned scales from Chinese into English. Even though the surveys were used in pilot studies and showed consistency, the translation accuracy of the measures might still be a potential limitation to this study. The Helping Tendencies Check List and Gratitude and Indebtedness Questionnaire-12 (GIQ-12) were created by Zhao (2010) in Cantonese. To translate it back to Mandarin, not only the traditional

Chinese characters were changed into simplified Chinese characters, but some minor wording changes were made.

Second, while collecting the data, a few seniors and sophomores engaged in the study. So there were few samples for seniors and sophomores, which is a limit to the variety of samples. Moreover, even though k-means clustering method was an effective method in clustering observations with unassigned prototype, it worked better with large dataset. In current study, the dataset might not be large enough to represent each cluster.

Third, the study was totally on a voluntary basis and participants might not complete the study as requested. There was a potential threat for a large number of missing data and inconsistent responses.

Fourth, to maintain the consistency of the measurement, Helping Tendency Check List which is originally a 5-point Likert scale, was changed into 7-point Likert scale. It might limit the power and effects of the scale from the original one.

Organization of the Study

There are five chapters in this study. The first chapter presented the background of the study, the problems that needed to be solved, all constructs that would be involved, the reason why the study was necessary and significant, what was to expect in the study and the limitation. Research questions were also raised up in Chapter I. Chapter II reviews the previous research and literature which helped establish the framework of the study. Research findings and results from the past would be discussed to illustrate why and how the current study would be done. Chapter III explains in details of the methodology – Participants, measures, experiment procedures and analysis methods would be described in this chapter. The results found for each research question would be exhibited in Chapter IV. The final section, Chapter V includes a

discussion of what the results meant and why or why not each research question was solved.

Also, the limitation of the current study and the indication or direction for the further research would be discussed in this chapter as well.

CHAPTER II: LITERATURE REVIEW

This chapter covered previous findings for gratitude, debates on the definitions of gratitude, the role of prosocial outcomes, indebtedness as an independent construct, the development of moral judgment, and connections among those constructs. The literature of gratitude included 1) how it contributed to one's positive personal growth and social relationship supported by empirical evidence; 2) how gratitude was conceptualized from different perspectives; how the moral function could be examined; and 3) how it had been studied in Eastern societies and how indebtedness was associated with it. After that, there is a discussion on Rest's (1986) four components and how gratitude was considered to be related to moral development, especially moral judgment. Then, the connections among gratitude, indebtedness, moral judgment, and helping tendencies or behavioral responses will be further discussed.

Gratitude

Gratitude roots in the Latin word "gratus" which is related to the positive human nature – kindness, graciousness, generousness and the appreciation for others. Unlike other emotions, it always involves two parties or more other than the "self." Gratitude is beneficiary's thankful feeling or appreciative attitude towards others that benefitted them, including people, objects, events or cosmos, etc. When beneficiaries receive benefits from others, benefactors' good intention can be perceived (McCullough, Emmons, & Tsang, 2002; Emmons, McCullough, & Tsang, 2003; Watkins, Gelder, & Frias, 2008).

Even though agreements on how to define gratitude was difficult to be made, Aristotle and Epicurus believed that the expression of gratitude was nothing but the appropriate reactions to certain situations or avoidance attitudes toward negative consequences (Emmons, 2004; Harpham, 2004; Roberts, 2004) or a perceived obligation with indebted feelings (Naito, Wangwan, & Tani, 2005); a growing number of literature suggested that gratitude was an adaptive characteristic not only contributed to individuals' general well-beings such as enhancing life satisfaction, happiness, vitality, optimism, hope and positive affect; facilitating adaptive coping strategies; countering negative states, like depression, and vulnerability (Anderson, Giacalone, & Jurkiewicz, 2007; Fredrickson, 2004; Froh, Yurkewicz, & Kashdan, 2009; McCullough, Emmons, & Tsang, 2002; McCullough, Tsang, & Emmons, 2004b; Watkins, Woodward, Stone, & Kolts, 2003; Wood, Joseph, & Maltby, 2008b; Wood, Maltby, Gillett, Linley, & Joseph, 2008a), but also strengthened positive social interactions by increasing trust, cooperation, altruistic and prosocial behavior, and reducing hostility and materialism (Algoe, Haidt, & Gable, 2008; Bartlett, & DeSteno, 2006; Buck, 2004; McCullough et al., 2002; McCullough, Emmons, Kilpatrick, & Larson, 2001; McCullough, Kimeldorf, & Cohen, 2008; Tsang, 2006a). Furthermore, it was also a resilience to stress – helping people develop adaptive coping strategies (Shelton, Ryan, Rawsthorne, & Ilardi, 1997; Wood, Joseph, & Linley, 2007). In the report of the Gratitude survey conducted for the Johns Templeton Foundation (2012), gratitude was found to be really important and promoted individuals' romantic relationships, family life, and social relationships in the work place. Algoe (2013) and her colleagues found that gratitude not only cultivated the social bonds but also contributed to one's spiritual well-being (Mills et al., 2015). Even more, the expression of gratitude was reported to promote the romantic relations in couples (Algoe & Way, 2014).

Even though people can be grateful to Cosmos, God, or the nature, gratitude happened more often in a dyadic communication which influenced the development of an interpersonal relationship since human beings are a social species. By analyzing the function of gratitude in a reciprocal relationship, it could be recognized as a combination of higher level of emotions: social, cognitive, and moral emotions (Buck, 2004). How an individual perceived the goodness and the sources of the goodness would affect the way how he or she behaves in society or whether he or she would meet the social expectations (McCullough, Kilpatrick, Emmons, & Larson, 2001).

Components of Gratitude

Proposed by Fitzgerald (1998), a grateful experience was not complete if any parts of gratitude were missing. First, the beneficiary should understand and perceive the benefactor's intention as a good one. Second, the beneficiary should have a sincere sense of appreciation or thankful feelings of the benefactor (indebtedness may occur at the same time). Third, the positive reactions or behaviors should be followed after the beneficiary perceived the benefactor's good intention (Bonnie & de Waal, 2004). The first two components could not be separated because the acknowledgement of good deeds directly led to an emotional response. The third component reflected the way one understood gratitude and the way one interpreted the benefactor's intention and the whole grateful experience. For example, if a child helped parents do cleaning as a repayment for the great birthday gift he or she received, then he or she must interpret the parents' intention as a positive one. The third component also reflected the moral function of gratitude – the function as a moral affect. As the “reciprocal altruism” that motivated the beneficiaries to repay the benefactors, gratitude's moral function could be identified either when it was caused by the moral or prosocial actions (e.g., benefactor offering altruistic help) or

when there was moral behaviors or tendencies followed (e.g., helping the benefactor or other people) (Haidt, 2003; McCullough, Kimeldorf, & Cohen, 2008).

Simplified by Emmons (2010), two primary factors must be examined to understand gratitude – gratitude was “an affirmation of goodness” and “the sources of this goodness” had to be recognized. Furthermore, the social dimensions of gratitude were essential because gratitude was a “relationship-strengthening emotion.” It did encourage the appreciation of giving and the action of repaying which affirmed the reciprocal altruism. It was even considered as “the moral memory of mankind” by the sociologist Georg Simmel (Emmons, 2010). All components together make a full grateful experience. Thus, gratitude is a social emotion, cognitive emotion and moral emotion (Buck, 2004; Algoe, Haidt, & Gable, 2008; Froh, Bono, Fan, & Emmons, 2014).

Dispositional versus State Gratitude

The three components of gratitude actually explained two different levels of gratitude: trait level which exhibited one’s grateful feelings consistently in everyday life and state level which involved a temporary or situational experience of cognitive and emotional reactions (Wood, Maltby, Stewart, Linley, Joseph, 2008c). The dispositional gratitude was a “generalized tendency” to recognize a benefactors’ benevolence and to respond with positive outcomes (McCullough et al., 2002, p. 112). The grateful disposition was not only a “tendency to experience a particular affect,” but also reflected one’s attribution towards the cause that led to the positive responses (McCullough et al., 2002, p. 113). Individuals with a grateful disposition tended to extend their attribution to a larger range of external resources besides their own efforts. Dispositional gratitude, measured by Gratitude Questionnaire-6, focused on four different facets: 1) intensity, which indicated that individuals with grateful disposition were expected to have

more intensive positive reactions; 2) frequency, referred to the notion that dispositionally grateful individuals were expected to have more grateful feelings and to feel grateful more easily; 3) span, described the feature that dispositionally grateful persons were expected to have gratitude toward various circumstances in lives (e.g., little incidents happened in life); and 4) density, expected dispositionally grateful individuals to have positive reactions toward a large range of benefactors (e.g., strangers, families, friends, etc.). Through examining multiple facets, grateful disposition was reported to be casually connected to one's positive outcomes, such as well-being and physical health (McCullough et al., 2002; Wood, Froh, & Geraghty, 2010; Tiv, 2014; Mills et al., 2015).

Rosenberg (1998) believed that the affective experience could be structured into three levels and affective trait was on the highest level comparing to the mood and emotion levels. By being put on the highest affective level, gratitude as an affective trait sets the threshold for the emotional states to occur (Rosenberg, 1998, p. 249), while state level of emotions referred to temporary affects or moods that had comparatively longer durations followed by action tendency (Froh, Sefick, & Emmons, 2008; Wood et al., 2008c). The Gratitude Adjective Check List (GAC) (McCullough et al., 2002) was used to measure the state level of gratitude in the current study. Participants were asked to recall the helper and experience that they feel the most "grateful" for and then take the GAC so that their instant emotional state should be reflected. The dispositional gratitude promoted prosocial behavior and it contributed to one's well-being, whereas the state level gratitude tent to increase the reciprocal actions and helping tendencies (Halberstadt et al., 2016; Cohen, 2012). Cohen (2012) adopted the GAC in his study to test recipient's post-experience gratitude (after recalling a grateful experience) and state level gratitude was reported to be positively correlated with urge to reciprocate, verbal reciprocity, and

reciprocal actions. The “urge to reciprocate” was measured by the Action Tendency Scale which asked participants the question, “Right after he or she gave me the gift (or did the favor for me), I felt the urge to...” and then rate the action tendencies items by using a 5-point Likert scale ranging from 1 being not at all to 5 being to a great extent (e.g., thank him/her, do something nice for him/her, etc.). Verbal reciprocity and reciprocal actions were measured by the Behavioral Responses to Benefit Scale which was almost the same with the Action Tendency Scale except the initial question, “Right after he or she did this good thing for me I...” at the beginning. The current study used the Behavioral Responses to Benefit Checklist to measure recipients’ post-experience behaviors or reactions and the items were selected from Cohen (2012)’s Behavioral Responses to Benefit Scale.

Wood and his colleagues (2008c) found that state gratitude and trait gratitude were highly correlated – higher trait level of gratitude was related to more frequent or intensive state level of gratitude. It meant that individuals with high trait level of gratitude should also experience high state level of gratitude. Without the momentary reaction towards the helper’s good intention, individual cannot be recognized as a grateful person (Leung, 2011). As presented by the literature, higher score on the measure of grateful disposition was associated with higher level of life quality, well-beings, positive emotions, better social relationship and even more prosocial tendencies and moral actions towards the helper (McCullough, Tsang & Emmons, 2004b).

However, there was a different finding in Zhao (2010)’s study reporting that emotional gratitude and dispositional gratitude yielded to an inconsistent result. Students with high dispositional gratitude score did not have high emotional gratitude score. Therefore, both dispositional gratitude and state level of gratitude should be included in the measurement model of gratitude.

Gratitude as a Moral Virtue

Referring to Ancient Greek, virtue means moral excellence. It is a positive trait which represents natural goodness and was expected to be attained (Lott, 2012). Moral virtues are generated based on moral principles and norms (Carr, 2015; Narvaez, Gleason, & Mitchell, 2010; Kristja'nsson, 2015).

Some scholars, like Adam Smith or Seneca, believed that gratitude, which built a harmonious society and enhanced the good quality of an individual, was a moral virtue (Harpham, 2004; Wellman, 1999). Wellman (1999) believes that the nature of goodness and social expectation to gratitude focused on one's grateful agent was not merely actions. Ingratitude was treated as a moral deficiency because the ungrateful person not only failed to behave as expected but also had the character flaw that revealed one's values, motivations, or perceptions. Hence, gratitude should be a virtue instead of an obligation. It was a paradox that Western philosophers believed it should be "duty-free." "Gratitude is a duty that ought to be paid, but no-one has a right to expect" (Jean-Jacques Rousseau, quoted by Carr, 2015, p. 1476). On the other hand, some scholars like Berger (1975) claimed that gratitude was an unusual obligation or duty that enhanced the interpersonal relations and moral bonds. The requirement for recipient's positive responses or action toward the helper initiated indebtedness.

Due to the paradoxical feature of gratitude, it was really difficult to measure the virtuous gratitude. Moral Ideal Self Scale described one's desire of being a moral person. Even though, gratitude was not categorized as a virtue in the scale, it still reflected one's recognition and acknowledgement of social expectation or moral value. Furthermore, individuals who believed gratitude was a virtue that standardized his or her daily behaviors may more easily to cultivate a

disposition of gratitude. The assumption was that sub-scores for Moral Ideal Self should be significantly correlated with other gratitude scores in the study.

Gratitude and Indebtedness

Individual might not feel grateful if he or she did not understand the helper's good deeds or interpret the helper's prosocial behavior in a positive way. Buck (2004) proposed that gratitude naturally engaged in a dyadic relationship. The process of giving and receiving benefits involved "issues of equity, reciprocity and obligation" which was related to Piaget's (1932/1948) and Kohlberg's (1964) 'morality of justice'" (p. 101). In the process of recognizing the good intention of the benefactors, the beneficiaries' analytic cognition associated with reasoning would get involved. In fact, the social and cognitive emotion would become a moral emotion aroused by moral reasoning. The "learned expectation" in different situational social contexts involved the consideration of moral rules. The benefactors and beneficiaries would have a mutual perception on whether the social expectations were met. If the moral rules or social expectations were well followed, both parties would experience fairness and equity and the helping or repaying behavior would increase.

Although gratitude "cultivates social bonds" (Algoe et al., 2013, p. 289) and promotes harmonious interpersonal relationship, the benefactor-beneficiary relationship might not be always equal. To this point, how receivers perceived the helpers' intention and how they interpreted the good deeds were essential (Buck, 2004). According to equity theorists, individuals who felt indebted might behave more prosaically in order to maintain an equitable relationship (Walster, Berscheid & Walster, 1973). The "dark" side of morality might be released if the equal relationship could not be maintained. For example, if the benefit receiver felt subordinate while receiving help from the giver, the receiver might have burden or indebted

feelings; if the receiver did not have any responses to the helper (i.e., the expression of gratitude; repay the good deeds), the helper's prosocial behavior might not increase or even decrease (McCullough, Kimeldorf, & Cohen, 2008; McCullough, Emmons, Kilpatrick, & Larson, 2001; Eibach, Wilmot & Libby, 2015; Tsang, 2006b).

Indebtedness happened when the benefit receivers felt they were obligated to repay the helper or required to a reciprocal relationship. The beneficiaries' gratitude level might be higher if the benefactor provided the favor with a selfless intention; and the beneficiaries were more willing to help the benefactor if no reciprocate favor was expected. To be opposite, the indebtedness would increase then (Tsang, 2006b; Watkins, Scheer, Ovnicek, & Kolts, 2010; Zhao, 2010). Comparing the differences between gratitude and indebtedness; indebtedness was a negative feeling while gratitude was a positive emotion; indebtedness was associated with avoidant motivation while gratitude was associated with prosocial motivation; indebtedness was the product under the "reciprocal norm" while gratitude was not restricted by it; indebtedness and gratitude were "not necessarily identical" (Tsang, 2006b; p. 200). In Western culture, expressing gratitude was more like an "informal obligation" since people were assuming expressing gratitude was a duty but no one could be demanded to express it.

However, in Eastern culture, being grateful was highly expected and the obligation of returning favor to the helper was emphasized as an ethical principle. The concept of "En" (恩, benefits or favor received from others) had great impact on social relationship in China since ancient time. Even though the benefactor was encouraged not to expect for a favor returned, or "not to ask for repayment and not to regret for offering" (Zhao, 2010; p. 14), the pressure for the beneficiaries to express gratitude or to repay the benefactor was still high. The Confucian thoughts of "En" had become social norms that every civilized Chinese was supposed to

acknowledge and appreciate the benefit or grace received from others and feel the need to repay or at least express gratefulness. Furthermore, the beneficiary was expected to repay much more than what he or she received originally (i.e., once getting a drop of water, one should give back a spring) (Zhao, 2010).

Therefore, the obligation of a favor return was further integrated to gratitude in Chinese culture. In the long run, increasing the obligation of repayment might help with the reciprocal relationship and thereby motivating the helper to behave more prosocially. However, this obligation might also reduce the receiver's willingness to accept the benefits at the first place. The burden of repayment might cause beneficiaries' refusal to the favor or benefits provided by the helper in order to avoid the indebted feelings. The overemphasis of indebtedness might lead to an indebtedness disposition and make the quality of interpersonal interaction lower.

To differentiate gratitude and indebtedness, the beneficiaries' perceptions and attributions to benefactors' intentions and good deeds are important in the giving and receiving process. Tsang (2006b) proposed that gratitude and indebtedness had different effects on one's prosocial or responsive behaviors. Pelsier (2015) and his colleagues found that indebtedness played an opposite role from gratitude on impacting sales people's commitment to the supplier and the resellers' effort to sales. Also, the perceived motives decided one's gratitude and indebtedness levels; benevolence motive led to gratitude whereas ulterior motive made the indebtedness increase and gratitude decrease. Zhao (2010) also supported this finding in his study that indebtedness followed a different path while affecting individuals' responses and helping tendencies. Furthermore, Cohen (2012) also found that gratitude and indebtedness scores were reported to be significant different when the helper had different social relationship with the recipient.

Gratitude and Prosocial Outcomes

Helping Tendencies

Prosocial outcomes could be one's actions, behaviors, reciprocation, or tendencies that were aimed to benefit others or the society as a whole (Eisenberg, Spinrad, & Sadovsky, 2006). McCullough and his colleagues (2001) proposed that gratitude as a moral emotion, initiated, motivated, and reinforced prosocial behaviors and reactions. It was further supported by McCullough and Tsang (2004a) that gratitude was a prosocial affect linked to prosocial behaviors or traits. Nevertheless, indebtedness which imposed people to be reciprocal and behave prosocially toward their benefactors, was not found to be associated with prosocial behaviors or prosocial motivation but to be related to an increased possibility of having antisocial tendencies (Naito, Wangwan, & Tani, 2005; Watkins et al., 2006).

By examining prosocial outcomes, there are advantages of focusing on helping tendencies instead of helping behaviors in this study. Helping tendencies reflected one's genuine willingness to helping others. And it was a better way to differentiate dispositional gratitude and indebtedness. Oftentimes, prosocial behaviors, such as helping action might occur per other persons' request or social expectation. In that case, individuals with high levels of indebtedness might be less willing to behave prosocially but took the actions under a high social pressure. Furthermore, with the high pressure, indebted recipients might not be willing to initiate helping behaviors. Zhao (2010) concluded that dispositional gratitude was "the most significant predictor for helping tendencies; whereas dispositional indebtedness was "negatively significant to the prediction" of prosocial tendencies (p. 78). In the current study, indebtedness was expected to affect the gratitude-prosocial relationship.

Behavioral Responses

Adam Smith claimed in his book *The Theory of Moral Sentiment* (1790/1982) that gratitude was one of the most important motivators of recipients' prosocial behaviors or responses toward the helper (Harpham, 2004). According to Wellsman (1999), when recipients respond to helpers' good deeds due to the "virtue-making" reasons, they were more likely to experience high gratitude; whereas, if the recipients' reactions were based on the "duty-imposing" reasons, they were more likely to embrace indebtedness (p. 292). Therefore, recipients' behavioral responses reflected their perceptions and attributions toward the benevolences. Grateful people were more likely to act engagingly and actively toward their benefactors; in contrast, indebted people might take avoidant actions instead.

In this study, the state level of gratitude and state level of indebtedness would be assessed in a specific situation. Participants would be asked about the most "grateful" experience and a person that he or she felt the most grateful for. Watkins and his colleagues (2006) found that grateful feelings were positively correlated with positive affect like happy or content; indebted feelings was correlated with both positive and negative affect such as unpleasant and flustered; whereas obligated feelings was correlated with negative affect only. The findings indicated that indebted feelings do not completely equal to obligated feelings and it was mixture of positive and negative emotions. Hence, indebtedness might moderate the way how emotional gratitude affects prosocial outcomes.

Gratitude in Different Social Relationship

Starting with Naito et al. (2005), the preexisting relation type between beneficiary and benefactor became important to be analyzed if individual truly understanding gratitude. In Naito et al. (2005)'s study, Japanese students had more positive feelings toward friends than parents or stranger helpers; Thai students had more positive feelings toward parents than friends or stranger helpers; students from both countries reported to have more indebted feelings toward stranger helpers than friends or parents. Cohen (2012) found that when recipient and benefactor were acquaintance, the recipient's gratitude was less strongly associated with the reciprocal behavior, verbal reciprocity, or urge to reciprocate, than those whose relation type was siblings or friends. Thus, the relationship type did affect individual's gratitude level though the way how recipients perceive it.

In the current study, participants were asked to complete scales for state level gratitude (GAC) and two indebtedness item questions at the last section of the survey package after being asked to recall their most "grateful" experience in details including the description of the helper, what experience would be like and how close their relationship is, etc. After that, they needed to answer questions concerning their behavioral responses toward the helper. Cultural endorsement can be identified if the scores for gratitude, indebtedness and behavioral responses are significantly different for different relation-type groups. Also it could be explained by individuals' different cognitive process which shaped the way how they perceived the helper's intention and the whole experience.

Moral Psychology Research

To further explore the moral function of gratitude, it was necessary to look at the development of moral psychology research. As a complex and subtle system, morality cannot be understood or measured in one single form. The premise that discourse and actions between human beings were legitimate moral concerns and morality itself was indispensable from the function of relationships, was largely accepted (Copp, 1995). Studies on multiple perspectives had been conducted: moral cognition (e.g., Piaget, 1932/1948; Kohlberg, 1976; Rest, Narvaez, Bebeau, & Thoma, 1999a; Lennick, & Kiel, 2005), moral emotions (e.g., Haidt, 2003; Garcia & Ostrosky-Solis, 2006), moral behaviors (e.g., Copp, 1995; Dobert, & Nunner-Winkler, 1985; Kofta, 1984), and moral motivation (e.g., Hoffman, 1984; Nunner-Winkler & Sodian, 1988), etc. The discipline of moral psychology was hybrid inquiry that was informed by ethical theory and psychological fact. To address primary research questions like “what is morality” and “why people behave differently on the moral level,” researchers might favor different facts and theories (Turiel, 2006; Lapsley & Power, 2005).

Structural-development approach is theoretically built upon Jean Piaget’s works and extended by Lawrence Kohlberg and more contemporary colleagues. Research involving this approach focused on moral judgment, moral reasoning, and social interaction in moral development. Since Piaget’s theory had been introduced to American psychologists in 1960s, studies on morality had been led to a new direction – a shift from behavioral approach to the research on moral cognition (Turiel, 2006; Lapsley, 2006). Kohlberg’s stage theory became the dominant theoretical foundation for research on moral development. It emphasized the underlying structure of individuals’ moral judgment or reasoning rather than the content or one’s specific decisions. Rest (1979) and his colleagues, known as the neo-Kohlbergians, developed

Defining Issues Test depending on the stage theory. At the same time, studies on sociocultural perspective and social emotions (e.g., empathy and sympathy) became popular as well (Tappan, 2006; Arenio, Gold, & Adams, 2006; Eisenberg, Spinrad, & Sadovsky, 2006).

Although research on moral cognition, which was set upon neo-Kohlbergian theoretical framework, still played the dominant role in moral psychology across different theories and approaches in moral psychology, increased research interests were put on moral emotion and moral character (Narvaez, 2010; Grappi, Romani, & Bagozzi, 2013; Stets, 2015). The connections among those moral constructs are worth studying.

Development of Moral Judgment

Kohlbergian and neo-Kohlbergian were two prominent forces that built their theories upon Piaget's use of stages in describing children's cognitive and socio-moral development, within the cognitive-developmental literature. Piaget's conceptions of heteronomy and autonomy had been contributed to Kohlbergian and neo-Kohlbergian framework (Rest et al., 1999a). Both Kohlbergian and neo-Kohlbergian approaches respected Piaget's belief on moral development – it involved the transition from heteronomous morality to autonomous morality (Lapsley, 1996), even though they had different understanding on its relationship during the developmental sequence.

Kohlberg used participants' responses to hypothetical dilemmas that reflected the conflicting concerns with law, daily life, interpersonal obligations, trust, and authority, to propose moral judgment development through six universal and developmental stages (Lapsley, 2006). Piaget's description of heteronomous morality fitted Kohlberg's stage 1 and 2 which explained individuals' tendency to formulate moral judgment based on expectancies for punishment-reward and mutual exchange. Piaget's autonomous morality partially described

Kohlberg's stage 3 to 6 – how one perceived one's relationship with existing rules and social structures. However, different developmental levels were indicated in Kohlberg's theory: Conventional level (stage 3 and 4) where individuals conformed with rules and Postconventional level (stage 5 and 6) where individual developed new understanding beyond the existing social rules depending on universal principles (Rest et al., 1999a).

Many researchers found that the rigid sequential and hierarchical stages of Kohlberg's cannot explain situational moral transitions. According to Colby and Kohlberg (1987), development was conceptualized as the "hard" transition from stage to stage and there is little mixture among stages when one fell on particular moral reasoning level. Neo-Kohlbergian approach carried Kohlberg's theoretical framework: suggesting that emergent conceptions of justice, fairness, and cooperation are strongly affected by one's interactions with social world; individuals' moral judgment transitions was associated with how they understood moral controversies and judged appropriate courses of actions (Rest et al., 1999a; Selman, 1971). In contrast to Kohlbergians, neo-Kohlbergians merged elements of structure with content and developed a softer conception of stages (Rest, 1979). Neo-Kohlbergians believed that individuals would develop expertise within the moral domain when they cycled through phases of consolidation and transition. The Defining Issues Test (DIT-1) (Rest, Thoma, Narvaez, & Bebeau, 1997) (DIT-2) (Rest, Narvaez, Thoma, & Bebeau, 1999b) precisely captured the transitions in how one defined salient issues while facing moral controversies. The data accumulated of DIT demonstrated that individuals did mix stages when they reasoned about moral dilemmas (Rest, Thoma, Narvaez, & Bebeau, 1997; Thoma & Rest, 1999). Therefore, five of Kohlberg's six stages were merged into three schemas: personal interest (representing stage 2

and 3), maintaining norms (reflecting stage 4), and post-conventional (representing stage 5 and 6) (Rest et al., 1999a; Rest, et al., 1999b).

The neo-Kohlbergian approach assumed that individuals' moral schemas or "expertise" develops over time through social interactions such as discussion of moral dilemmas or moral topics (Rest et al., 1999a; Narvaez, 2001). Furthermore, Rest and his colleagues (1969) found that subjects might not always comprehend moral stories or controversies as they intended to and it might be a functional difference in developmental level, for example, moral recall in memory (Rest, 1979; Narvaez, 1998). Evidence provided by Thoma, Narvaez, Endicott, and Derryberry (2002) showed that subjects might demonstrate differently when processing moral arguments depending on one's schema availability and accessibility. In contrast, the absence of relevant schemas might be related to comprehension difficulties. Different from stage theory, schema represented knowledge that was derived from prior experience and situated social contexts instead of absolute universal hierarchy structure. DIT scenarios and items can efficiently activate raters' preferred moral schemas that one had developed. Therefore, DIT-2 can better be reflected in one's moral reasoning level (Thoma, 2006; Thoma, Barnett, Rest, & Narvaez, 1999).

Although researchers have had different focus on moral development from culture to culture, some Chinese morality researchers tried to address moral issues by adopting the concept of Kohlberg's moral judgment (Ma, 1988; Lin, 2009; Ho & Lin, 2014). Researchers found that Chinese participants were more likely to take maintaining norms schema comparing to the Western population; whereas, they scored lower on post-conventional reasoning than the Western population. The different preference of moral schema might be explained by the culture origins. Through thousands of years' Confucian education, many people considered morality as

the social rules or moral principles. To be moral meant to meet the social expectations and moral reasoning was simplified as following the law, order, or norms (Ma, 2003; Lin, 2009).

New findings were reported in the study of business leaders' and followers' moral judgment that business professions tended to have higher score on post-conventional reasoning than the Western counterparts (Ho & Lin, 2014). The new trend in business professions gave a hint that new thoughts and conceptions might merge in the moral development of Chinese people. The rigid social norms or moral values might not be the single reason that influences one's moral development. Therefore, it was necessary to look at how multiple moral constructs together influenced one's moral development.

Gratitude and Moral Judgement

Referring to the relationship between gratitude and prosocial outcomes, the relationship between gratitude and moral development had to be addressed first. Morality, which had been treated as the rule and regulation that people had to obey in order to keep the regular operation of the world, was very important in education (Copp, 1995; Rest & Thoma, 1985; Rest, 1979). Different from other social functions (i.e., social convention), morality existed as a human nature. People had the natural tendencies to obtain the good feelings of themselves and others (i.e., empathy or gratitude); to be considered as good persons (i.e., moral identity); to maintain good relationships with others; and to construct an ideal cooperative society. Moreover, the special social value or belief not only involved the development of social cognition that helped individuals identify their position in a larger social network, but also emerged in specific actions or behaviors that promoted cooperation and reduced conflicts in social interactions (Rest, 1986). In some cultures, morality has been considered as the criteria to test the civilization level of a society, the key distinction between human beings and animals (Copp, 1995; Rest, 1979).

Numerous scholars and researchers had studied morality in different ways. Rest et al (1999a) pointed out that four essential psychological processes were emerged into moral behaviors. In fact, the moral functions of gratitude highlighted the components of moral development.

Rest's Four Components Model

Rest (1983) tried to better understand and examine the field of moral development by creating the Four Component Model as an extension of Neo-Kohlbergain's moral schema theory. According to Rest (1983), moral functioning involved at least four components: moral sensitivity, moral judgment, moral motivation, and moral character, and every component was related and integrated with the other ones in a complex way. Each component represented a step in the process and one would go through all steps when he or she made decisions to take moral actions. Moral sensitivity was about whether one can perceive an ethical or moral situation which required individuals' recognition of the whole picture – consequences of one's actions might affect others' welfare. Moral judgment focused on a person's decision on what ought to be right or what ought to be wrong. Rest (1986) suggested that moral judgment “seems to come naturally to people” (p. 8) and it could be learned through socialization. The reasoning process might be influenced by other factors like emotion (Haidt, 2003). Moral motivation involved the process that one would prioritize the moral value after comparing it with other social values. It was also related to how individual conceptualize morality, moral values, or oneself as a moral person. The fourth component, moral character or moral implement, referred to all elements that moral behaviors concerned, “perseverance, resoluteness, competence and character” (Rest, 1986, p. 15), but might not be simply summarized as “traits” or “virtues” (p. 5). Engaging in moral

behaviors was a long process which can be shaped by the four components (Rest, 1986; Thoma, 2006; Thoma, Rest, & Davison, 1991).

Gratitude as a Moral Emotion and Moral Judgment

The research on moral psychology had been generally focused on moral reasoning which told people what they shall or shall not to do, whereas the concepts of moral emotions started to draw attention since last few decades. Different from other moral constructs, moral affect had its special function in the moral development. Some moral emotion theorists even claimed that the role of moral emotion in morality was so essential that it almost took the place of moral judgment (Haidt, 2003). It was a complicated emotion that involved the cooperation of one's cognitive process, decision-making, and action-taking, etc. Take empathy, for instance, it took affect when seeing other people in a jam. Empathy itself did not represent moral schema or judgment but being moderated by moral reasoning or moral empathy increased the likelihood of moral behaviors. Guilt and shame occurred when individuals failed to follow rules. The stronger the bad feeling was the less likely the rules would be broken (Eisenberg, Spinrad, & Sadovsky, 2006; Emmons & Shelton, 2002; Emmons et al., 2003; Shelton, 2004). One of the advantages of studying moral affect was that measuring moral affect involved less intensive cognitive comprehension but more intuitive reaction. It reflected individual's moral development from another prospective (Haidt, 2003). Unlike basic emotions, moral affect was an instinct response towards perceived changes, risks, or chances in life. Two major features could be used to distinguish moral affect and other emotions. First, see if the emotion was triggered by other's experiences instead of self-interest event, for example, one felt bad when seeing an irrelevant person suffered. Second, see if the effect provoked prosocial behaviors, for example, a recipient

who felt grateful toward the benefactor might develop more helping behaviors (Haidt, 2003).

Therefore, gratitude has been conceptualized as the moral effect (McCullough et al., 2001).

Gratitude is the precursor and consequences of moral behaviors. The function could be identified primarily in three aspects: 1) as a “moral barometer,” gratitude might enable grateful individuals to be more sensitive to the situation when being treated prosocially; 2) as a “moral motive,” gratitude might provoke prosocial or altruistic behaviors of beneficiaries’ after they receiving benefits from others; and 3) as a “moral reinforcer,” grateful experience might increase beneficiaries’ benevolent actions in the future (McCullough et al., 2001). Many empirical studies proved that gratitude energized and motivated the prosocial behaviors. Furthermore, positive emotions were accompanied when beneficiaries were experiencing gratefulness or performing prosocial behaviors (Bartlett et al., 2006; Froh, Bono, & Emmons, 2010; Grant & Gino, 2010; Naito et al., 2010; Tsang, 2006a).

Moral affect might also vary in different cultures. Haidt and his colleagues (1993) created disgusting or offensive scenarios like “eat the family dog that was hit by a car” or “cut the old Flag and use it as a rag to clean bathroom” in Brazil and US to test if people would justify the right and wrong. They found that rural Brazilian sample identified the moral issues from the scenarios better than urban Brazilian and US samples. The cultural differences in the study confirmed that emotion had strong power in moral development which influenced one’s thoughts and behavior. It also suggested that the study of moral emotion should be expanded in different cultures. Gratitude, as a moral emotion, might function differently in Asian cultures.

Gratitude as a Moral Barometer

Though four components are non-linear psychological courses with complicated interaction, moral sensitivity is considered as the “initial step” for moral decision making (Volker, 1983). It involves the process how people interpret certain situations into moral ones and then realize their behavior would affect other people’s welfare (Rest, 1979). It is to test whether individuals have the ability to identify moral issues which may involve one’s volitional actions that may potentially harm or benefit others (Jordan, 2007).

Gratitude stems from the perception of the benefactors’ intentional benevolence. It involves the beneficiaries’ recognition of the benefactor’s kindness; the benefits were provided intentionally by the benefactors as a selfless deed; the benefits are valuable (Tesser, Gatewood, & Driver, 1968). Being grateful involves beneficiaries’ acknowledgement of benefactor’s moral agency – benefactors can do something else but they choose to benefit the beneficiaries on purpose. In other words, grateful feeling involves people’s sensitivity to grasp the moral situation (Emmons, 2009). According to Fitzgerald (1998), whether one can recognize and understand benefactors’ selfless motives, determines whether he or she can truly experience gratitude while being treated prosocially. McCullough et al. (2001) argued that gratitude served as a “moral barometer” that provided individuals with an affective detector to perceive others’ prosocial treatment. Since the perception of moral situations or moral behavior is a function of gratitude, are grateful people more easily to recognize moral situations and distinguish moral issues from other social or conventional issues?

Individuals, who are sensitive to moral-related issues or situations, may easily perceive the change of environment and other people’s good intentions. In other words, the way how individuals perceive benefactors’ intentions and benefits they received, may lead to different

responses and also produce high gratitude or high indebtedness. One's sensitivity toward grateful experience may be influenced by his or judgment on social or moral conventions.

Gratitude as a Moral Motive

Moral motivation requires the person to compare moral value and other social values and make final decisions upon moral values. In other words, moral values have priority while making decisions. The reasons or motives enable people to prioritize moral values over other values are moral motivation (Rest, 1986). It explains the questions why to be moral (Bebeau, 2002). However, there are always non-moral values that more attractive to individuals. Personal interest, like desire for reputation, success or enjoyment may be chosen over moral values (Bebeau, 2002; Rest, 1986). For example, a student may cheat in a test in order to get an A. Besides the inherent altruism, self-integrity, understanding of social cooperation, learnt experiences, moral feelings are some of the strongest and most persistent motivators of moral behavior (Rest, 1986; Garcia & Ostrosky-Solis, 2006). Based on the empirical evidence, benevolent values, which involve caring for the welfare of close others'), and universalism, which refers to understanding, tolerating, and protecting people's welfare, are regarded as moral values more often than other social values (Schwartz, 2007). Therefore, gratitude which is conceptualized as the understanding and reciprocal responses towards a benevolence, can be considered as a moral value as well.

Categorized by Haidt (2003) as a moral emotion in the praising family, gratitude is more than a good feeling. It is the positive state of mind that energizes and motivates moral obligations or "retributive kindly emotions" of recipients' (Bonnie & de Waal, 2004; Emmons, 2009). Weiner (1985) proposed that gratitude is an "attribution-dependent emotion." Gratitude is not only a positive feeling to what had been received but also a motivator to recipients' future

benevolence actions. The benefactor decided to take moral actions and benefit others while he or she could do otherwise. He or she intentionally chose the moral value – helping others – over other values or desires. As a grateful individual, the beneficiary first recognized the benefactor's moral behaviors and good intentions. Then being motivated by the benefactor, the beneficiary decided to give benefits not only back to the benefactor but also to other people who may need them, instead of keeping the benefits without reaction (Buck, 2004; Emmons, 2004). The motivational function of gratitude is different from the reciprocity norm, indebtedness, or general positive emotions. It enables one that supports cooperation and generosity (Emmons & Crumpler, 2000). In fact, gratitude is the moral motive to both benefactor and beneficiary. Research findings support that grateful recipients were motivated to behave or had the tendency to behave prosocially by their prior experiences of being treated prosocially; benefactors' prosocial behavior or tendency would increase as well if they received the positive responses from beneficiaries (Emmons, 2009; Tsang, 2006a).

Pelser et al. (2015) posited that different motives that were perceived by the sales people lead to different emotional reaction – benevolence motive was associated with gratitude whereas ulterior motive was associated with indebtedness. Thus, what motives the beneficiaries were identified matters. Benefactor and beneficiary automatically select moral value over other interests. Will they make the decision spontaneously? Do grateful people always moral motivated – attributing benefits they've received to the benefactors' good deeds and acknowledging that the benefactors are not necessary to help them? Thus, it is important to study how indebtedness or affect beneficiaries' gratitude and the prosocial outcomes.

Gratitude, Moral Judgment, and Prosocial Outcomes

Through several decades, Kohlberg's model built on the basis of the conception of moral reasoning or moral judgment is still one of the most often used measure for one's moral development (Rest & Narvaez, 1991; Shelton, 2004). Moral judgment, one's ability to tell right or wrong, is essential to the determination of moral actions and is accompanied with strong emotions, both positive and negative (Colby, Kohlberg, Gibbs, & Liberman, 1983; Copp, 1995; Piaget & Garcia, 1983). Rest (1986) claimed that moral decision-making started with an awareness of the moral issue. Then the individual makes a moral judgment with an intention to act morally, and finally, engaged in moral behavior. Although Kohlberg (1981, 1984) argued that moral judgment does not explain all variances in moral behavior, firm research evidence had been identified that moral judgment shaped moral behaviors. Given a high level of social agreement, an individual can subjugate his or her own moral judgment and rely on the normative society to determine which is right or wrong. In fact, what extents an individual acts according to the social consensus, has a significant effect on moral behavior (Copp, 1995; Kofta, 1984).

As a moral affect, most researchers argued that gratitude was a learnt disposition and cannot be developed without efforts and attention (Emmons & Shelton, 2002). Children won't be able to understand real "gratitude" until certain "abilities" are developed, such as the cognitive abilities like perspective taking, ability of emotional regulation, and ability of language expression, etc. (Bono & Froh, 2009; Froh, Sefick, & Emmons, 2008). Based on the developmental progress, 3- or 4- year old children may start to conceptualize gratitude because theory of mind is developed during that period of time (Fitzgerald, 1998). Gleason and Wintraub (1976)' study showed that few children younger than 6 could appropriately express gratitude or appreciation when they receive candies from adults, but most children who were older than 10

could show their gratitude with appropriate manners, such as a verbal expression – “thank you”. Depending on the research findings, children might better integrate their understandings of benefactor’s intention, positive experience of gratitude, and the willingness to return benefactors’ good deeds in the middle childhood, from 7 to 10 years old (Emmons & Shelton, 2002; Froh, et al., 2008).

Moral implementation involves all the elements that are related to moral actions execution including the internal impediments and external pressures. Persistence, resolution, firm character and competence are necessary for successfully implementing moral actions. Research supported that some inner strength and self-regulation skill might help with moral execution (Rest, 1986; Dobert & Nunner-Winkler, 1985). For example, the “cognitive transformation” strategy helped children better regulate themselves from the attraction of desires (Mischel, 1974). Affection is an important element that may influence individuals’ moral decisions. There is a natural tendency that people’s behaviors are matched with their emotions. Therefore, moral emotions are good predictors for moral actions (Nunner-Winkler & Sodian, 1988; Sousa, 2001). Furthermore, moral affect like gratitude can enhance moral behaviors.

Being grateful is a capacity that fosters the desire to return goodness and execute moral behaviors persistently (Emmons & Crumpler, 2000; Emmons, 2009; Wood, et al., 2008d). It builds and broadens people’s momentary thought-action repertoires and transforms themselves into a more knowledgeable, resilient, and socially integrated individuals (Fredrickson, 2004). The integrity of gratitude roots in compassion and fairness and gratitude is the universal respect and openness towards others (Shelton, 2004).

Even though morality still heavily weighted the principled justice theme, more and more theorists and researchers realized the contribution of affective elements (Shelton, 2004; Sousa,

2001). For example, Hoffman (1984) emphasized empathy's role in eliciting moral behaviors and how cognitive and affective components integrated to formulate the conception of "empathy".

Lazarus and Lazarus (1994) believed that gratitude was one of the "empathic emotions" that highlighted the human capacity of empathizing with others. In the theory, every emotion is associated with a "core relational theme" and gratitude is associated with the appreciation of receiving benefits. As the moral emotion, gratitude serves as a "moral barometer", a "moral motive", and a "moral reinforcer" (McCullough, et al., 2001). As a function of barometer, gratitude is an emotional response to having received benefits from a person who intentionally rendered such benefits (McCullough, Emmons, Kilpatrick, & Larson, 2001). As the motivator, gratitude motivates grateful people to behave morally or prosocially themselves and contributes to the benefactor or third party after having received benefits from benefactors. Grateful people are more likely to demonstrate altruistic behavior and are less materialistic toward life (Bartlett, & DeSteno, 2006; Tsang, 2006a; McCullough, Kimeldorf, & Cohen, 2008; Polak, & McCullough, 2006). The expression of gratitude was reported to reinforce the benefactor's moral behaviors. Though expressing gratitude is a positive response toward people, who do things that benefit us, grateful thinking and reaction become somehow "duties". Even though gratitude may not happen under certain circumstance, such as the benefactor does not benefit the beneficiary intentionally, the beneficiary may take it for granted and didn't respond. However, grateful people should feel grateful when benefits are received even if the benefactor might not do that on purpose (McCullough, Emmons, Kilpatrick, & Larson, 2001; Shelton, Ryan, Rawsthorne, & Ilardi, 1997; Wood, Maltby, Gillett, Linley, & Joseph, 2008a; Tsang, 2006a; McCullough, & Tsang, 2004a).

Moral judgment actually had the inner connection with the cognitive component of gratitude. Even though moral judgment was not found to directly influence gratitude (Liu & Thoma, 2013), moral judgment might moderate the moral function of gratitude that had on prosocial behaviors or tendencies (e.g. helping tendency; prosocial responses toward the helper), needs.

Indebtedness and Moral Judgment

According to Tsang (2006b), indebtedness had a different mechanism from gratitude. For example, recipient might feel high indebtedness if the helper expected them to repay (Watkins, et al., 2006). Indebtedness stems from the norm or social expectation for reciprocal exchange which emphasized a favor return to the benefactor as “En” – a responsibility or duty that recipients had to have for repay the benefactor. If the social expectation for favor return was not met, the person would be considered as betraying or failing the benefactor. The unpleasant emotion will be enhanced when the pressure from the benefactors or all people who expected you to repay the benevolence but the beneficiary are not able to. Guilt might be produced in the circumstance (Pelser, et al., 2015). Speaking from the perspective of power, the benefactor is more powerful when beneficiary does not meet the expectation or fails to take the responsibility (Gordon, 2013). In fact, the indebted feeling reflects one’s belief of equity in social interaction (Greenberg, 1980). Beneficiaries may think of repaying the benefactors with a favor or benefits with the equal value, guilt or negative feelings will occur if they failed to make the equal reciprocal exchange. When beneficiary is at a comparatively lower social status, it might be easier for them to have indebted feelings (Li, 2014).

By looking at the hierarchy of Chinese social relationship, kinship is the tightest and the boundary for kinship might be blurring due to Chinese people’s interdependent view of self.

Chinese people are more easily to sense the goodness from the closest people. At the same time, people are more sensitive to authority. After judging of the closeness of relation and the power of authority, people may make different decisions then (Hu, Gan, & Liu, 2012). The traditions for respecting authorities and elders may lead to a higher indebtedness scores with Chinese population.

According to the studies of moral judgment involving Chinese samples (Ma, 1992; Lin, 2009), Chinese people tend to take maintaining norms schema while making decisions in moral situations. It means that they are more likely to stick to the rules, social conventions, and moral norms. The indebtedness, which might be enhanced by the way how people make judgment while facing moral issues, may produce avoidance behaviors or lower helping tendencies.

Zhao (2010) claimed that indebtedness was an independent variable that contributed to moral outcomes in a different way. However, indebtedness may affect gratitude and its relationship with prosocial outcomes (Tsang, 2006b; Cohen, 2012). As rooted in grateful experience, indebtedness might enhance or weaken the effects of gratitude on prosocial outcomes and the interaction effects would be stronger while combining moral judgment. The moral function of gratitude might be intervened by moral judgment and indebtedness during the cognitive process while individuals were recognizing benefactors' intentions and responding with full awareness of the whole experience.

Liu and Thoma (2013)'s study showed that gratitude had no significant correlation with moral judgment indexes but indebtedness was significantly correlated with maintaining norms index. Indebtedness and moral judgment do share some features on affecting one's prosocial outcomes. Gratitude may affect moral judgment through indebtedness. In order to figure out how the moral judgment and indebtedness work together on gratitude and prosocial outcomes, k-

means clustering method can be used in this case to find out if gratitude functions differently on prosocial outcomes under the influence of moral judgment and indebtedness.

CHAPTER III:
METHODOLOGY

Participants

Participants were recruited from two public universities in the southeastern area of China. Undergraduate students were recruited from a normal university which provided four-year program and both education major and non-education major students were involved. The graduate students were recruited from a research university which offers both undergraduate and graduate programs. Since the two universities were nationwide, students were from different geographic areas all across China.

Five hundred surveys were distributed to the normal university and 460 students took the survey. One hundred and fifty surveys were given to the graduate students in the research university and 128 responses were collected. The overall response rate was 90.46%. The normal university had a little higher response rate 92% than the research university 85.33%. After the data screening, cases with the missing data, cases with zero standard deviation ($SD = 0$) across items in a scale (participants rate the same for every item), and cases that were purged by the DIT-2 (Defining Issues Test, Version 2) reliability check, had been dropped. Five hundred and twenty-four ($N = 524$) cases were kept for data analysis.

The sample included 33.6% males ($N = 176$), 66.4% females ($N = 348$) and 93.5% was from Han ethnic group ($N = 490$). The age of the sample ranged from 18 to 30. About the religion, 83.59% of the participants ($N = 438$) reported that “they don’t have a religion,” “not sure,” or either “atheism.” There were 55.7% of the participants ($N = 292$) from urban area and

47.7% from one-child family (N = 250). In this sample, freshmen were 46.4% (N = 243), sophomores were 5.5% (N = 29), juniors were 27.5% (N = 144), seniors were 0.6% (N = 3) and graduate students were 20.2% (N = 106).

Measures

Demographic Questions

To better understand the sample, demographic questions including gender, age, educational level, hometown, living area (urban or rural), and how many siblings in the family were asked at beginning of the survey (see Appendix A).

To help the participants to recall their most grateful experiences, general information about the helpers, the preexisting helper-recipient relationships, and the details of the reciprocal experiences, including when it happened, whether he or she is still helping you or keeping in touch, how frequent the helping behavior occur at that time, and how long this event last, were gathered (see Appendix B). The questions were chosen from Cohen (2012)'s General Information Questionnaire.

Gratitude

Dispositional gratitude. Gratitude Questionnaire (GQ-6) (McCullough, Emmons, & Tsang, 2002) is a well-established measure that can be used to examine gratitude as an emotional disposition. It is a six-item widely used instrument that touches the four dimensions of grateful disposition: density, intensity, frequency and span, which reflects the emotion component and cognitive component in a general state. The 7-point Likert subjective scale had each item range from 1 = strongly disagree to 7 = strongly agree. The higher total score represented the higher level of gratitude. Item 3 and 6 were reversed scores. Also, GQ-6 was reported to have the sound psychometric properties. A robust one-factor structure was identified through the exploratory

and confirmatory factor analysis. The convergent and discriminant validity were also well tested (McCullough et al., 2002). A highly reliability was reported when it was used for both American and Chinese samples (Cronbach alpha = .79; Liu, Robinson, & Simmons, 2012). Comparing the mean scores of gratitude (M = 36.90, SD = 4.92) with that in the McCullough et al. (2002)'s study, Chinese students' gratitude scores were a little lower (Kong, Ding, & Zhao, 2015; M = 33.00, SD = 5.22) (see Appendix C).

McCullough, Emmons, and Tsang (2002) distinguished four facets of grateful disposition as intensity, frequency, span, and density. In terms of intensity, grateful people are likely to feel a stronger sense of gratitude for a positive event than less grateful people. For the facet of frequency, grateful people tend to report grateful or thankful feelings more frequently or more easily throughout the day. The facet of span refers to the number of life circumstances that a person feels grateful for at a given time. More grateful people would consider the life circumstances from a wider aspect or with a variety of possible benefits (e.g., for their families, their health, and life itself). Density refers to the number of people to whom one will feel grateful for when a single positive outcome is received. One who is more grateful will attribute the benefits to a variety of people. Accordingly, grateful individuals are more likely to have stronger and more frequent feelings of gratitude toward more people (e.g., parents, teachers, and friends etc.), and from more aspects of life circumstances.

State level gratitude (emotional gratitude). To specify the situational emotion, Gratitude Adjective Checklist (M = 17.98, SD = 2.98; McCullough, Tsang, & Emmons, 2004b) was used to measure one's state level of gratitude after recalling one's most impressive grateful experience (see Appendix D). It is a 7-point Likert scale with 3 items. Participants were asked to rate on their momentary feelings of *thankfulness*, *gratefulness*, and *appreciation* when they

received benefits from the helpers whom they felt the most grateful for. The scale was reported to have a high reliability in previous research ($\alpha = .92$, McCullough, Tsang & Emmons, 2004b; $\alpha = .79$, Liu & Thoma, 2013).

Virtuous gratitude. The two grateful items in the Moral Ideal Self Scale (MISS) (Hardy, Olsen, Woodbury & Hickman, 2014) were used to examine if individuals considered gratitude as an important virtue in their lives. It was a 7-point Likert scale and individuals needed to rate on each listed trait or virtue (1 = they do not want to have the trait at all; 7 = they want to be the persons who have that particular trait). There were 20 items in the original scale. In the current study, 6 items were added to the scale as the distractor items making it 26 items in total. All items were grouped in to different categories – virtuous gratitude items include *grateful* and *thankful*. Even though grateful or thankful was put into the Caring/Loving category in the original scale, it still reflected the social expectations or even moral exemplars in one’s mind. The two-item subscale was used to measure the virtuous gratitude (see Appendix E).

Indebtedness

Dispositional indebtedness. The dispositional indebtedness was measured by 6-item scale with the items selected from the Gratitude and Indebtedness Questionnaire-12 (GIQ-12) (Zhao, 2010). The GIQ-12 was created as an extension of Gratitude Questionnaire-6 (GQ-6) (McCullough, Emmons, & Tsang, 2002) and it was used to measure participants’ different perceptions between gratitude and indebtedness. In current study, only six indebtedness items were used to test participants’ dispositional indebtedness. Similar with GQ-6, the six indebtedness items also covered the intensity, frequency, span and density of one’s indebted experience (e.g., “I feel indebted to a wide variety of people;” “I have so much in life to be indebted to”) (see Appendix F). It was also a 7-point Likert scale ranging from 1 = Strongly

Disagree to 7 = Strongly Agree and the higher total score represented a higher level of indebtedness ($M = 16.02$, $SD = 6$; Cronbach alpha = .81; Zhao, 2010). Item 1 and 2 were reversed scores.

Emotional indebtedness (obligated feelings). Two author-created indebtedness items were used to test the indebted feelings. These two items (“I feel that I have the obligation to repay people who helped me;” “If I cannot repay the person who helped me, I will feel indebtedness to him or her”) which focused on the obligated feelings were used in Liu and Thoma (2013) study to measure the emotional indebtedness ($M = 9.63$, $SD = 2.73$; Cronbach alpha = .73). It was found to be correlated with the moral judgment index (maintaining norms index, $r = .321$, $p < .05$). Watkins and his colleagues (2006) concluded that the obligated feelings was an important part of indebtedness. Furthermore, it was reported that individuals with high obligated feelings scored higher on dispositional indebtedness as well (Zhao, 2010). Thus, the obligation feelings could be used to measure the indebted feelings in this study (see Appendix G).

Prosocial Outcomes

Helping tendency. Helping Tendencies Checklist (Zhao, 2010) was a five-item subjective scale that was used to assess how individuals differ in their tendencies to help others ($M = 19.9$, $SD = 4.05$, Cronbach alpha = .83). The 7-point Likert scale (ranging from 1 = Strongly Disagree to 7 = Strongly Agree) included questions about one’s initiative to help others (e.g., “I often voluntarily help others without being asked”), one’s possible actions to support other people (e.g., “I always tried my best to make unhappy people happier”) and one’s willingness and enjoyment to help others (e.g., “I will go out of my way to help others”). Item four was a reversed item that was used for the consistency check. By summing the scores for all

five responses, higher total score reflected the higher level of helping tendency (see Appendix H).

Behavioral responses to benefit or helper. Behavioral Responses to Benefit Checklist chosen from Cohen (2012)'s Behavioral Responses to Benefit Scale, was used to measure one's post-gratitude responses. Instead of rating each behavior, participants were asked to check all possible behaviors or responses that they had for the particular helper. There were 25 behaviors or responses listed (e.g., "Thanked him/her") and participants were also asked to write down their responses that were not included on the list. The responses were generally grouped into two major categories – active behavioral responses (22 items) and avoidant behavior responses (3 items). And there were 3 sub-categories generalized for active behavioral responses including 7-item active relational behavior (e.g., "Deepen our relationship"), 7-item grateful expression (e.g., "Expressed my gratitude toward him/her"), and 9-item helping/prosocial behavior (e.g., "Do him/her a favor"). The sub-group of grateful expression shared one item with the sub-group of helping behavior (see Appendix I). The percentage scores were obtained to describe the level of behavioral responses of different groups. The higher percentage represented a higher level of active/avoidance behavioral responses.

The original items were created based on Watkins and Colleagues (2006)'s list of action tendencies and McCullough's Revised Transgression Appeasement and Reconciliation Questionnaire (TARQ II) (Cohen, 2012). To capture the accurate responses toward one's most impressive grateful experience, the checklist was arranged at the end of the survey for participants to complete.

Moral Judgement

Defining Issues Test, Version 2. (DIT-2; Rest, Narvaez, Bebeau, & Thoma, 1999a) consisted of five stories (only three stories were used in the study) of moral dilemma that were created to measure participants' preference of a moral schema while making moral decisions rather than to measure how participants were labeled to different solid moral stages. Participants were required to select one action choice out of three that the protagonist needed to solve the dilemma. After that, the 12 issue statements were given to ask participants to rate. Then the four most important resolutions that help with solving each dilemma were asked to be ranked, from the "most important" to the "fourth most important." The moral schema (personal interest, maintaining norms, or post-conventional) that participants preferred can be identified from their responses to each item and how they rank on important items. Reliability check (items were written as lofty but were meaningless to the dilemma or to solve the problem) was set to keep the accuracy and consistency of responses. Participants who were inconsistent with their rating and ranking would be dropped. Due to the length of the whole survey package, only three scenarios (Dilemma 1, 2, and 4) out of five were used in the current study (see Appendix J).

Including the scores of the three moral schemas, the results could be understood by a series of indexes – P, N2, MN and PI scores. The P score was a commonly reported index for DIT and DIT-2 that represented the amount of one's reasoning at the post-conventional schema level by percentage. N2 index was later developed in DIT-2 to reflect not only the percentage of one's post-conventional reasoning level but also how much one can resist the self-interest or maintaining norms reasoning. High P score or N2 score meant that one liked to judge the moral situations based on a larger picture and benefit of human beings. For instance, post-conventional thinker might consider if the law was reasonable when violation happened. Maintaining Norms

score (MN) indicated that individuals, who scored higher, preferred making moral decisions upon laws, rules and social regulations. For example, they might believe that stealing should not happen because it was against the law. Personal Interest score (PI) explained that individuals who scored higher for this index, preferred judging moral issues by considering personal or family benefits first. It would not limit to the self or family and it could be friends or acquaintances, etc. Individuals with personal interest schema might believe that law violation can be reasonable if the motive was altruistic (Rest, Thoma, Narvaez, & Bebeau, 1997).

Procedure

Measures including Defining Issues Test Version 2 (DIT-2), Moral Ideal Self Scale (MISS), Gratitude Adjective Checklist (GAC), and two emotional indebtedness items, Behavioral Responses Checklist, and demographic questions, were translated into Chinese by following the back translation method. The investigator translated it into Chinese and the bilingual psychologist and linguistic scholar translated it back from Chinese into English. The two versions had been compared and tested by bilingual psychology instructors. The Cantonese version of measures, including the Gratitude Questionnaire (GQ-6), Indebtedness Questionnaire-6 selected from GIQ-12 and the Helping Tendency Check List were double examined by linguistic instructors. The Informed Consent for a Research Study was also testified by the researcher, translators and bilingual psychology educators.

The university administrators were contacted and they had given the permission to the researcher to conduct the survey study. The translator in each university was the survey administrator. They had received the ethical training in China as being test administrator and they had been involved in the survey translation process. Thus, they were able to answer the questions that participants would have while taking the survey.

All measurements were arranged together in one survey package and printed out. Students who took English or moral/ethical education classes on the survey day were given the Informed Consent form. After reading the Informed Consent, students who were willing to take part in the study would need to provide their initials in the Informed Consent form. Then they would be given the survey package to complete. A copy of the Informed Consent form was given to them for their own records. They needed to complete the survey in the classroom at one sitting. There were chances for them to ask questions while taking the survey and the participants could stop at any time if they wanted to.

Participants were asked to take the measure for dispositional gratitude (GQ-6) after answering a few demographic questions. Then the measures for dispositional indebtedness (Indebtedness Questionnaire), helping tendency (Helping Tendencies Check List), and virtuous gratitude (two grateful items in MISS) were required to complete. The three stories for moral judgment (DIT-2 three-story version) were followed.

After that, participants were asked to recall their most “grateful” experience in details including the description of the helper, what experience would be like, and how close their relationship was before the experience, etc. (General Information Questions). At last, they needed to answer questions concerning the state level of gratitude (GAC) and behavioral responses toward the helper (Behavioral Responses to Benefits Checklist).

After they had completed the survey, they were required to submit the surveys and Informed Consent forms with their initials to the administrator. The test administrator sealed the survey packages once all surveys had been collected. Only the researcher would get access to the data while conducting the data entering. Participants’ identical information such as names and identification number was not included in the survey.

The descriptive statistics including mean, standard deviation, and reliability alpha of major variables were reported. The major variables were dispositional gratitude (GQ6), emotional gratitude (GAC), virtuous gratitude (VirtueG), Help Tendencies (HelpTend), dispositional indebtedness (IndebtS), emotional indebtedness (EIndebtS), DIT-2 indices – Post-Conventional index (P score), Maintaining Norms index (MN), and Personal Interest index (PI), and percentage scores for behavioral responses. The ANOVAs were conducted to examine the mean differences of major variables by gender, educational level, helper-recipient relation type, living area (urban or rural), and siblings (whether one-child family). Correlations were also reported with major variables.

Analysis

The descriptive statistics including mean, standard deviation, and reliability alpha of major variables, including scores for dispositional gratitude (GQ6), emotional gratitude (GAC), virtuous gratitude (VirtueG), Help Tendencies (HelpTend), dispositional indebtedness (IndebtS), emotional indebtedness (EIndebtS), DIT-2 indices – Post-Conventional index (P score), Maintaining Norms index (MN), and Personal Interest index (PI), and percentage scores for behavioral responses, would be reported. The ANOVAs would be conducted to examine the mean differences of major variables by gender, educational level, helper-recipient relation type, living area (urban or rural), and siblings (whether one-child family). Correlations would be also reported with major variables

Research Question One

Do the three observed variables – dispositional gratitude, emotional gratitude and virtue gratitude, manifest gratitude as a single form latent variable or each has its uniqueness? The confirmative factor analysis (CFA) was used to test the measurement model. Even though there

were three measures for different perspectives of gratitude, they somehow conceptually overlapped with each other. For example, the dispositional gratitude covered both the cognitive and emotional component (McCullough et al., 2002; McCullough et al., 2004b). Therefore, there was a possibility that different manifestations of gratitude would fall on one single latent variable. To best define gratitude based on the theoretical framework, the measurement model included one latent variable – gratitude, and three observed variables of gratitude – dispositional gratitude (GQ6), emotional gratitude (GAC), and virtuous gratitude (VirtueG). Each observed variable was measured by a separate scale.

The measurement model equations were set up as followed:

$$\text{GQ6} = \text{factor loading} * \text{Gratitude} + \text{measurement error}$$
$$\text{GAC} = \text{factor loading} * \text{Gratitude} + \text{measurement error}$$
$$\text{VirtueG} = \text{factor loading} * \text{Gratitude} + \text{measurement error}$$

Research Question Two

Does gratitude affect the helping tendency or behavioral responses? To answer this research question, the measurement model for prosocial outcomes needed to be examined. A confirmatory factor analysis (CFA) was performed to test how the helping tendency and behavioral responses fit the measurement model. The helping tendency (HelpTend) was measured by a 5-item scale and behavioral responses were represented by the percentage scores – active behavioral responses (ActBeP), avoidant behavioral responses (AvoiP), and sub-scores of the checklist – grateful expression (ExpreP), helping or prosocial behavior (ToHelpP), and Relational behavior (RelateP). Then a path model analysis was conducted to test the relationship between gratitude and the prosocial outcomes by using LISREL 8.8.

Research Question Three

Can each cluster represent the unique characteristics of observations with different levels of moral judgment and indebtedness? No significant correlation was found between gratitude and moral judgment but both were significantly correlated with indebtedness – The maintaining norms index was reported to be correlated with the obligated feelings (Liu & Thoma, 2013). Furthermore, as the moral emotion, gratitude might be connected to moral reasoning in the way of influencing prosocial outcomes (Blair & Flower, 2008). Therefore, it was assumed that moral judgment and indebtedness might moderate the gratitude-prosocial relationship. To better address the way how moral judgment and indebtedness work together on gratitude-and-prosocial relationship, the K-means clustering method was used to assign cases with the nearest data points to the “centroid” in the cluster. In each particular cluster, observations shared the similar characteristics of indebtedness and moral judgment. For instance, in one cluster, observations might share the features with a low P score (moral judgment index, reflecting post-conventional schema), high MN score (maintaining norms schema) and low dispositional indebtedness and emotional indebtedness. Besides, observations in the same cluster shared similar patterns on intervening the way how gratitude affected one’s helping tendencies. Since K-means clustering method could effectively generate the “prototype” of the particular cluster with few limitations and it could create tighter clusters than what the hierarchy clustering had, it was adopted in this study to serve the research question (Improvement Outcome Software, 2004).

To form the cluster variable, moral judgment indices – P score (post-conventional schema), MN score (maintaining norms schema) and indebtedness scores – dispositional indebtedness and emotional indebtedness were used for clustering. The four scores were standardized initially. Then the K-means clustering program in SPSS 19.0 was used to group the

observations. According to the previous findings, dispositional indebtedness and emotional indebtedness might demonstrate similar function on affecting gratitude and prosocial tendencies or behaviors – people with a high level of dispositional indebtedness tend to feel indebted in a specific grateful experience (Zhao, 2010; Watkins et al., 2006).

K-means clustering was a very popular cluster analysis in data mining. It could be used to partition observations into k cluster(s) with each observation being nearest to the mean that reflected the prototype of this cluster (MacQueen, 1967). The disadvantage of K-means clustering method was that the value of K had to be determined before the analysis. So the researcher assigned K a number that was obtained based on the theoretical hypothesis. Then the value of K was reduced in order to get the best K. In order to validate the best value of K, the ANOVAs and post hoc tests could be conducted to see if the patterns of scores in each cluster were different from those in other clusters.

The literature of indebtedness and moral judgment indexes indicated that six clusters might be identified initially – (1) high P score, low MN score, high dispositional indebtedness score, high emotional indebtedness score; (2) high P, low MN, low dispositional indebtedness; low emotional indebtedness; (3) low P, low MN, high dispositional indebtedness; high emotional indebtedness; (4) low P, low MN, low dispositional indebtedness; low emotional indebtedness; (5) low P, high MN, high dispositional indebtedness; high emotional indebtedness; (6) low P, high MN, low dispositional indebtedness; low emotional indebtedness. Initially, K = 6 would be assigned to see if it is the most efficient way to cluster cases. The k-means clustering would be run in SPSS 19.0 with K=6 at first. And then K=5, K=4, K=3 and K=2 was tested one by one until the best solution that described the shared features of indebtedness and moral judgment in this dataset, was identified.

Research Question Four

Does the cluster variable (formed by moral judgment and indebtedness indexes) moderate the relationship between gratitude and prosocial outcomes? Although moral judgment indexes were not reported to be significantly correlated with gratitude, there was a significant correlation found between moral judgment and indebtedness as well as the moral outcomes, which might influence gratitude and its relationship with prosocial outcomes. Moderation explained an interaction effect that the third variable (moderator) would have on the relationship between independent and dependent variables. The moderator might enhance or weaken the relation between independent variable(s) and dependent variable(s). According to the underline connections that moral judgment and indebtedness might have for gratitude and prosocial outcomes, the cluster variable should be treated as the categorical moderator.

Instead of adopting two moderators, moral judgment indexes and indebtedness scores were used to form one cluster variable. By comparing the moderation model for each cluster, different patterns and interaction effects would be identified. The way how indebtedness and moral judgment together affect the relationship of gratitude and prosocial outcomes, would be recognized. The categorical moderator was dummy coded and the moderation model was tested by using SPSS 19.0, the macro program Process developed by Hayes (2013).

Summary of Methodology

All data had been entered in the SPSS data file. Data screening were done before the data analysis started. Missing data, and data that failed the reliable check were discarded (e.g., SD = inconsistent responses – did not reverse for the reversed scores; and the DIT-2 reliability check, etc.) The measures of dispositional gratitude, emotional gratitude, virtuous gratitude, dispositional indebtedness, emotional indebtedness, helping tendency, moral judgment, and

behavioral responses were used to test the theoretical model. The descriptives, ANOVAs, correlation matrix, confirmatory factor analysis, path analysis, and moderation modeling, were performed to examine the theoretical model by using SPSS v.19.0 and LISREL 8.8.

CHAPTER IV:

RESULTS

Overview of the Results

All results are displayed in four sections. The first section showed the descriptive statistics including means, standard deviation, and reliability alpha for all major variables. Correlation table would be included as well. The second section would include the results for Research Question One and Two – the confirmatory factor analysis for gratitude model and the model of prosocial outcomes. Then different models were compared to determine the best model. After that, the path analysis for gratitude-prosocial outcome model and the comparison of different models were displayed. The third section demonstrated the results for k-means clustering engaging moral judgment and indebtedness. The fourth section was about Research Question Four – to test the interaction effects of the moral judgment and indebtedness had on gratitude-prosocial relationship.

Descriptive Statistics and Correlations

Means and standard deviations of major variables were demonstrated in Table 1. The scores for dispositional gratitude ($M = 33.43$, $SD = 4.43$), dispositional indebtedness ($M = 25.80$, $SD = 6.77$), and helping tendency ($M = 25.62$, $SD = 4.39$) were higher than those scores in Zhao (2010)'s study – dispositional gratitude ($M = 24.06$, $SD = 4.68$), dispositional indebtedness ($M = 16.02$, $SD = 6.00$) and helping tendency ($M = 19.9$, $SD = 4.05$) respectively. All scales were reported to have an acceptable reliability (Cronbach's alpha): Dispositional gratitude ($\alpha = .781$, $N = 524$), virtuous gratitude ($\alpha = .789$, $N = 524$), emotional gratitude ($\alpha = .863$, $N = 524$),

dispositional indebtedness ($\alpha = .891$, $N = 524$), emotional indebtedness ($\alpha = .781$, $N = 524$), and helping tendencies ($\alpha = .849$, $N = 524$). The Cronbach's alpha for dispositional indebtedness was reported to be highest and emotional indebtedness was reported to be the lowest. The Behavioral Responses and the sub-categories were measured with percentage scores, as well as the moral judgment indexes, which were computed with more complex equations. The Cronbach's alpha might not apply for those scores.

Table 1

Means, Standard Deviations, Reliability Alpha of Major Variables

	<i>Number of Items</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>α</i>
GQ6	6	524	33.43	4.43	.781
VirtueG	2	524	12.40	1.56	.789
GAC	3	524	18.72	2.63	.863
IndebtS	6	524	25.80	6.77	.891
EIndebtS	2	524	11.72	2.26	.705
HelpTend	5	524	25.62	4.39	.849
ActBeP	22	520	.39	.21	.808
AvoiP	3	522	.01	.07	-
ExpreP	7	521	.39	.24	-
ToHelpP	7	520	.42	.21	-
RelateP	9	521	.33	.25	-
PI Score	-	524	32.14	17.19	-
MN Score	-	524	25.88	13.45	-
P Score	-	524	35.80	14.70	-
N2 Score	-	523	34.94	13.27	-

Note. 1. ActiveP and AvoiP were percentage scores that described the active and avoidant behavioral responses; 2.ExpreP, ToHelpP and RelateP were percentage scores for the active behavioral responses subcategories.

Gender and Age

One-way ANOVAs were done to demonstrate the influence of participant demographics of on the data. Gender difference was the only category found to differ on active behavioral responses, $F(1, 522) = 9.62, p < .01$. Males scored higher on emotional indebtedness ($M = 12.14, SD = 2.07, N = 176$) while females scored higher on the active behavioral responses ($M = .42, SD = .21, N = 345$). No significant age difference was found on any of the primary variables.

Education Level and Living Area

No significant difference was found between participants who used to live in urban areas and those who lived in rural areas. Significant differences were found between graduate students and undergraduate students on moral judgment indexes – Personal interest score, $F(1, 522) = 14.389, p < .001$; maintaining norms score, $F(1, 522) = 10.276, p = .001$; dispositional gratitude, $F(1, 522) = 6.974, p < .01$; helping tendencies, $F(1, 522) = 14.389, p < .001$; emotional indebtedness, $F(1, 522) = 37.275, p < .01$; active behavioral responses, $F(1, 518) = 23.477, p < .001$; and scores of sub-categories: Grateful expression, $F(1, 519) = 6.232, p < .05$; helping/prosocial behavior, $F(1, 518) = 11.137, p = .001$; and relational behavior, $F(1, 519) = 32.681, p < .001$

Graduate students scored higher on maintaining norms index ($M = 29.59, SD = 13.23, N = 106$), dispositional gratitude ($M = 34.43, SD = 3.45, N = 106$), helping tendency ($M = 27.05, SD = 3.81, N = 106$), and emotional indebtedness ($M = 12.25, SD = 2.00, N = 106$); while undergraduate students scored higher on personal interest index ($M = 33.06, SD = 16.97, N = 418$), active behavior response ($M = .42, SD = .21, N = 415$), gratitude expression ($M = .40, SD = .23, N = 415$), relational behavior ($M = .36, SD = .25, N = 416$), and helping/prosocial behavior ($M = .44, SD = .22, N = 415$). Scheffe and Tukey post hoc tests were done to examine

the difference across educational levels. But no significant difference was found within the undergraduate or graduate samples.

Family Relation

Individuals who reported to be the only child in their family scored significantly higher on Post-conventional index ($M = 37.39$, $SD = 13.31$, $N = 250$), $F(1, 522) = 5.674$, $p < .05$ and N2 score ($M = 36.90$, $SD = 12.15$, $N = 249$), $F(1, 521) = 10.618$, $p = .001$, than those who had one sibling or more.

Among the five helper-recipient relation types that participants reported (family, stranger, friend, acquaintance, and social support), significant differences were only found between family and other relation types. Participants who reported that they felt most grateful for their family members, scored significantly higher on post-conventional score ($M = 37.39$, $SD = 14.13$, $N = 213$), $F(1, 509) = 4.983$, $p < .05$; N2 score ($M = 36.72$, $SD = 12.09$, $N = 212$), $F(1, 508) = 8.432$, $p < .01$; active behavioral responses ($M = .44$, $SD = .21$, $N = 211$), $F(1, 505) = 13.165$, $p < .001$; help/prosocial behaviors ($M = .47$, $SD = .22$, $N = 211$), $F(1, 505) = 13.197$, $p < .001$; relational behavior ($M = .36$, $SD = .26$, $N = 212$), $F(1, 506) = 6.747$, $p = .01$; and emotional indebtedness ($M = 12.22$, $SD = 1.99$, $N = 213$), $F(1, 509) = 21.811$, $p < .001$.

Correlations among Major Variables

Pearson's correlation coefficients were reported in Table 2 to show the relationship among major variables. The gratitude scores were significant correlated with helping tendencies and indebtedness. All significant correlations were positive for these variables except for correlations with moral judgment indexes (see Table 2). However, only dispositional gratitude ($r = .102$, $p < .05$), emotional indebtedness ($r = .156$, $p < .01$), and helping tendencies ($r = .089$, $p < .05$) were found to be correlated with the percentage score of the active behavioral responses.

The results confirmed the finding in prior study that maintaining norms index was correlated indebtedness; and gratitude were correlated with helping tendencies and active behavioral responses (Liu & Thoma, 2013; Zhao, 2010; Cohen, 2012). It indicated there were relations between gratitude and prosocial outcomes, which was indicated research question one.

Furthermore, it also ensured the conceptual assumption that moral judgment might influence gratitude-prosocial relationship through indebtedness – the foundation for research question 3 and 4.

Table 2

Correlations of Major Variables

Variables	1	2	3	4	5	6	7	8	9	10
1.GQ6	-							-	-	-
2.VirtueG	.455**	-					-	-	-	-
3. GAC	.148**	.118**	-				-			-
4.IndebtS	.245**	.159**	.089*	-			-			-
5.EIndebS	.175**	.153**	.355**	.109*	-					-
6.HelpTend	.482**	.374**	.112*	.158**	.182**	-		-		-
7.ActBeP	.102*	-	-	-	.156**	.089*	-	-	-	-
8. PI	-	-	-.102*	-.108*	-.110*	-	-	-		
9. MN	-	-	.117**	.109*	.130**	.089*	-	-	-	
								.463**		
10. P score	-	-	-	-	-	-	-	-	-.637**	-.291**

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

Personal interest score (PI) was reported to be negatively correlated with emotional gratitude ($r = -.102, p < .05$), dispositional indebtedness ($r = -.108, p < .05$), and emotional indebtedness ($r = -.110, p < .05$). The correlations among the three moral judgment indexes were found to be negative which were consistent with the findings in previous research (Liu & Thoma, 2013).

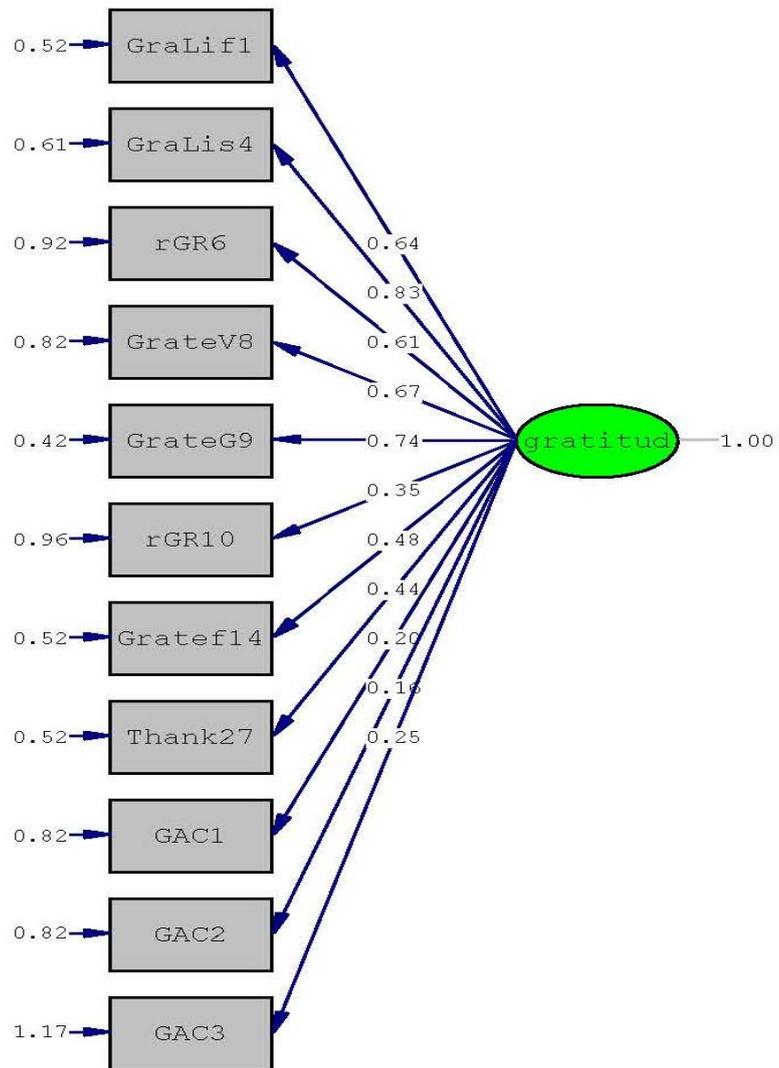
The emotional gratitude was found not to be correlated with the active behavioral responses, but it was correlated with two of the sub-group scores for active behavioral responses: Emotional gratitude was positively correlated with one's grateful expressions ($r = .129, p < .01$) and helping/prosocial behaviors ($r = .114, p < .05$). The relational behavior score was not correlated with the emotional gratitude.

Consistent with the results in Liu and Thoma's (2013) study, emotional indebtedness was found to be significantly correlated with the maintaining norms index ($r = .130, p < .01$). Also, the dispositional indebtedness was reported to have significant correlation with the maintaining norms index ($r = .109, p < .05$). In the current study, personal interest index had an outstanding contribution to the correlations. It was found that both emotional indebtedness ($r = -.110, p < .05$) and dispositional indebtedness ($r = -.108, p < .05$) were reported to be significantly correlated with personal interest index respectively. Furthermore, different from the previous research, emotional gratitude was reported to be significantly correlated with the personal interest index ($r = -.102, p < .05$) and maintaining norms index ($r = .117, p < .01$). It might be explained with the model testing in the next step.

Confirmatory Factor Analysis

Research Question One

Do the three different gratitude variables – dispositional gratitude, emotional gratitude and virtue gratitude, manifest gratitude as a single form latent variable or each has its uniqueness? To address the first research question – how the three manifestations of gratitude contribute to gratitude as one latent variable, a confirmatory factor analysis was conducted to justify the best model by using the program LISREL 8.8 (Jöreskog & Sörbom, 1993).



Chi-Square=971.24, df=44, P-value=0.00000, RMSEA=0.201

Figure 2. Gratitude one-factor model (model 1)

In the first model (One Factor Model) (see Figure 2), the results showed that Chi-square $\chi^2(44, N=524) = 971.24, p < .001$, RMSEA = .201 (when $p > .05$ and the RMSEA $< .08$, the model is an acceptable model). Goodness-of-fit index (GFI) was reported to be .75, and it was below the acceptable range of model fit (GFI $> .95$). The Standardized RMR was .15 (if the

Standardized RMR is 0, it means that the model is perfect fit; and if the SRMR < .05, it reflects a good model fit). So Model 1 showed a poor model fit (see Figure 2).

By following the modification suggestions, error covariance was added between two reversed items of dispositional gratitude (rGR6 and rGR10), between two virtuous items (Gratef14 and Thank27), and between three emotional gratitude items (GAC1 and GAC2, GAC2 and GAC3, GAC1 and GAC3). The estimates and model fit indices had been largely improved (see Figure 3).

In model 2, the Chi-square χ^2 (40, N = 524) = 34.74, $p = .66$, RMSEA < .05 ($p > .05$, RMSEA < .05 represents a good model fit). The Standardized RMR = .02 and the Goodness-of-fit index (GFI) was .99 (SRMR < .05 and GFI > .95 suggests a good model fit). The noncentrality parameter NCP = 0, which indicated a perfect fit. According to the good-of-fit index, Model 2 suggested a perfect model fit and there was no further modification suggestion given (see Figure 3). In conclusion, the modified model was reported to have the best model fit and three manifestations form (see Table 3).

Table 3

Goodness-of-Fit Indices of Confirmatory Factor Models of Gratitude

Model (N = 524)	χ^2	<i>df</i>	<i>p</i> value	GFI	RMSEA	SRMR	$\Delta\chi^2$	Δdf
Model 1	971.24	44	< .001	.75	.20	.15	-	-
Model 2	34.74	39	> .05	.99	< .001	.02	936.50	5

Note. 1. Model 1 represented the One-Factor Model; Model 2 represented modified One-Factor Model of Gratitude.
2. The difference of Chi-square and degree of freedom was found between Model 1 and 2.

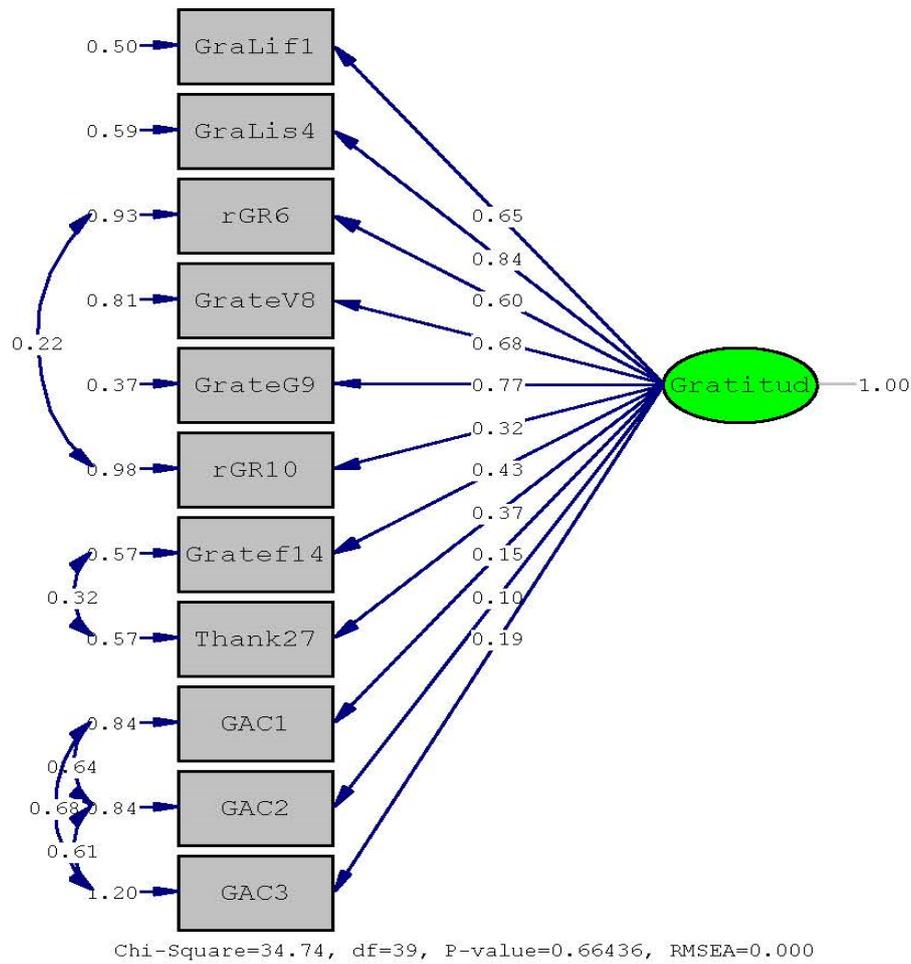


Figure 3. Modified one-factor model of gratitude (model 2)

By comparing indicators' factor loading and measurement error variance in the two models, the best factor structure can be identified. As showed in Table 4, indicators for dispositional gratitude were reported to have medium or high factor loadings. But the loading of the reserved the indicator (rGR10) was found to be low. Also, indicators for virtuous gratitude and emotional gratitude were reported to be low on factor loadings. Even though the loadings were improved after the model modification, the indicators with low loadings did not change much. All loadings were reported to be significant at the level of .05 but with one exception of GAC3.

Table 4

LISREL Estimates for Factor Confirmatory Model of Gratitude

	Model 1		Model 2	
	Factor Loading	Error Variance	Factor Loading	Error Variance
<u>Dispositional Gratitude:</u>				
1. "I have so much in life to be thankful for" (GraLif1)	.64	.52	.65	.50
2. "If I had to list everything that I felt grateful for, it would be a very long list" (GraLis4)	.83	.61	.84	.59
3. "When I look at the world, I don't see much to be grateful for" (rGR6)	.61	.92	.60	.93
4. "I am grateful to a wide variety of people" (GrateV8)	.67	.82	.68	.81
5. "As I get older I find myself more able to appreciate the people, events, and situations that have been part of my life history" (GrateG9)	.74	.42	.77	.37
6. "Long amounts of time can go by before I feel grateful to something or someone" (rGR10)	.35	.96	.32	.98
<u>Virtuous Gratitude:</u>				
7. "Grateful" (Gratef14)	.48	.52	.43	.57
8. "Thankful" (Thank27)	.44	.52	.37	.57
<u>Emotional Gratitude:</u>				
9. "Appreciative" (GAC1)	.20	.82	.15	.84
10. "Grateful" (GAC2)	.16	.82	.10	.84
11. "Thankful" (GAC3)	.25	1.17	.19	1.20

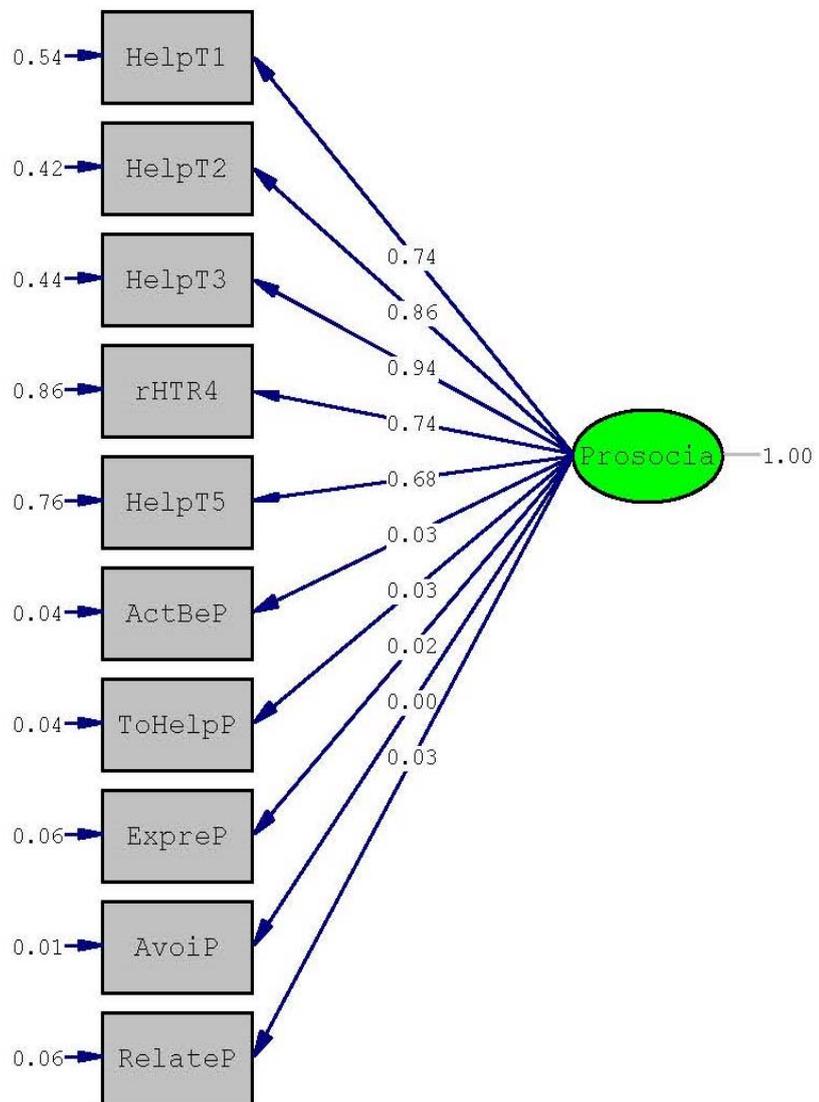
Note. All indicators were significant at the level of .05 except for "Thankful" (GAC3).

All paths were significant which supported a good model fit of One-Factor Model of Gratitude (see Figure 3). However, the three items for emotional gratitude had very low factor loadings which indicated its limited contribution to the measurement model.

Research Question Two

Does gratitude affect the helping tendency or behavioral responses? To verify the factor structure of the observed dependent variable, a confirmative factor analysis was conducted to test the measurement model. First, the scale items for helping tendencies and the percentage scores for behavioral responses were all included to test if they would contribute to the prosocial outcomes as one latent variable.

In the One-Factor Model (see Figure 4), the results demonstrated that Chi-square χ^2 (35, N = 520) = 1955.10, $p < .001$, RMSEA = .33 (when $p > .05$ and the RMSEA $< .08$, the model is considered as an acceptable model). The Goodness-of-fit index (GFI) was reported to be .57, which was below the acceptable range of model fit (GFI $> .95$). The Standardized RMR was found to be .25 (Standardized RMR = 0 represents a perfect model fit; Standardized RMR $< .05$, reflects a good model fit). So the One-Factor Model (see Figure 4) was reported to have a poor model fit. Moreover, the t -value of the avoidant behavioral responses was reported to be .53, which was less than 1.96. So the avoidant behavior score was dropped in the model modification as showed in Figure 5.



Chi-Square=1955.10, df=35, P-value=0.00000, RMSEA=0.325

Figure 4. One-factor model for prosocial outcome

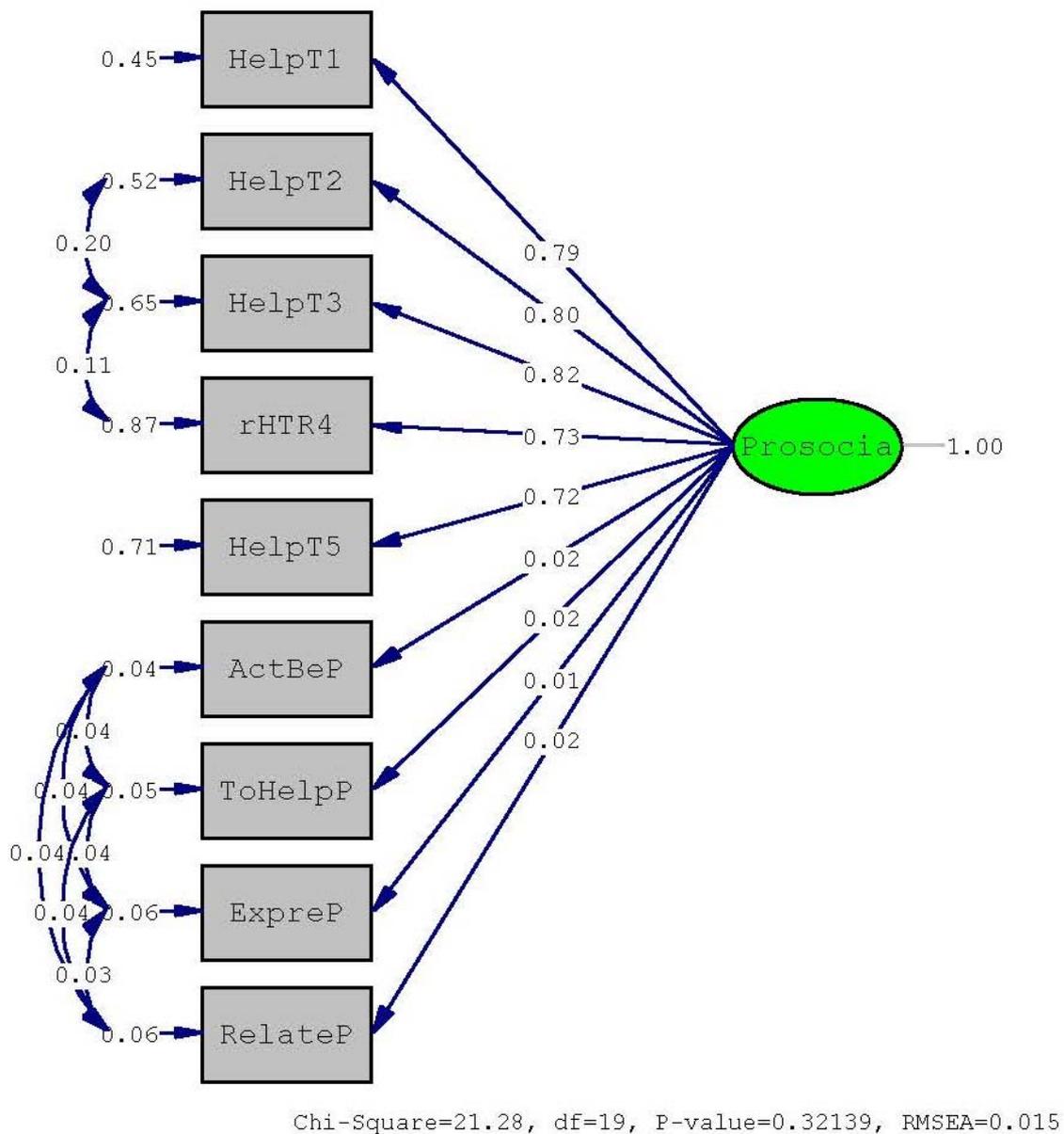


Figure 5. Model modification for one-factor model for prosocial outcomes

Modification was made according to the Goodness of Fit Statistics (see Figure 5). The Chi-square $\chi^2(19, N = 520) = 21.28, p = .32, RMSEA = .02$. The Goodness-of-fit index (GFI) was reported to be .99 and The Standardized RMR was found to be .02. By comparing with the

good-of-fit index, $p > .05$, RMSEA $< .05$, GFI $> .95$ and Standardized RMR $< .05$, this modified model was reported to have a good model fit (see Figure 5).

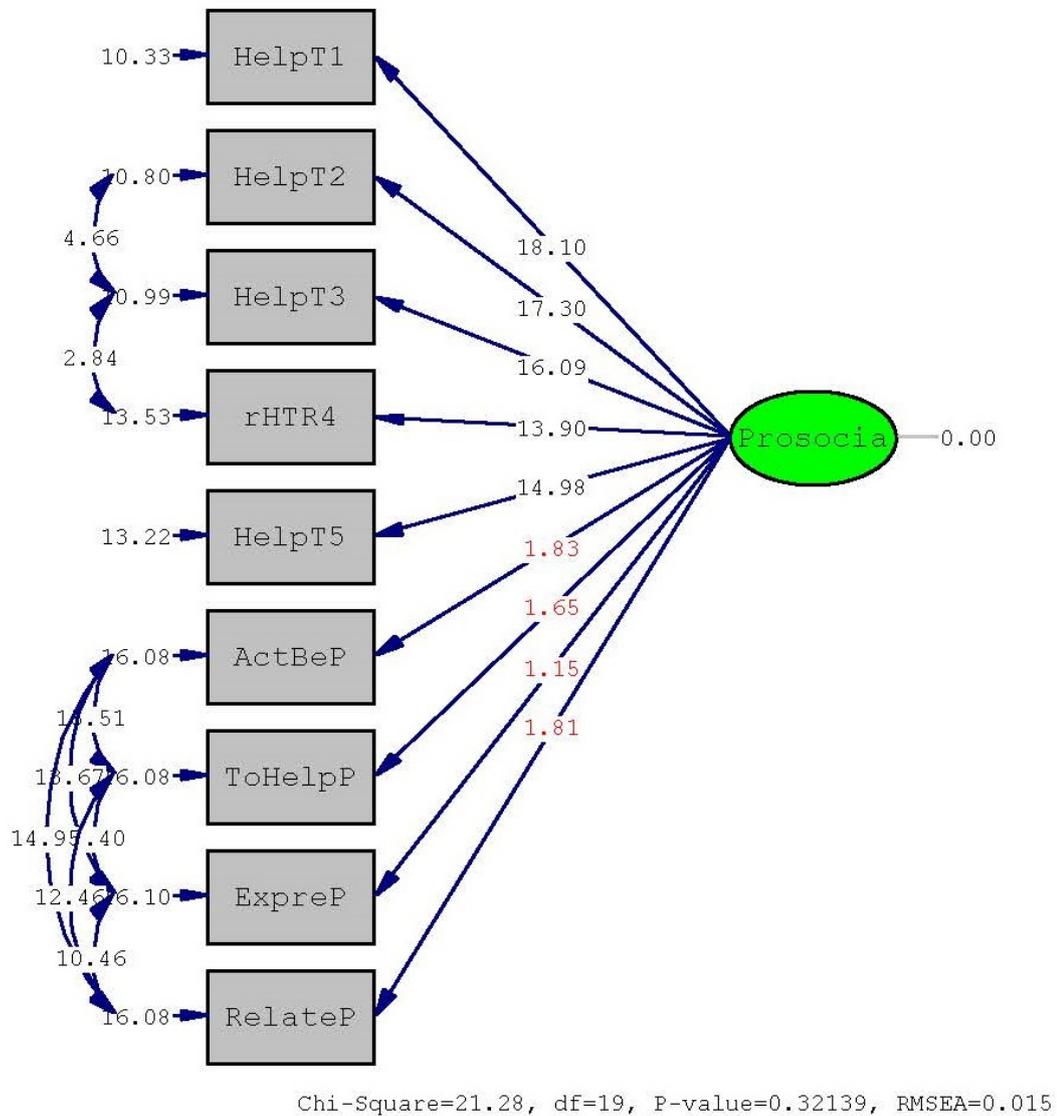


Figure 6. The model modification of one-factor model with t -values

The t statistics was a commonly used procedure to “eliminate parameters that were not significantly different from zero”. LISREL computed a t -value for each parameter and it was required to compare the t -value with the t statistics ($t = 1.96$, $\alpha = .05$, two-tailed; $t = 2.58$, α

two-tailed) to “determine a statistical significance.” LISREL listed the non-significant parameter in red (Schumacker & Lomax, 2010, p. 173). In this modified model, all behavioral responses variables are found to have the non-significant *t*-values after comparing with *t* statistics. Therefore, the behavioral responses did not significantly contribute to the latent prosocial outcomes (see Figure 6).

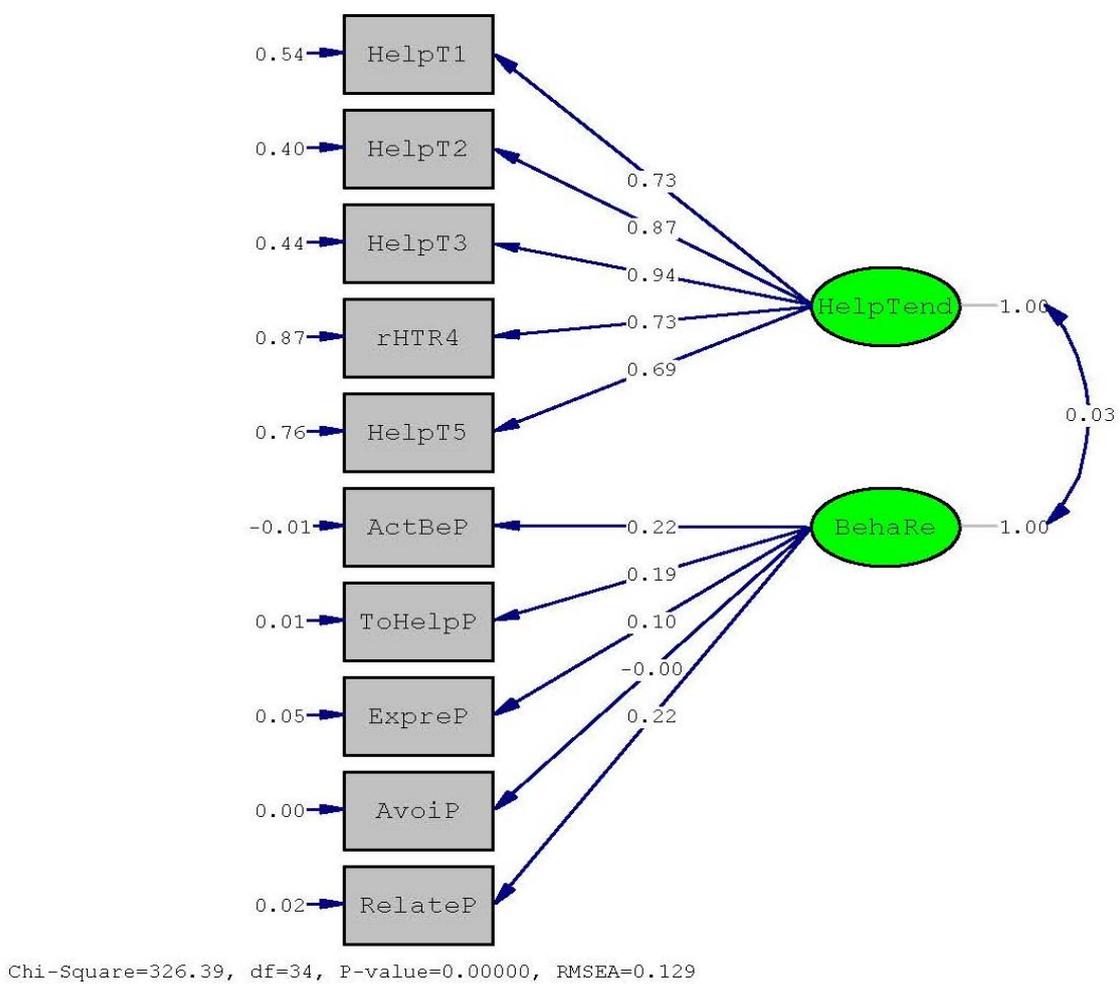


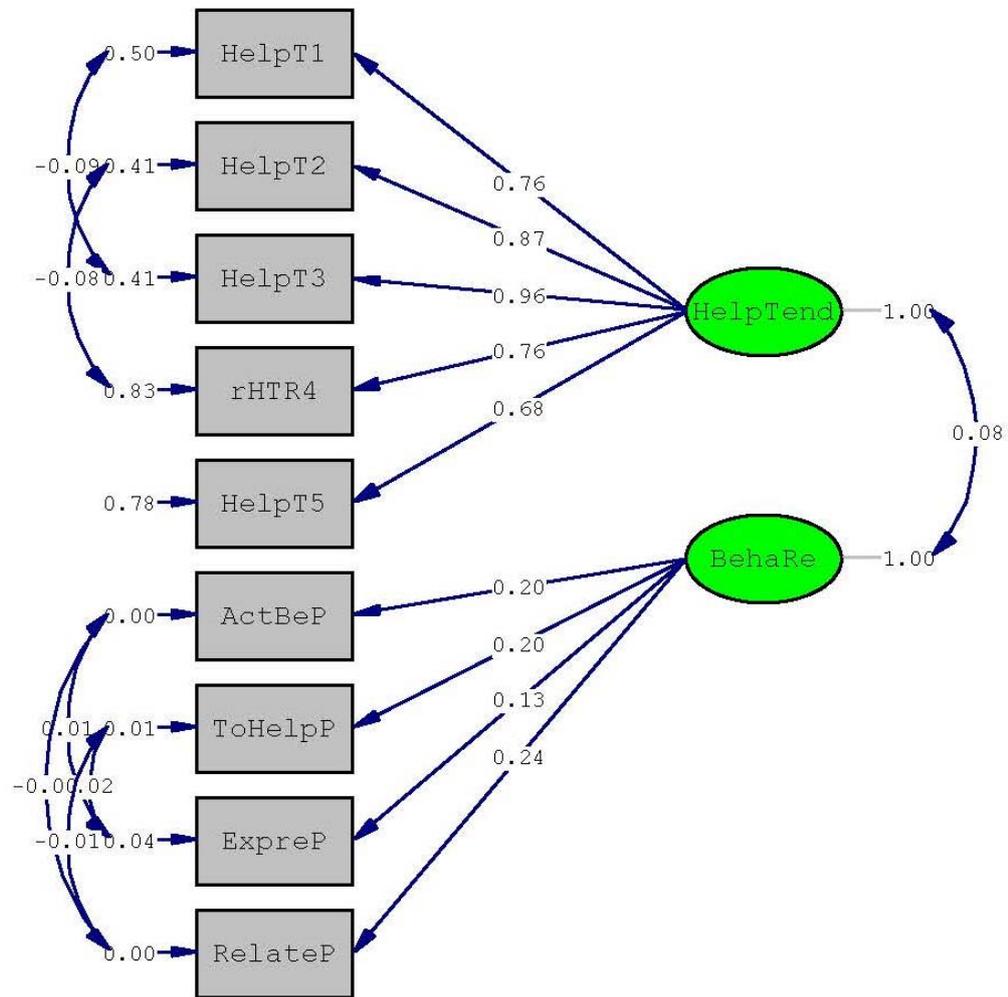
Figure 7. Two-factor model for prosocial outcomes

The Behavioral Responses did not contribute to the latent variable prosocial outcomes as what helping tendency did in the model. It might represent a different variable. Therefore, the Two-Factor Model was set up to test how Behavioral Responses fit in the measurement model (Figure 7). In this model, the Chi-square χ^2 (34, N = 520) = 326.39, $p < .001$, RMSEA = .13 and the Goodness-of-fit index (GFI) was reported to be .89 and The Standardized RMR was found to be .09. According to the good-of-fit index: $p > .05$, RMSEA $< .05$, GFI $> .95$ and SRMR $< .05$, a poor model fit was identified for the Two-Factor Model (see Figure 7).

The modification indices suggested that there were paths should be added between parameters. Since there was zero contribution from the avoidant behavior to the latent variable – Behavioral Responses, it was dropped from the modified model (Figure 8).

The model fit indices supported an acceptable model by having the Chi-square χ^2 (20, N = 520) = 26.33, $p > .05$, RMSEA = .03 and the Goodness-of-fit index (GFI) was reported to be .99 and The Standardized RMR was found to be .03. But the value of NCP was 6.33 (NCP = 0 represents a perfect model), which did not provide a perfect model.

Although, the Two-Factor Model for Prosocial Outcomes had a good model fit, Relational Behavior and Grateful Expression had non-significant paths to Behavioral Responses and all parameters had very low factor loadings which were below .25. The non-significant paths and low factoring loading revealed that the behavioral responses had little contribution to the model for prosocial outcomes.



Chi-Square=26.33, df=20, P-value=0.15518, RMSEA=0.025

Figure 8. Model modification of two-factor model for prosocial outcomes

Path Analysis

Path analysis is one of the Structural Equation Modeling methods that can be used to test the theoretical relations among variables. The direct or indirect causal contributions or effects that the independent variables have on the dependent variables can be examined by path analysis. Instead of estimating each equation separately, it estimates all structural coefficients directly in

the model as a system (Jöreskog & Sörbom, 1993). The advantage of path analysis is that the model fit statistics provides an easy way to do model modification based on the parameter estimates. The researcher can determine which model fits better by comparing the parameter estimates. Therefore, the researcher planned to examine the relationship between gratitude and the prosocial outcomes – helping tendency and behavioral responses in the path model.

Based on the theoretical model, gratitude as a whole latent variable was expected to affect the helping tendency and behavioral responses. The confirmatory factor analysis for gratitude and prosocial outcomes provided the best models for both independent and dependent latent variables. Since the Helping Tendencies was a well-tested scale, the factor loadings of Helping Tendencies were set to 1.0 at the beginning. Also, the Avoidant Behavior variable had been dropped in the process of model modification for prosocial outcomes (see Figure 8). In the first path model, One-Factor Model of Gratitude (see Figure 3) and Two-Factor Model of Prosocial Outcomes (see Figure 8) were included and the Gratitude-Prosocial Model 1 was demonstrated in Figure 9.

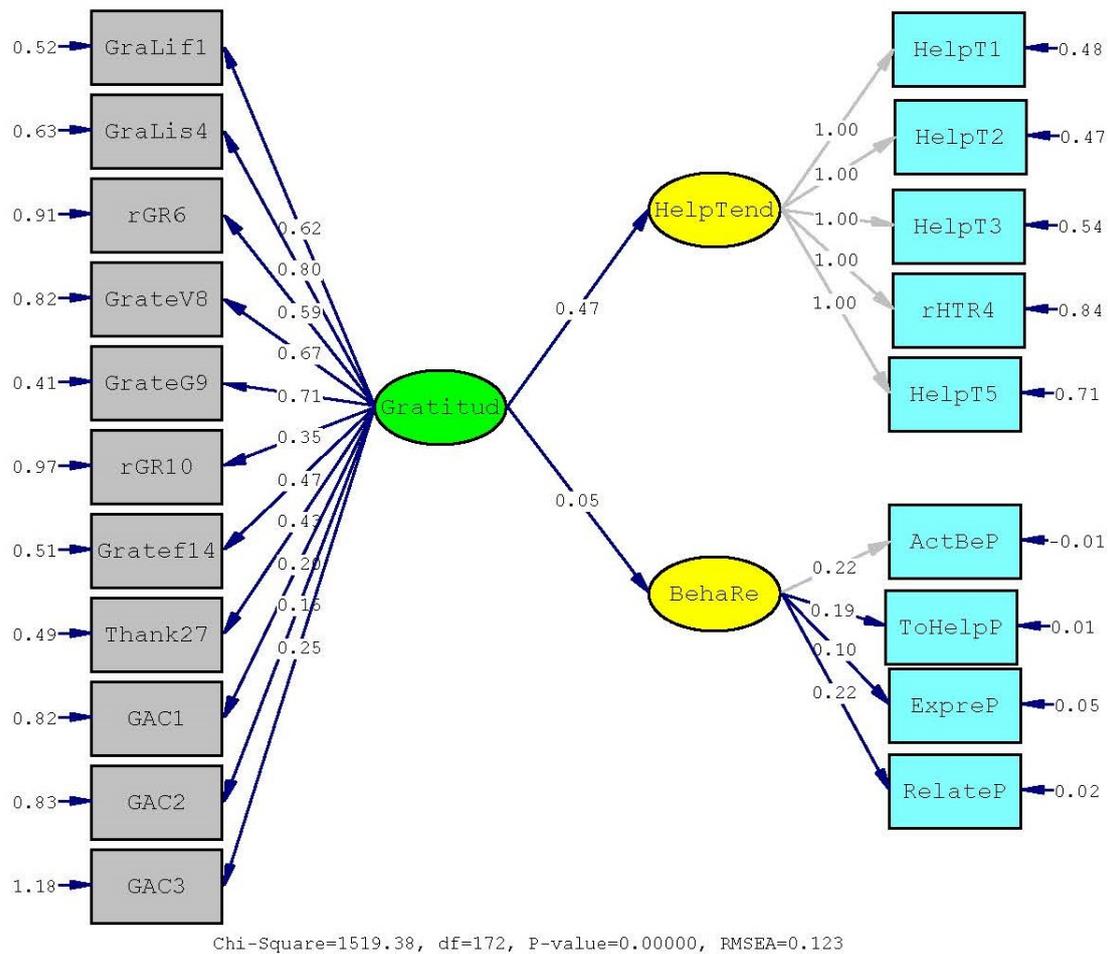


Figure 9. Gratitude-prosocial model 1

The model fit indices for Model 1 (see Figure 9) did not support a good model fit. The Chi-square χ^2 (172, N=520) = 1519.38, $p < .001$, RMSEA = .12 (RMSEA $< .08$ is acceptable). The Goodness-of-fit index (GFI) and adjusted goodness-of-fit index (AGFI) were reported to be .77 and .72 respectively and were below the acceptable range of model fit (GFI $> .95$, AGFI $> .95$). The Standardized RMR was .10 (if the Standardized RMR is 0, it means that the model is perfect fit and the SRMR $< .05$, reflects a good model fit), which indicated a poor model fit. The error variance of active behavioral responses was found to be negative which might indicate a misspecification of the model (Schumacker & Lomax, 2010). The path coefficient

between gratitude and behavioral responses was very small. Supported by the *t* values ($T = 1.51 < 1.69$, at $\alpha = .05$ level), the path coefficient was found not be significantly different from zero. It indicated that the latent variable behavioral responses did not contribute much to the model. Or it might also because the sample size was not big enough or the entries of the variable were not sufficient.

The latent variable of behavioral responses may not fit well in the model. The negative error variance showed that the observation variables for behavioral responses might not support the latent variable very well. Among three manifestations of gratitude, only dispositional gratitude was found to be significantly correlated with active behavioral responses ($r = .102, p < .05$); Emotional gratitude (GAC) was found to be significantly correlated with sub-group variables, grateful expression ($r = .129, p < .01$) and active helping behavior ($r = .114, p < .01$). Therefore, gratitude which was measured by three aspects of gratitude, might not significantly affect the behavioral responses as a latent variable. Since gratitude had little effects on behavioral responses, the dependent latent variable – behavioral responses was dropped in the modified model. The structure equation model showed as followed:

$$\begin{array}{l} \text{HelpTend} = 0.47 * \text{Gratitud}, \text{Errorvar} = 0.42, R^2 = 0.35 \\ (0.038) \qquad (0.036) \\ 12.37 \qquad 11.58 \end{array}$$

$$\begin{array}{l} \text{BehaRe} = 0.046 * \text{Gratitud}, \text{Errorvar} = 1.00, R^2 = 0.0021 \\ (0.030) \qquad (0.054) \\ 1.51 \qquad 18.54 \end{array}$$

To improve Model 1, model modification was made by adding paths between parameters. The modified model, Gratitude-Prosocial Model 2 was shown in Figure 10.

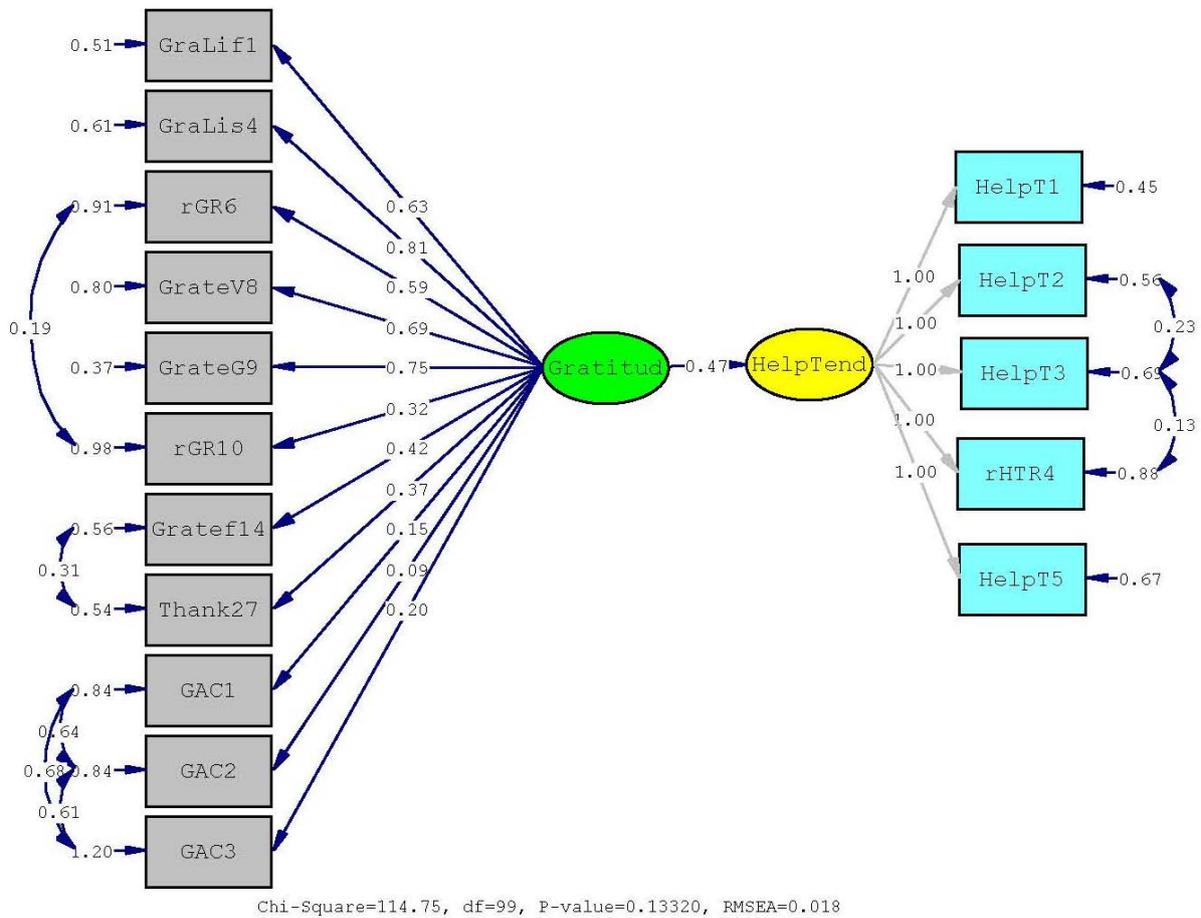


Figure 10. Gratitude-prosocial model 2

In model 2, Chi-square was reported to be $\chi^2(99, N=520) = 114.75, p = .13 > .05$, RMSEA = .02 (RMSEA < .08 is acceptable). The Chi-square was not significant, suggesting a good model fit. Goodness-of-fit index (GFI) was reported to be .97, and it was above the acceptable range of model fit (GFI > .95). The adjusted good-of-fit index (AGFI) = .96 was also reflected a good model fit (criterion AGFI > .95). The Standardized RMR was .03 (the Standardized RMR is 0, means the model is perfect fit and SRMR < .05 reflecting a good model) indicating a good model fit. Even though the Estimated Non-centrality Parameter (NCP) = 15.75 (0 reflects a perfect model), all good-of-fit indices supported Gratitude-Prosocial Model 2 to be a

good model. No further modification suggestions were given this time. All paths were significant except the one from GAC3 (emotional gratitude item) to gratitude. Moreover, the factor loading for emotional gratitude parameters were very low (see Figure 10). The latent variable gratitude ($T = 12.40, p < .05$) was reported to have significant effects on helping tendency. The structure equation was listed as followed:

$$\text{HelpTend} = 0.47 * \text{Gratitud} + \text{Errorvar} = 0.38, R^2 = 0.37$$

(0.038)	(0.035)
12.40	10.65

Research Question Three

Can each cluster represent the unique characteristics of observations with different levels of moral judgment and indebtedness? According to the prior study and the results from the first section, moral judgment indexes might not have direct effects on gratitude or the way how gratitude affected prosocial outcomes. However, moral judgment indices (maintaining norms index and personal interest index) and indebtedness were found to be correlated (Liu & Thoma, 2013). In this study, the maintaining norms index had a significant correlation with indebtedness scores. To examine how moral judgment affected gratitude and prosocial outcomes with indebtedness, observations were clustered by using the maintaining norms index, P score, dispositional indebtedness and emotional indebtedness scores.

K-Means Clustering

All scores had been standardized before the clustering analysis. There were three major indexes for moral judgment. The reason to include P score and MN score was that MN score had the strong connection with indebtedness and P score was the primary index that reflects one's moral reasoning level. Due to the theoretical assumptions, there were six possible clusters were identified. Thus, K was assigned to six initially (K=6). If the observations cannot be equally

distributed to six clusters and with each cluster efficiently representing the characteristics of moral judgment and indebtedness, the number for K would be reduced to five, four, three, two until the best number for clusters was identified.

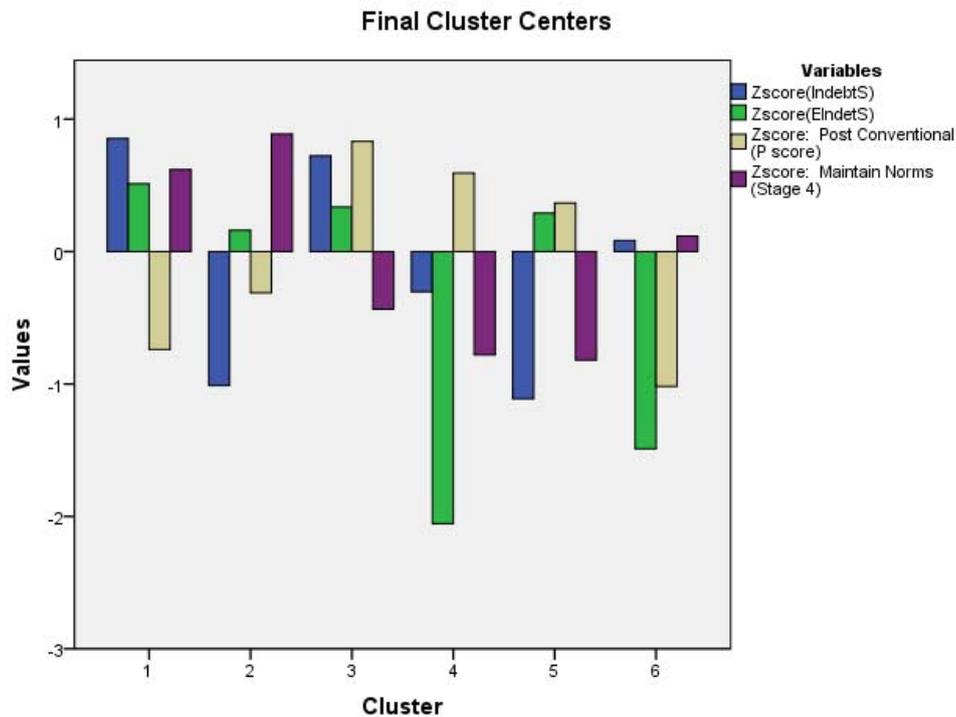


Figure 11. K-means clustering (K = 6)

When K = 6, F value for P score, $F(5, 514) = 76.18, p < .001$, and MN score, $F(5, 514) = 100.59, p < .001$, were smaller than those for dispositional indebtedness, $F(5, 514) = 270.15, p < .001$, or emotional indebtedness, $F(5, 514) = 158.95, p < .001$. It indicated that P score contributed a little to the clustering analysis. Bonferroni, Scheffe and Tukey post hoc tests were conducted. The results showed that Cluster 1 and 2, Cluster 3 and 6 reported no differences on dispositional indebtedness and emotional indebtedness. Results for cluster 3 and 6 showed there was no significant difference on dispositional indebtedness. Results for cluster 2 and 3 showed no significant difference on emotional indebtedness and P score. Results for cluster 2 and 4

showed no significant difference on emotional indebtedness and P score. Results for cluster 3 and 4 showed no significant difference on emotional indebtedness and P score. Results for cluster 4 and 5 showed no significant difference on P score. And there were no significant difference found on MN score (see Figure 11). Therefore, assigning $k = 6$ did not work either theoretically or statistically.

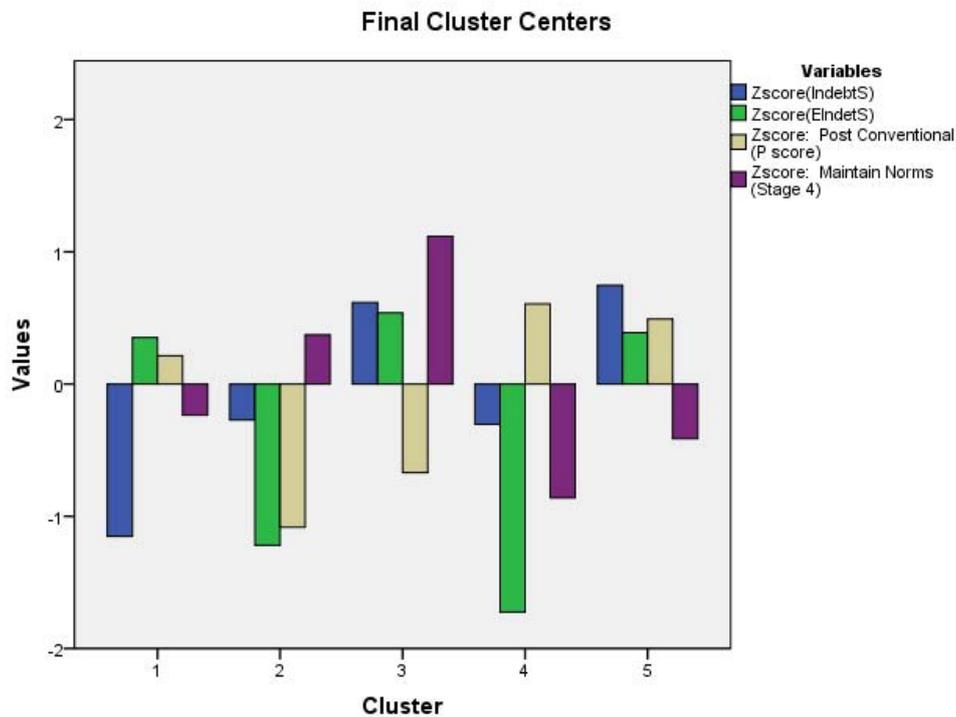


Figure 12. K-means clustering ($K = 5$)

When $K = 5$ (see Figure 12), even though the four standard scores for clustering were significantly different across groups, F value for P score $F(4, 515) = 73.89, p < .001$, and MN score, $F(4, 515) = 92.76, p < .001$, were much smaller dispositional indebtedness, $F(4, 515) = 201.32, p < .001$, and emotional indebtedness, $F(4, 515) = 213.41, p < .001$. It revealed that the moral judgment indices contribute little to the clustering analysis. The post hoc tests showed that Cluster 2, 4 and 5 had no difference on emotional indebtedness; Cluster 1 and 2, had no

difference on P scores; Cluster 4 and 5 had no differences on MN scores, and Cluster 1 and 5 had no significant differences on MN scores. So clustering the observations into 5 groups might not be the best choice.

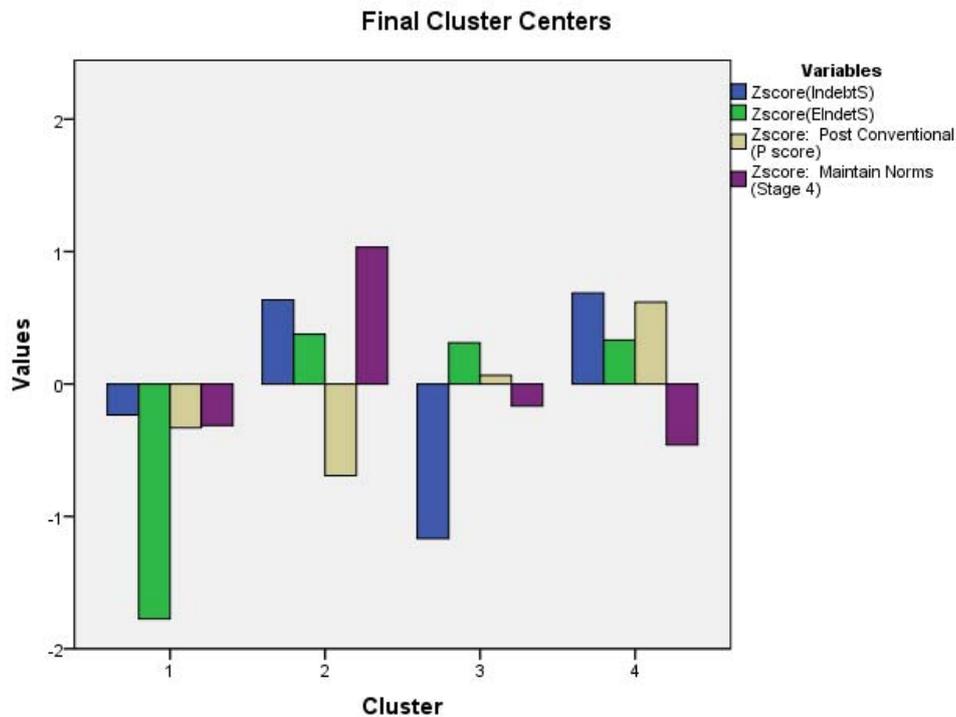


Figure 13. K-means clustering (K = 4)

When K = 4 (see Figure 13), the scores of indebtedness and moral judgment in 4 clusters were found to be significantly different between clusters. However, F value for P score, $F(3, 516) = 58.70, p < .001$, and MN score, $F(3, 516) = 90.24, p < .001$, were much smaller than those for dispositional indebtedness, $F(3, 516) = 312.10, p < .001$, and emotional indebtedness scores, $F(3, 516) = 257.60, p < .001$. This finding indicated that the two moral judgment scores did not differentiate the groups. One-way ANOVA and post hoc tests were conducted by using the clustering variable as the independent variable. It was found that the Cluster 2 and 4 had no differences on dispositional indebtedness; Cluster 1, 3 and 4 had no significant differences on

emotional indebtedness; and Cluster 1 and 3 had no significant differences on maintaining norms index.

Similar with the last two attempts, moral judgment indices was not counted much for the clustering process. In other words, the groups were categorized primarily based on the indebtedness scores. However, one of major focuses in the study was to explore the relationship between moral judgment and gratitude. Therefore, moral judgment indexes were expected to be counted more for clustering.

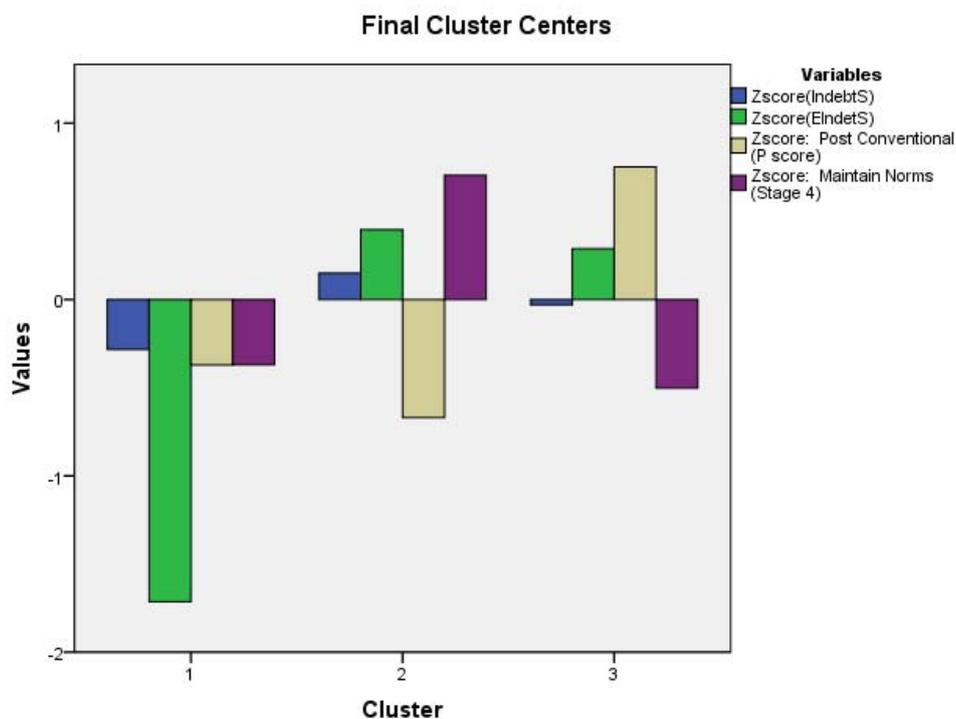


Figure 14. K-means clustering (K = 3)

When K = 3, the four scores were reported to be significantly different across clusters (see Table 5). The F value for the dispositional indebtedness was much smaller, $F(2, 517) = 6.0$, $p < .01$, indicating a less contribution to the clustering. However, moral judgment indices were heavily counted for this 3-cluster model. F values for P score, $F(2, 517) = 211.10$, $p < .001$, and

MN score, $F(2, 517) = 127.90, p < .001$ were increased. Emotional indebtedness still had major contribution to the clustering, $F(2, 517) = 386.84, p < .001$. The P score was significantly different across three clusters (see Table 6).

Table 5

Final Cluster Centers

Z scores	N	Minmum	Maximum	Cluster Centers		
				1	2	3
ZIndebtS	519	-2.78082	2.38567	-.28340	.15007	-.02948
ZEIndebtS	520	-5.20885	1.00761	-1.71380	.39626	.28777
ZP score	520	-2.43697	2.77111	-.37182	-.67031	.75212
MN score	520	-1.92569	3.29750	-.36973	.70453	-.50238

Cluster 1 included observations with comparatively low dispositional indebtedness (IndebtS), low emotional indebtedness (EIndetS), low score on Maintaining Norms (MN score), and low scores on P index; Cluster 2 represented observations with medium to high dispositional (IndebtS), high emotional indebtedness (EIndetS), high on maintain norms index (MN), and low on P score; the last cluster, cluster 3 had observations with average medium to highdispositional indebtedness (IndebtS), comparatively high emotional indebtedness (EIndetS), and low on maintain norms score (MN) and high on P score. In fact, moral judgment indexes were percentage scores ranged from 0 to 95. Low post-conventional score and low maintaining norms score indicated a high personal interest score. Thus, cluster 1 could also be interpreted as observations with low indebtedness scores and high Personal Interest score (PI) (see Figure 17).

Even though significant differences on emotional and dispositional indebtedness were found between clusters, it is easier to name the clusters with different levels of moral judgment, since each group was featured with a particular moral judgment level. Cluster 1 is the personal

interest (PI) group, which included observations who scored high on personal interest index and low on indebtedness; cluster 2 is maintaining norms (MN) group that had observations with high maintaining norms scores and average indebtedness scores; and cluster 3 is the post-conventional (P) group with observations who scored high on post-conventional index and average on indebtedness.

Since the three clusters were represented by different levels of moral judgment, to better describe the features of groups, the clusters were named for the moral judgment index that each group represented. Cluster 1 is the personal interest (PI) group; cluster 2 is maintaining norms (MN) group; and cluster 3 is the post-conventional (P) group.

The results of Tukey's post hoc test indicated that dispositional indebtedness was found to be significantly different between cluster PI and MN and emotional indebtedness was found to be significantly different between cluster PI and MN, and cluster PI and P (Table 6). Cluster PI and P, Cluster MN and P, had no significant differences on dispositional indebtedness; Cluster MN and P had no significant differences on emotional indebtedness. It merely stated that there was no significant difference on indebtedness scores between for Cluster MN and P. However, both emotional indebtedness and dispositional indebtedness were found to be significantly different between cluster PI and MN. The significant difference of indebtedness scores between Cluster PI and MN, only confirmed the group descriptions for Cluster MN – high on indebtedness scores and high on Maintaining Norms score, but also highlighted the feature of group PI, high personal interest scores was grouped with lowest indebtedness score. P scores were found to be significantly different between groups. The maintaining norms scores were found not to be significantly different from Cluster PI to Cluster P. Cluster PI was featured with high personal interest score and cluster P included observations with high post-conventional

scores. Therefore, the maintaining norms scores for cluster PI and P should be low and it did not have to be different from each other. Significant differences of indebtedness were identified between Cluster PI and MN (see Table 6). In general, the significant differences were found for moral judgment indexes between clusters and only cluster PI had significant lower indebtedness score from cluster MN and cluster P.

Table 6

Tukey HSD Comparison for Indebtedness and Moral Judgement Scores by Three Clusters

DV	95% Confidence Interval						
	(I) Cluster #	(J) Cluster #.	Mean Diff (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Z(IndebtS)	1	2	-.43346332*	.12707449	.002	-.7321495	-.1347771
		3	-.25391972	.12542063	.107	-.5487185	.0408791
	2	1	.43346332*	.12707449	.002	.1347771	.7321495
		3	.17954360	.09519316	.144	-.0442061	.4032933
	3	1	.25391972	.12542063	.107	-.0408791	.5487185
		2	-.17954360	.09519316	.144	-.4032933	.0442061
Z(EIndebtS)	1	2	-2.10964365*	.08277616	.000	-2.3042074	-1.9150798
		3	-2.00115136*	.08169884	.000	-2.1931829	-1.8091198
	2	1	2.10964365*	.08277616	.000	1.9150798	2.3042074
		3	.10849229	.06200870	.188	-.0372580	.2542426
	3	1	2.00115136*	.08169884	.000	1.8091198	2.1931829
		2	-.10849229	.06200870	.188	-.2542426	.0372580
Z(P score)	1	2	.29849603*	.09536800	.005	.0743354	.5226567
		3	-1.12393652*	.09412679	.000	-1.3451798	-.9026933
	2	1	-.29849603*	.09536800	.005	-.5226567	-.0743354
		3	-1.42243255*	.07144141	.000	-1.5903542	-1.2545109
	3	1	1.12393652*	.09412679	.000	.9026933	1.3451798
		2	1.42243255*	.07144141	.000	1.2545109	1.5903542
Z (MN score)	1	2	-1.07425208*	.10513513	.000	-1.3213702	-.8271339
		3	.13265581	.10376681	.408	-.1112461	.3765577
	2	1	1.07425208*	.10513513	.000	.8271339	1.3213702
		3	1.20690789*	.07875810	.000	1.0217885	1.3920273
	3	1	-.13265581	.10376681	.408	-.3765577	.1112461
		2	-1.20690789*	.07875810	.000	-1.3920273	-1.0217885

*. The mean difference is significant at the 0.01 level.

By reviewing the results of clustering analysis, dispositional indebtedness demonstrated similar patterns while working with three other scores. By randomly setting the starting point and re-running the tests for six times, the 3 clusters were always identified. The iteration was still going (the value was not zero) by 10 – the default maximum number of iteration in SPSS. The researcher reset the iteration number to 20 and the iteration stopped by 14, which indicated a stable clustering. In fact, the clustering was based on the significant differences on moral judgment indices and indebtedness, especially dispositional indebtedness contributed little on clustering. Therefore, the researcher determined to take the 3-cluster model and used it as the moderator variable to the interaction effects (see Figure 14).

Table 7

Number of Cases in Each Cluster

	<i>N</i>
Cluster 1	86
Cluster 2	207
Cluster 3	227
Total	520

Cluster PI (N = 86) included fewer cases than those in Cluster MN (N =207) and P (N =227) (Table 7).

Differences of Major Variables by Clusters

Besides the indebtedness scores and moral judgment scores, participants' dispositional gratitude, $F(2, 517) = 4.774, p < .01$; emotional gratitude, $F(2, 517) = 12.636, p < .001$ and helping/prosocial behavior, $F(2, 517) = 3.958, p < .05$, were reported to be significantly different between groups. Participants in Cluster MN scored significantly higher on helping behavior (M = .44, SD = .22, N = 207), and emotional gratitude (M = 19.14, SD = 2.48, N =

whereas individuals in Cluster P scored significant higher on dispositional gratitude ($M = 33.82$, $SD = 4.03$, $N = 227$). It meant that participants who had high indebtedness and maintaining norms score, tend to have more grateful feelings and helping behaviors after being helped; and participants who had medium to high indebtedness and high post conventional score, were grateful people.

Research Question Four

Do observations in different clusters (formed by moral judgment and indebtedness indices) demonstrate different relationships between gratitude and prosocial outcomes? To examine how moral judgment and indebtedness affect gratitude and its relationship with prosocial outcomes, it was important to identify the independent variables and dependent variables in the model. Through the confirmatory factor analysis and path analyses, the relationship between gratitude and prosocial outcomes were best represented by the Gratitude-Prosocial Model 2 (see Figure 10). Since the gratitude can be measured as one latent variable and all three scales were 7-point Likert scales, a new observed variable was created by summing up the scores of each gratitude item. The new mean score of gratitude would be treated as the independent variable. Since the observed scores for behavioral responses did not sufficiently support the latent variable (Behavioral Responses), it would not be included in the model. The only dependent variable would be helping tendencies.

Moderation Model and Interaction Effects

The cluster variable was dummy-coded into two binary variables with D1 representing Cluster 2 and D2 describing Cluster 3 (see Table 7). SPSS Macro Process was used to test the moderation model. The Model 1 in the Hayes (2013)'s Template was adopted for the analysis. The conceptual diagram was showed as follows (see Figure 15).

Table 8

Cluster Variable Dummy Coding

Cluster (K = 3)	D1	D2
Cluster1	.00	.00
Cluster2	1.00	.00
Cluster3	.00	1.00

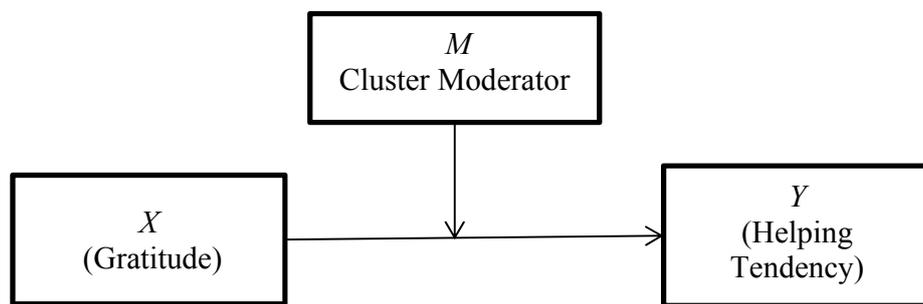


Figure 15. Template of moderation model

In moderation model, the independent variable was gratitude, and the dependent variable was helping tendency. The cluster variable was the categorical moderator. The overall moderation model was reported to be significant, $F(5, 514) = 36.18, p < .001, R^2 = .49$ (Table 9).

Table 9

Model Summary for the Overall Model

<i>R</i>	<i>R-sq</i>	<i>MSE</i>	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
.4863	.2365	14.4810	36.1841	5	514	.000

By looking at the predictors one by one, none of the predictors was reported to have significant main effects on helping tendencies but the interaction effects were significant. The interaction effects of Cluster MN and gratitude on predicting helping tendency was reported to

be significant: $b = .29$, $t(514) = 3.71$, $p < .001$. Also, the interaction effects of Cluster 3 and gratitude was also significant: $b = .23$, $t(514) = 2.94$, $p < .01$ (see Table 10).

Table 10

Model Summary of Predictors and Interactions

Model 1	Coeff (b)	se	t	p	LLCI	ULCI
constant	25.0420	.4673	53.5905	.0000	24.1240	25.9600
Gratitude	.1242	.0651	1.9083	.0569	-.0037	.2520
D1	.5631	.5405	1.0419	.2980	-.4987	1.6249
D2	.6234	.5285	1.1794	.2388	-.4150	1.6618
Int_1(D1*Gratitude)	.2880	.0777	3.7065	.0002	.1353	.4407
Int_2(D2*Gratitude)	.2258	.0768	2.9406	.0034	.0749	.3766

Furthermore, the interaction effects made significant influences on promoting the relationship between gratitude and helping tendencies, $F(2, 514) = 6.97$, $p = .001$, $\Delta\chi^2 = .02$. It meant that the moderator did enhance the effects of gratitude had on helping tendencies. Also, the interaction effects made the correlation between gratitude and helping tendencies decrease from $r = .46$, $p < .001$ to $r = .42$, $p < .01$.

The interaction effects were further explained in Table 11. Cluster PI had no interaction effects on predicting helping tendencies. It meant that low indebtedness and high personal interest scores did not influence the way how gratitude affect helping tendencies. In other words, individuals who scored low on indebtedness, high on personal interest index and dispositional gratitude, did not have high tendencies for helping others.

Cluster MN was reported to have significant interaction effects on helping tendencies: $b = .41$, $t(514) = 9.70$, $p < .001$. It indicated that individuals with high maintaining norms, and average indebtedness, and high gratitude were more likely to have high tendencies for helping other people. Individuals in Cluster P, $b = .35$, $t(514) = 8.58$, $p < .001$, with high gratitude would

score higher on helping tendencies. In other words, individuals with high post conventional, average indebtedness scores, tend to help others if they were grateful persons.

Table 11

Conditional Effect of Gratitude on Helping Tendencies by Clusters

Cluster#	Coeff (b)	se	t	p	LLCI	ULCI
1	.1242	.0651	1.9083	.0569	-.0037	.2520
2	.4122	.0425	9.7018	.0000	.3287	.4956
3	.3499	.0408	8.5820	.0000	.2698	.4301

The regression lines showed that the both cluster MN and P had significant interaction effects with gratitude on helping tendencies. However, cluster PI did not predict helping tendencies with gratitude (see Figure 16). In conclusion, the interaction effect was significant when moral judgment was high on maintaining norms or post-conventional and indebtedness was average. There was no reported interaction when personal interest was high and indebtedness was low.

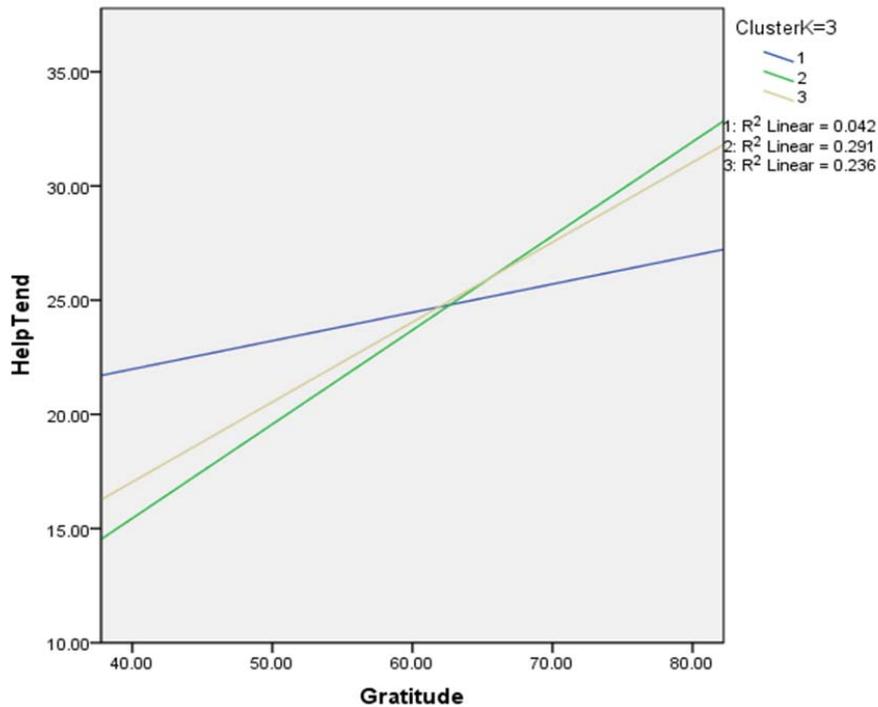


Figure 16. Regression lines for moderation model (gratitude-helptend)

Furthermore, the results suggested that the relation between gratitude and helping tendency was intervened most by one's moral reasoning level. Grateful people who made moral decisions through post-conventional reasoning or maintaining norms schema tend to help other people. In other words, the indebted individuals who preferred the maintaining norms schema or post-conventional schema, their helping tendencies increased as gratitude increased. Or it can be concluded that personal interest reasoner with low indebtedness will not have high helping tendency even they feel grateful. The relationship between gratitude and helping tendency was not found for participants who scored high on personal interest index and low on indebtedness.

CHAPTER V: DISCUSSION AND CONCLUSIONS

This study was designed to examine the three notions of gratitude and how these manifestations contribute to gratitude as a single latent variable; to test the relationship between gratitude and prosocial outcomes; and to assess how moral judgment and indebtedness act together to influence the relationship between gratitude and helping tendency among Chinese college students. In general, the study focused on examining gratitude in a measurement model with three manifestations by using the confirmatory factor analysis; setting up the gratitude-prosocial model with a path analysis; forming the moderator by grouping indebtedness and moral judgment indexes with k-means clustering; and testing the interaction effects in the moderation model. The chapter is arranged by research questions. Major findings of demographic differences are discussed.

Significance and Findings

Gratitude Manifestations

There is an open debate on how to define gratitude. The conception of gratitude can be tracked back to the ancient time in various cultures (McCullough et al., 2002; Zhao, 2010). The most widely adopted notions of gratitude included dispositional gratitude, which is often measured by the Gratitude Questionnaire-6, virtuous gratitude and emotional gratitude or state level of gratitude (McCullough et al., 2002; Carr, 2015; McCullough et al., 2001; Gulliford, Morgan, & Kristja'nsson, 2013).

In order to find out if there is a global definition of gratitude, the study tested the measurement model for gratitude by involving these three different manifestations of gratitude. The global definition of gratitude may include different facets of the construct but should explain the essence of gratitude. For example, gratitude could have the function as a virtue or disposition, but all should include the cognitive and emotion components which would influence behaviors.

The results of confirmatory factor analyses showed that all three manifestations of gratitude could be explained by a single latent variable even though three different scales were used. This finding increases the possibility that the different notions of gratitude actually share a common aspect of gratitude. Different representations can merge into one single construct – gratitude. The measures might locate gratitude from different perspectives but the essence of the construct was still the same. This finding may simplify the way to generalize gratitude in different aspects. In fact, the emotional component can be identified in both dispositional gratitude and emotional gratitude; whereas the cognitive component was emphasized by both dispositional gratitude and virtuous gratitude (McCullough et al., 2002; Carr, 2015; Vo, 2014; McCullough, Tsang, & Emmons, 2004b). Therefore, the study proves that virtuous gratitude, dispositional gratitude and emotional gratitude overlapped with each other in measures and notions.

The results re-confirmed that gratitude was a unique construct that have multiple functions in different areas (McCullough et al., 2002; Algoe, Fredrickson, & Gable, 2013; Carr, 2015). These findings are not contrary to the multi-fact view of gratitude, but were helpful to clarify the construct.

Different measures might be used to examine different notions of gratitude, but any valid and reliable gratitude measures would reflect a general form of gratitude beyond other specific

features. For example, the scale items for dispositional gratitude and virtuous gratitude were strongly correlated. Even though disposition and virtue are two independent constructs, the part for general gratitude was shared in common (McCullough et al., 2002; Carr, 2015; Lott, 2012).

A new observed variable was created for gratitude by summing all scale items, since all three scales of gratitude were 7-point Likert scale and all items fell on one single variable. It was helpful to look at gratitude as a whole variable so the strength of the construct would be enhanced.

In the measurement model, all the observed indicators significantly contributed to gratitude except for one of the emotional gratitude items “thankful” which reported a non-significant path. Moreover, the factor loadings of emotional gratitude items were very low ($< .25$). Even though the measurement model of gratitude was reported to have a good model fit (Estimated Non-centrality Parameter was reported to be zero indicated a perfect model, Schumacker & Lomax, 2010), the contribution of emotional gratitude was minimal. The reason for this problem might be related to the measure, homogenous sample, and the special feature of the emotional gratitude. Emotional gratitude focused the state level of gratitude that might vary due to different situations (McCullough et al., 2004b; Polak & McCullough, 2006). Zhao (2010) found inconsistency between dispositional gratitude and emotional gratitude in some gratitude scenarios – being grateful to a particular event or a person at the moment but not being grateful in general or have negative feelings toward a person or event in different occasions. Therefore, gratitude cannot be simply understood as a positive emotion or affect. The cognitive component which would lead to emotions and behaviors should be considered first.

Gratitude and Prosocial Outcomes

Noticed by McCullough and his colleagues (2001), the notion of gratitude is increasingly noted by more and more researchers and scholars (Haidt, 2003; Shelton, 2004). As a moral emotion, gratitude was found to be significantly correlated with prosocial behaviors and helping tendencies, and it facilitated reciprocal altruism (Zhao, 2010; Watkins et al., 2006; Naito, Wangwan, & Tani, 2005; Tsang, 2006a; Barlett & DeSteno, 2006; McCullough, Kimeldorf, & Cohen, 2008). The expression of gratitude and relational responses increased prosocial behaviors (Grant & Gino, 2010; Algoe, Kurtz, & Hilaire, 2016). Grateful individuals were more likely to behave actively and engagingly toward the helper (Harpham, 2004; Zhao, 2010; Wellman, 1999). At the same time, helping tendency was showed as a good indicator for prosocial outcomes (Zhao, 2010). Testing the relationship between gratitude and prosocial outcomes would help with identifying and confirming gratitude as a moral emotion particularly within a Chinese sample. Helping tendencies and behavioral responses to the helper were successfully used to test the prosocial outcomes in Zhao (2010) and Cohen (2012)'s study respectively. Helping Tendencies Checklist and Behavioral Responses to Benefit Checklist were adopted for measuring prosocial outcomes. The results revealed that the behavioral responses variable did not fit in the measurement model of prosocial outcomes, but helping tendency did appear to be a good indicator. The reason that two indicators did not fit in the one-factor model for prosocial outcomes might be helping tendency and behavioral responses were measured by two different scales. And the converted percentage scale for behavioral responses variable might be powerful enough to describe the latent variable. The results of the Two-Factor Model showed that the behavioral responses variable contribute little to the model. It was not consistent with previous findings (Cohen, 2012; Grant & Gino, 2010; Watkins et al., 2006; Naito, Wangwan, & Tani,

2005). However, these studies emphasized the reciprocal responses and relations which included responses from both recipients and helpers. Therefore, focusing on the recipients' perspective only might influence effects of the variable. By adding the one-factor gratitude as the independent variable, the gratitude-prosocial model was tested with path analysis. Unfortunately, the observed variables of behavioral responses kept showing invalid path indicating no contribution to the latent variable. Gratitude also reported an unacceptable low *t*-value of the path for behavioral responses, which indicated little effect on behavioral responses. All paths for gratitude were significant except for one emotional gratitude item proved that one-factor model could be used to measure gratitude as one latent variable; whereas the measurement model for prosocial outcomes showed that behavioral responses contributed little to the model. The moderation model confirmed the results for measurement model of prosocial outcomes that behavioral responses variable did not fit the model. This is against the previous findings that gratitude was correlated to active behavioral responses (Cohen, 2012). To construct a good model and to study a reliable relationship, the variable of behavioral responses was dropped. It was not consistent with the results in Cohen's (2012) study; gratitude promoted the active behavioral responses for American populations with the majority of Caucasians. One cause of the inconsistency might be that the measure was changed from a Likert scale to a percentage scored checklist in order to ensure an efficient response time for participants to complete the survey. Since the survey was required to complete in one-sitting, the length of the survey was limited. It was time consuming and a little redundant to rate every single behavioral response with a Likert scale. However, to the statistical point, it was easier to keep the instruments that shared the same type of scoring method. It didn't say the percentage score was not as efficient as

the Likert sum score. But a change of scoring method might lead to problems and inconsistency of the results.

Another reason why behavior responses variable did not fit in the model could be the special characteristics of this particular sample. The low scores on active behavioral responses were not consistent with features of Asian or Chinese populations (Naito et al., 2005; Tian, Du, & Huenber, 2015). The prior findings on gratitude and helping tendencies were supported that dispositional gratitude was related to beneficiary's helping tendencies and it was confirmed by the current study (Zhao, 2010). However, in the final model, the path from one of the emotional gratitude items to latent gratitude was still nonsignificant and low factor loading were reported as well. The factor loadings were even smaller when prosocial outcomes were added to the model. Beyond the reasons that were discussed with the last question, the decrease of the factor loadings might due to the fewer contribution of emotional gratitude on helping tendencies. It stated that the emotional gratitude had little influence on one's helping tendency.

Cluster moderator. Even though the moral function of gratitude has been recognized (McCullough et al., 2001; Shelton, 2004), few empirical studies have been conducted to test this view, especially for the relation between moral judgment and gratitude. However, Liu and Thoma (2013) found that gratitude was not significantly correlated with moral judgment indexes but indebtedness was found to be correlated with maintaining norms index. Hence, there was an assumption that moral judgment might influence gratitude and prosocial tendencies or behaviors through indebtedness. Research question three was designed to examine how moral judgment and indebtedness could work together as a moderator.

The notion of gratitude's moral function, *moral barometer*, *moral motive* and *moral reinforcer*, appears to be Rest's four-component model, *moral sensitivity*, *moral motivation* and

moral implement (McCullough et al., 2001; Rest, 1983). However, little literature was found on gratitude and moral judgment. The only empirical study conducted with American Caucasians and African Americans provided one clue; the obligated feelings was significantly correlated with the maintaining norms index of moral judgment. Since there was no correlation found between gratitude and moral judgment, the moderation effects of moral judgment require the involvement of indebtedness. That is why clustering method was used to form the moderator on the basis of indebtedness scores and moral judgment indexes.

Since one of the primary goals of the study was to examine how moral judgment affects gratitude or gratitude-prosocial relation, the cluster model would not be accepted when the moral judgment indexes contribute little in the clustering process. When $K = 6, 5,$ and 4 respectively, the moral judgment indexes contributed very little to the clustering and moral judgment indexes were identical between groups. Therefore, the 3-cluster model was kept because the three groups represent different levels of moral reasoning respectively. Indebtedness did play its role in describing the features of different clusters as well.

Cluster PI and P had no significant difference on maintaining norms score. It was not a problem and could be explained theoretically. The moral judgment indexes were all percentage scores that were calculated involving specific items for that level in each moral scenario (Rest, Thoma, & Bebeau, 1999b). Cluster PI represented individuals with high percentage score on personal interest index while Cluster P was featured with high percentage score on post-conventional level. It meant that the maintaining norms score for both clusters were comparatively lower than either personal interest score or post-conventional score. Thus, the identical maintaining norms scores of Cluster PI and P would not interfere with the settings of the 3-cluster moderator.

The largest significant differences were identified between cluster PI and MN. Cluster PI had observations scored lowest on emotional indebtedness and dispositional indebtedness, whereas cluster MN included observations reported highest scores on emotional and dispositional indebtedness. The characteristics of the two groups highlighted the contribution of moral judgment index and indebtedness. It supported the assumption that the moderator did differentiate the clusters by engaging moral judgment and indebtedness. In addition, the emotional gratitude, dispositional gratitude and helping behavioral response were found to be significantly different between Cluster MN and P. Individuals who, preferred to use maintaining norms schema, were more easily to feel gratefully and helping behavioral response; and Individuals who preferred post-conventional schema, were tend to be grateful people. Participants, who made moral decisions by using maintaining norms schema, tended to follow the regulations, laws, social norms and expectations (Thoma et al., 1999). So they would be more likely to behave “normally” by following the social expectations at the particular moment. For example, being grateful and repay the helpers were expected by the society. Individuals reasoned with the maintaining norms schema would act as what has been expected. In consequences, they would feel grateful when they were helped and the emotional gratitude as situational feelings, were reported to be high. Participants, who preferred post-conventional schema, would have a broader view of the society – considering the social arrangements and relationship intuitively and insisting on basic human rights, etc. (Rest et al., 1999a; Bebeau & Thoma, 2003). Gratitude is a natural instinct of human beings (Emmons & Crumpler, 2000). Participants, who adhere to post-conventional schema, would not treat gratitude as a norm but take it like a human strength or a virtue that was inherited to them.

The linkage of gratitude and moral judgment scores is a new finding. These findings indicate a clear relationship between maintaining norms and post conventional schema and emotional and dispositional gratitude. Furthermore, the maintaining norms schema might also be connected to helping or prosocial behavioral responses.

Participants who preferred Maintaining Norms schema are grateful while being helped; whereas participants who preferred Post-conventional schema are more likely to become a grateful person. Moral judgment is a developmental construct (Thoma, 2014). As such, the results suggest that with moral judgment gratitude may shift from a state level to a dispositional level. From the view of development, individuals' gratitude might develop as their moral judgment develops.

Moderation Model

To assess how moral judgment and indebtedness jointly influence gratitude and its relationship with helping tendency, the moderation model included gratitude – the new variable created by summing the three scale item scores; cluster moderator, made of moral judgment scores and indebtedness scores; and helping tendencies.

The overall moderation model was reported to be significant which indicated that the cluster moderator and gratitude combined to predict helping tendencies. However, it was interesting to see that either gratitude or the cluster variable had significant main effects on helping tendencies since gratitude was reported to significantly affect helping tendencies in the final Gratitude-Prosocial model. The non-significant main effect indicated that gratitude was no longer having major influences on helping tendencies when the cluster moderator was added. Actually, the interaction proved that moral judgment, indebtedness and gratitude combined to

affect helping tendencies. It is a joint influence and should not be viewed separately. That is why the main effect was not significant for either gratitude or moderator.

The significant interaction effects proved that moral judgment and indebtedness did influence one's helping tendencies with gratitude, especially when people are maintaining norms or post-conventional reasoners with average indebtedness. For personal interest reasoners with low indebtedness, their helping tendencies would not increase as their gratitude increased. In general, cluster MN and cluster P demonstrated the similar pattern on affecting gratitude-prosocial relationship. Whereas cluster PI displayed a different function that it weakened the gratitude-prosocial relationship. That is to say, individuals who care more about personal relationship, like families or friends, over laws or rules, tended not to feel indebted; and their gratitude and helping tendencies were not related. People who reasoned by using personal interest schema emphasized benefits of his or her social circle of family and friends, etc. and they often focus on one's intention or motives when a violation occurred. When there was a violation of rules, they would prioritize the relationship and evaluate it by violator's intentions (Bebeau & Thoma, 2003; Rest et al., 1999a). When personal interest reasoners did not feel indebted to helpers, they may interpret helpers' intention or helping behaviors in a different way. In support of this view, participants in this group reported the lowest indebtedness scores. It is possible that personal interest reasoners did not value the intentions of helpers' which lead to no action or tendencies even though they have grateful feelings.

Participants who stick to maintaining norms schema would develop an understanding of the world by prioritizing the social rules, existing regulations, social expectations, or norms, etc. They also emphasized the hierarchy roles and respected the authorities (Bebeau & Thoma, 2003). The group of people might believe that helping other people was a social expected behavior that

they should follow after being helped by others. Participants, who adhere to Post-conventional schema, tend to generalize the world based on a universal ethical value and not limit their thinking to the existing rules or laws. They would believe that moral rules should not be simplified by laws or social regulations of a particular area or culture but to focus on shared ideals, primary human rights, fully reciprocal relation and a larger picture of human kind (Bebeau & Thoma, 2003; Rest, et al., 1999a). Instead of treating gratitude as a norm, they prioritize gratitude as a universal value that should happen in every culture (McCullough et al., 2002; Gulliford, Morgan, & Kristja'nsson, 2013). As a human nature, they might develop gratitude by enhancing its effects in promoting social relationships.

The emotional indebtedness for cluster P was significant higher than that in cluster PI. It did not explain what high indebtedness would do but it stressed that low indebtedness would not contribute to the gratitude-prosocial relationship. In cluster MN, participants emphasized the maintaining norms schema reported high rates on indebtedness. It might be because repayment was stressed as a social expectation. Social pressure would occur if the repayment was not achieved. It simply stated that individuals who preferred maintaining norms schema might treat gratitude as a social protocol so they felt obligated to repay the helpers. In China, the repayment to the helper was expected as a social norm and this enforcement of repaying was the major source for indebtedness. It implied that individuals would have high obligated feelings once the repayment was not completed. That is to say individuals with high indebtedness would be forced to engage in the reciprocal process, repaying the helpers (Hu, Gan, & Liu, 2012; Zhao, 2010). Thus, maintaining norms reasoners and post-conventional reasoners would have high gratitude with high helping tendencies only if their indebtedness were high.

In addition to the above mentioned explanations of the effect associated with Cluster PI it may be that statistical considerations can account for the weaker trends. Specifically, there were only 86 cases assigned to Cluster PI. Comparing with the number in Cluster 2 (N = 207) and Cluster 3 (N = 227), the insufficient number of cases is associated with reduced power and thus, might lead to a non-significant results.

Major Findings for Correlations

As expected moral judgment indexes were significantly correlated with indebtedness scores (Liu & Thoma, 2013). However, these findings were extended to emotional gratitude where it was found to positively relate to the maintaining norms index. Individuals who focused on maintaining norms schema tended to agree that gratitude was a ritual and was supposed to happen. The Chinese culture pinpointed gratitude as the social norm that should be followed by everyone (Zhao, 2010). Therefore, this new correlation might be a cultural endorsement. The negative correlation between personal interest score and emotional gratitude and emotional indebtedness further confirmed the characteristics of cluster PI, individuals who cared most of personal relationship and helper intention, would have low indebtedness after being helped, and felt less grateful at that moment because they did not interpret helpers' intentions in a positive way. It did disclose an interesting connection among moral judgment, indebtedness and gratitude. The non-significant interaction effects for cluster PI indicated that personal interest reasoners might interpret helpers' intentions differently from individuals who preferred maintaining norms schema and post-conventional schema, which cause a lacking of prosocial tendencies and behaviors.

Major Demographic Differences

Consistent with the results reported by Naito (2005) and his colleagues, males scored significantly higher on the emotional indebtedness, which confirmed with the assumption that males had stronger indebted feelings than females. Different from Cohen (2012)'s study, females scored significantly higher on actively behavioral responses.

The Chinese traditional idea set the different role expectations to males and females. Males were supposed to focus on career and take the financial responsibility whereas females were expected to pay attention to family interpersonal relations. Expressing gratitude was considered as a famine behavior (Kong, Ding, & Zhao, 2015). For this cultural reason, females reported higher scores on active behavioral responses than males.

In this study, participants who felt the most grateful for their families, scored significantly higher on Post-conventional index (P score and N2 score), emotional indebtedness, active behavior responses, helping/prosocial behavior, and active reciprocate behavior. It showed that participants who cared more about family relations were more likely to respond actively in the helper-recipient relationship, be willing to express gratitude toward the helper, and to do favors for the helper or others.

According to Naito et al. (2005)'s and Cohen (2012)'s, the relation between the benefactor and beneficiary did affect the level of gratitude that individuals perceived. Naito et al. (2005) reported that students would be more positive if the benefactor were families or friends comparing with strangers, and Cohen (2012) believed that the relation type did affect the future reciprocal contact. The current study reported that individuals tend to score high on indebtedness if the benefactors were families comparing with friends, the community, and the stranger. It was against the results of previous studies that individuals felt more indebted to strangers comparing

with families and friends (Cohen et al., 2005). The new finding reflected a cultural endorsement that family attachment and filial piety was emphasized in China which added the obligated feelings to the participants (Bai & Jin, 2016). Individuals did not report significant differences on gratitude scores across different relation type. Therefore, the relation type did not make major contribution to one's gratitude level or helping behaviors and tendencies.

In contrast to previous studies (Li, 2014; Li, 2016), participants who reported to be the only-child in the family, did not report lower scores on gratitude and moral judgment than those who have siblings. Instead, these participants scored higher on post-conventional index (P score and N2 score) which indicating a higher level of moral judgment.

Even though the One-Child policy (Chinese government was used to promote "one-family one-child" policy in order to control the large quantity of population) had been changed recently, the current college students were still the generation under the "one-child" policy. It had been debated that "one-child" policy contributed a lot to a problem that children were lacking of gratefulness. It was believed that the "one-child" policy had changed the family structure and made the child the center of the family which caused a "self-centered" personal value (Li, 2014). The study did not support that hypothesis that individuals with no siblings scored lower on gratitude measures than those who had siblings. On the hand, individuals with no siblings scored higher on Post-conventional score and N2 score, comparing with those who had siblings. The one-child family structure was not necessarily related to gratitude but might affect the way one reasons about moral issues. This new finding indicated that the only-child in family might not be the major problem for moral education and one's moral development. Instead, it may be that within an only-child family, more attention and resources were given to

the child and less hierarchy relations would be demonstrated, which might enable the child to look at social issues and relations in a broader view.

Limitations

Since the samples were collected in two universities from students who were available when the survey was distributed, the study is limited in making statements about the Chinese college population. The samples were recruited from two public universities in South Eastern area of China. Although students attending these colleges are recruited from different provinces all over China, one university's participants indicated that 65% students were from one province, which might further limit the variety of geographic distribution. Also, most samples were freshmen and juniors, and only a few samples were sophomores and seniors, limiting the developmental range of the sample. In the future study, more diverse samples have to be recruited in order to avoid the bias.

Although there were enough participants for most of the data analysis, the study involved the k-means clustering analysis which requires a large simple size. Only 86 cases were assigned in cluster PI and it might be a reason why the interaction effects of gratitude and cluster PI was not significant.

Emotional gratitude in the study was reported to have little endorsement to the measurement model of gratitude. The measure for emotional gratitude (GAC) was well validated and reported with high reliability in prior research and current study (McCullough et al., 2004b; McCullough et al., 2002). Thus, the measure should not be the cause to the problem. Zhao found the inconsistency between dispositional gratitude and state level of gratitude. In the current study, participants were asked to recall past grateful experiences. Participants' grateful feelings might be interfered with temporary events or feelings. For example, if he or she was upset about

the helper due to something else while taking the survey, their response would not be consistent then. Emotional gratitude might have its special function but the low factor loading might have another cause. It might be related to the unequally distributed samples which made the scale skewed.

There were also methodological limitations in this study. The Behavioral Responses to Benefit Checklist was used to measure one's behavioral responses toward the helper. The measure was modified based on the checklist created by Cohen (2012). However, the results of modifying the measure from a Likert to percentage rating scale might have less power than those in a scale. Therefore, before firm conclusions are drawn it will be important to test the measure in its more traditional format. Also, the Moral Ideal Self Scale (MISS) was the very powerful scale for measuring the moral virtue/moral self (Hardy et al., 2014). But two-item subscale that was used in the study might not be as powerful as it is as a whole scale.

In the gratitude-prosocial model, the path coefficients to the latent helping tendency was set to 1.0 in order to keep the indicator informing the latent variable without errors. Setting the paths to 0 is not ideal and may limit the conclusions that might be drawn from this study and in particular the finding that gratitude significantly predicts helping tendency. Whether the difficulty in fitting an appropriate model was due to the sample or modifications to the original measures is unknown. Due to the fit difficulty, and use of fixed factor loadings, all inferences surrounding from the path model need to be questioned and further examined. Thus, future studies should focus on the measures used to capture prosocial outcomes and remain sensitive to the possibility of cultural differences in the assessment process.

Another limitation might be due to the effect of the measure's "translation." Although the translation process strictly followed the "back translation" procedures and two bilingual

psychology instructors had reviewed the translations for further accuracy, it might still not be equivalent to the original version. Since the content of the scales may primarily reflect the culture and knowledge of the United States, Chinese participants might not fully understand the more subtle meanings of the sentences even though they knew every word literally in Chinese. For example, in DIT-2, one of the statements said, “does the right of habeas corpus apply in this case?” The Chinese participants understood literally about “habeas corpus.” But the case name itself was new to them and it might block them from identifying the appropriate items that they really would like to choose. But the influence of this kind of problem should be limited, not associated with a particular schema or level of gratitude and thus, should not significantly challenge the reliability of the scales. In support of this view, the findings generated by the scales were very similar to findings obtained in the US context (Bebeau & Thoma, 2003).

Future Directions

In order to have the best results, it was important to adopt the most accurate and appropriate measures for each construct. Creating an appropriate measure for the construct would be an important direction for future research.

In this study, the confirmatory factor analysis for the three major manifestations of gratitude indicated that gratitude could be generalized into one single latent variable. Although there were different scales focusing on different facets of gratitude, they did capture gratitude in a general state. Hence, it might be useful to develop one measure that fits the global definition of gratitude. Even though there was a good model identified for gratitude and helping tendencies, the measurement model of gratitude included one non-significant path while the measurement model of prosocial outcomes had the Behavioral Responses dropped. Better measures would be needed in the future research.

This study provided a new perspective to test the relationship between moral judgment and gratitude. Except for the pilot study (Liu & Thoma, 2013), no empirical studies provided evidence to support the relationship between gratitude and moral judgment. The clustering method specified a way to describe the connections between moral judgment and gratitude through indebtedness. Due to the limitation of the measures, the task for the next study would be comparing models for moral judgment and moral emotion gratitude, and have the model tested for different populations. Also, the endorsement of indebtedness was not fully explored since indebtedness had little effects while being grouped with moral judgment indexes. The moderation model for indebtedness can be included in the future studies.

Implications to the Field

Motivation and development are two major topics that have been studied for over a few decades in the field of educational psychology. Gratitude has been categorized into the field of motivation by its definition and function – the inner state which influences and explains one’s behavior (Elliot & Covington, 2001). Gratitude which was recognized as the “moral motivator” or “affective motivator,” did affect one’s prosocial behaviors (McCullough et al., 2001; McCullough et al., 2002; Milkulincer et al., 2010). Moreover, moral judgment was an important construct studied in the field of development (Lapsley, 1996). The relation between gratitude and moral judgment reflected the connection between motivation and development. Furthermore, it stressed the developmental feature of gratitude as a moral emotion. This study confirmed the connection between moral emotion and moral judgment (Haidt, 2003). To be specific, it addressed the relationship between gratitude as a moral affect, moral judgment, and prosocial tendencies. It highlighted the cognitive component of gratitude and how it is consistent with moral reasoning. The results contributed to literature of moral development that individuals’

reasoning would enhance the impact of moral emotion on prosocial tendencies and outcomes. The findings are important to moral education. Individuals who preferred the maintaining norms schema or post-conventional schema, prosocial tendencies increased as their gratitude increased. Cultivating gratitude and developing higher level of moral schema would lead to higher prosocial tendencies. Both moral emotion and moral reasoning have to be promoted in moral education.

The early-identified moral emotion constructs like empathy and sympathy have been studied with Western populations (Hoffman, 2000; Eisenberg et al., 2006). The moral function of gratitude, like its impact on prosocial behavior, was also been examined with American populations (Grant & Gino, 2010; Milkulincer & Shaver, 2010; Tsang, 2006a). Gratitude and indebtedness were recognized as two independent constructs and indebtedness was not a primary indicator for gratitude with American populations (Watkins et al., 2006; Tsang, 2006b). However, there was few empirical study was conducted to test the relationship between gratitude and moral judgment. Liu and Thoma (2013) only found there was significant correlation between indebtedness and moral judgment with small American samples. Therefore, it will be interesting to see if there will be cultural differences if the study was replicated with Western populations in the future.

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APPENDIX A:
DEMOGRAPHIC QUESTIONS

1. What is your *gender* (please circle): Male Female Other _____
2. What is your *age*?
3. Where is your *hometown* (the city and province that you have been living before college)?
4. Which *school* are you attending?
5. What is your *level of education* (please circle the highest level of formal education attained, if you are currently working at that level [e.g., freshmen in college] or if you have completed that level [e.g., if you finished your Freshman year but have gone on no further].)
 - (1) Freshmen;
 - (2) Sophomore;
 - (3) Junior;
 - (4) Senior;
 - (5) Vocational/technical school (without a bachelor's degree);
 - (6) Junior College (e.g. community college);
 - (7) Master's Degree (in academic graduate school);
 - (8) Doctoral degree (in academic graduate school, e.g., Ph.D. or Ed. D.);
 - (9) Post-Doctoral Training;
 - (10) Other Formal Education (please describe) _____
6. What is your major?
7. What is your race?
8. What is your Religion or Belief (please circle):
 - (1) Buddhism
 - (2) Taoism
 - (3) Christianity
 - (4) Islamism
 - (5) Judaism
 - (6) Atheism
 - (7) Confucianism
 - (8) Unsure
 - (9) Other _____

9. How many siblings do you have? _____

10. Are you living in the urban area or rural area? _____

APPENDIX B:
GENERAL INFORMATION QUESTIONNAIRE

By Adam Cohen, Ph.D.

Please recall people who helped you. Then keep in mind the specific person who made you feel MOST "*grateful*" for. Please answer the following questions regarding how you felt about the person when he/she helped you. For the given responses, if you choose "Other", please specify.

1. What gender is the person who helped you?

- (A) Male
- (B) Female
- (C) Other _____

2. Approximately how long ago did this event occur? _____

3. Is he or she still helping you? Yes No Other _____

4. Do you still keep in touch with him/her? Yes No Other _____

5. What is the relationship between you and the person who helped you?

- (1) Family member/like family
- (2) Friend (e.g. boy/girl friend, classmates, etc.)
- (3) Acquaintance (e.g. know this person but not good as friend yet)
- (4) Stranger
- (5) Social support (e.g. teacher, policeman, firefighter, doctor, counselor, coach, military, etc.)

6. On average, how often did he/she helped you during that time? Please circle one of the following responses.

- (A) Only once
- (B) Everyday
- (C) A few times a week
- (D) A few times a month
- (E) A few times per year
- (F) Every other year
- (G) Other _____

APPENDIX C:

THE GRATITUDE QUESTIONNAIRE-SIX ITEM FORM (GQ-6)

By Michael E. McCullough, Ph.D., Robert A. Emmons, Ph.D., Jo-Ann Tsang, Ph.D.

Using the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

1 = strongly disagree

2 = disagree

3 = slightly disagree

4 = neutral

5 = slightly agree

6 = agree

7 = strongly agree

___ 1. I have so much in life to be thankful for.

___ 2. If I had to list everything that I felt grateful for, it would be a very long list.

___ 3. When I look at the world, I don't see much to be grateful for.*

___ 4. I am grateful to a wide variety of people.

___ 5. As I get older I find myself more able to appreciate the people, events, and situations that have been part of my life history.

___ 6. Long amounts of time can go by before I feel grateful to something or someone.*

* Items 3 and 6 are reverse-scored.

APPENDIX D:

GRATITUDE ADJECTIVE CHECKLIST

By Michael E. McCullough, Ph.D., Robert A. Emmons, Ph.D., Jo-Ann Tsang, Ph.D.

Using the scale below, please indicate the extent to which you experienced the following feelings right after the person who helped you.

Completely Disagree 1 2 3 4 5 6 7 Completely Agree

“Right after the person did this nice thing for me, I felt. . .”

	Completely disagree							Completely agree
1. Appreciative	1	2	3	4	5	6		7
2. Grateful	1	2	3	4	5	6		7
3. Thankful	1	2	3	4	5	6		7

APPENDIX E:

MORAL IDEAL SELF SCALE (MISS, 20 ITEMS)

By Sam A. Hardy, Ph.D., Lawrence J. Walker, Ph.D., Joseph A. Olsen, Ph.D., Ryan D. Woodbury, Ph.D., Jacob R. Hickman, Ph.D.

When you think about the future, what do you want yourself to be like? This could be how you want to be later in your life, how you want to be next year, or even how you want to be tomorrow. With this in mind, rate each trait below according to how much it describes the type of person you really want to be. You should use a range of responses to show which traits most describe what you want to be like, and which traits least describe what you want to be like. In other words, you should try using most of the numbers on the scale from 1 to 7 at least some of the time, rather than putting the same number every time.

Item	Scale						
1. Generous	1 (Not at all)	2	3	4	5	6	7 (very much)
2. Good example	1 (Not at all)	2	3	4	5	6	7 (very much)
3. Respectful	1 (Not at all)	2	3	4	5	6	7 (very much)
4. Truthful	1 (Not at all)	2	3	4	5	6	7 (very much)
5. Stands up for his/her beliefs	1 (Not at all)	2	3	4	5	6	7 (very much)
6. Makes good choices	1 (Not at all)	2	3	4	5	6	7 (very much)
7. Responsible	1 (Not at all)	2	3	4	5	6	7 (very much)
8. Follows values	1 (Not at all)	2	3	4	5	6	7 (very much)
9. True	1 (Not at all)	2	3	4	5	6	7 (very much)
10. Loyal	1 (Not at all)	2	3	4	5	6	7 (very much)
11. Self-entered *	1 (Not at all)	2	3	4	5	6	7 (very much)
12. Does good actions	1 (Not at all)	2	3	4	5	6	7 (very much)
13. Understanding	1 (Not at all)	2	3	4	5	6	7 (very much)
14. Grateful	1 (Not at all)	2	3	4	5	6	7 (very much)
15. Compassionate	1 (Not at all)	2	3	4	5	6	7 (very much)
16. Has good values	1 (Not at all)	2	3	4	5	6	7 (very much)
17. Arrogant *	1 (Not at all)	2	3	4	5	6	7 (very much)
18. Loving	1 (Not at all)	2	3	4	5	6	7 (very much)
19. Forgiving	1 (Not at all)	2	3	4	5	6	7 (very much)
20. Quiet *	1 (Not at all)	2	3	4	5	6	7 (very much)
21. Considerate	1 (Not at all)	2	3	4	5	6	7 (very much)
22. Uncreative*	1 (Not at all)	2	3	4	5	6	7 (very much)
23. Caring	1 (Not at all)	2	3	4	5	6	7 (very much)
24. Careless *	1 (Not at all)	2	3	4	5	6	7 (very much)
25. Easily upset *	1 (Not at all)	2	3	4	5	6	7 (very much)
26. Helpful	1 (Not at all)	2	3	4	5	6	7 (very much)
27. Thankful	1 (Not at all)	2	3	4	5	6	7 (very much)

Note: 1. Distracter items (item 11, 17, 20, 22, 24, and 25) and one grateful item (item 14), were added to the original scale making it into a 27-item scale.

2. The 2-item subscale (Item 14 and 27) was used to measure virtuous gratitude.

APPENDIX F:

DISPOSITIONAL INDEBTEDNESS (6 ITEMS)

Selected from Gratitude and Indebtedness Questionnaire – 12 (GIQ-12)

By Yongjun Zhao, Ph.D.

The statements below are the feelings you have for life. Use the scale below and write a number beside each statement to indicate how much you agree with it.

1 = strongly disagree

2 = disagree

3 = slightly disagree

4 = neutral

5 = slightly agree

6 = agree

7 = strongly agree

- ___ 1. When I look at the world, I don't see much to be indebted to.*
- ___ 2. Long amounts of time can go by before I realize that I have to repay someone or something.*
- ___ 3. As I get older I feel more obligated to repay someone who helped me.
- ___ 4. I have so much in life to be indebted to.
- ___ 5. I feel indebted to a wide variety of people.
- ___ 6. If I had to list everything that I felt indebted to, it would be a very long list.

* Items 1 and 2 were reverse-scored.

APPENDIX G:

OBLIGATED FEELINGS CHECKLIST

Using the scale below, please indicate the extent to which you experienced the following feelings right after the person who helped you.

Completely Disagree 1 2 3 4 5 6 7 Completely Agree

“Right after the person did this nice thing for me, I felt. . .”

	Completely disagree							Completely agree
1. I feel that I have the obligation to repay people who helped me.	1	2	3	4	5	6	7	
2. If I cannot repay the person who helped me, I will feel indebted to him or her.	1	2	3	4	5	6	7	

APPENDIX H:

HELPING TENDENCIES CHECKLIST

By Yongjun Zhao, Ph.D.

Please read the items carefully. Use the scale on the right and circle a number beside each statement to indicate how much you agree with it.

1 = Strongly Disagree 2 = Disagree 3 = Slightly Disagree 4 = Neither Agree or Disagree
5 = Slightly Agree 6 = Agree 7 = Strongly Agree

I like helping people who needs it.	1	2	3	4	5	6
	7					
I find opportunities to help others.	1	2	3	4	5	6
	7					
I always voluntarily help others without being asked.	1	2	3	4	5	6
	7					
I seldom help others without being asked.	1	2	3	4	5	6
	7					
I always tried my best to make unhappy people happier.	1	2	3	4	5	6
	7					

APPENDIX I:
BEHAVIORAL RESPONSES TO BENEFIT CHECKLIST

By Adam Cohen, Ph.D.

Please circle the following action(s) that you ACTUALLY DID toward this person after he or she helped you (Circle all that apply to you. Please specify what you did if you choose "Other").

Active Behavioral Response Items (22 items):

Grateful Expression (7 items):

1. Thanked him/her
4. Complimented him/her
5. Praised him/her
6. Expressed my gratitude toward him/her
10. Gave a gift to him/her
13. Tried to hug him/her or hold his/her hand
24. Took him/her out for a meal or something to eat

Prosocial/Helping Behavior (7 items):

3. Helped him/her
7. Did something nice for him/her
9. Repaid him/her
17. Tried to make him/her happy
19. Did something for him/her that he/she asked me to do
20. Did a favor for him/her
25. Told other people what he/she did for me

Relational Behavior (9 items includes item 24):

8. Had been around him/her
11. Deepened my relationship with him/her
12. Approached him/her
14. Offered to share something with him/her
15. We engaged in an enjoyable activity together
16. Two of us cooperated in accomplishing some sort of task
18. Told him/her a joke or a funny story
23. Did something fun with him/her

Avoidant Behavioral Response Items (3 items):

2. Avoided him/her
21. Ignored him/her
22. Kept him/her at a distance

26. Other _____

Note:

1. Items were chosen from the Behavioral Responses to Benefits Scale by Cohen (2012)
2. Two major percentage scores were calculated: active behavioral responses included all items except for item 2, 21, and 22; avoidant behavioral responses included 3 items – item 2, 21, and 22.
3. There were three subscales for active behavioral responses. The Relational Behavior subscale shared one item (item 24) with the Grateful Expression subscale.

APPENDIX J:

DEFINING ISSUES TEST 2 (DIT-2) THREE STORIES

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 University of Minnesota & University of Alabama
 Center for the Study of Ethical Development

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

Task Example:

Presidential Election

Imagine that you are about to vote for a candidate for the Presidency of the United States. Imagine that before you vote, you are given several questions, and asked which issue is the most important to you in making up your mind about which candidate to vote for. In this example, 5 items are given. On a rating scale of 1 to 5 (1=Great, 2=Much, 3=Some, 4=Little, 5=No) please rate the importance of the item (issue) by circling the corresponding number on the right by each item.

Assume that you thought that item#1 (below) was of great importance, item#2 had some importance, item#3 had no importance, item#4 had much importance, and item #5 had much importance. Then you would fill in the bubbles on the answer sheet as shown below.

Rate the following issues in terms of importance (Circle the number on the right scale from 1=Great importance to 5=No importance)	Great	Much	Some	Little	No
1. Financially are you personally better off now than you were four years ago?	①	2	3	4	5
2. Does one candidate have a superior moral character?	1	2	③	4	5
3. Which candidate is the tallest?	1	2	3	4	⑤
4. Which candidate would make the best world leader?	1	②	3	4	5
5. Which candidate has the best ideas for our country's internal problems, like crime and health care?	1	②	3	4	5

Further, the questionnaire will ask you to rank the questions in terms of importance. In the space below, the numbers 1 through 12, represent the item number. From top to bottom, you are asked to fill in the bubble that represents the item in first importance (of those given you to choose from), then second most important, third most important, and fourth most important. Please indicate your top four choices. You might fill out this part, as follows:

Rank which issue is the most important (item number).

Most important item	① 2 3 4 5 6 7 8 9 10 11 12
Second most important	1 2 3 4 ⑤ 6 7 8 9 10 11 12
Third most important	1 2 3 ④ 5 6 7 8 9 10 11 12
Fourth Most important	1 ② 3 4 5 6 7 8 9 10 11 12

Note that some of the items may seem irrelevant to you (as in item#3) or not make sense to you - in that case, rate the item as “No” importance and do not rank the item. Note that in the stories that follow, there will be 12 items for each story, not five. Please make sure to consider all 12 (questions) that are printed after each story.

In addition you will be asked to state your preference for what action to take in the story. After the story, you will be asked to indicate the action you favor on a three-point scale (1=strongly favor some action, 2=can't decide, 3=strongly oppose that action).

Famine— (Story #1)

The small village in northern India has experienced shortages of food before, but this year’s famine is worse than ever. Some families are even trying to feed themselves by making soup from tree bark. Mustaq Singh’s family is near starvation. He has heard that a rich man in his village has supplies of food stored away and is hoarding food while its price goes higher so that he can sell the food later at a huge profit. Mustaq is desperate and thinks about stealing some food from the rich man’s warehouse. The small amount of food that he needs for his family probably wouldn’t even be missed.

What should Mustaq Singh do? Do you favor the action of taking the food? (Circle one of the actions you favor below)

1 Should take the food 2 Can't decide 3 Should not take the food

Rate the following issues in terms of importance (Circle the number on the right scale from 1=Great importance to 5=No importance)

	Great	Much	Some	Little	No
1. Is Mustaq Singh courageous enough to risk getting caught for stealing?	1	2	3	4	5
2. Isn't it only natural for a loving father to care so much for his family that he would steal?	1	2	3	4	5
3. Shouldn't the community's laws be upheld?	1	2	3	4	5
4. Does Mustaq Singh know a good recipe for preparing soup from tree bark?	1	2	3	4	5
5. Does the rich man have any legal right to store food when other people are starving?	1	2	3	4	5
6. Is the motive of Mustaq Singh to steal for himself or to steal for his family?	1	2	3	4	5
7. What values are going to be the basis for social cooperation?	1	2	3	4	5
8. Is the epitome of eating reconcilable with the culpability of stealing?	1	2	3	4	5
9. Does the rich man deserve to be robbed for being so greedy?	1	2	3	4	5
10. Isn't private property an institution to enable the rich to exploit the poor?	1	2	3	4	5
11. Would stealing bring about more total good for everybody concerned or wouldn't it?	1	2	3	4	5
12. Are laws getting in the way of the most basic claim of any member of a society?	1	2	3	4	5

Please consider the 12 issues above and rank which issues are the most important (Circle the item number).

Most important item	1	2	3	4	5	6	7	8	9	10	11	12
Second most important	1	2	3	4	5	6	7	8	9	10	11	12
Third most important	1	2	3	4	5	6	7	8	9	10	11	12
Fourth Most important	1	2	3	4	5	6	7	8	9	10	11	12

Reporter— (Story #2)

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

Do you favor the action of reporting the story? (Circle one of the actions you favor below)

1 Should report the story 2 Can't decide 3 Should not report the story

Rate the following issues in terms of importance (Circle the number on the right scale from 1=Great importance to 5=No importance)

	Great	Much	Some	Little	No
1. Doesn't the public have a right to know all the facts about all the candidates for office?	1	2	3	4	5
2. Would publishing the story help Reporter Dayton's reputation for investigative reporting?	1	2	3	4	5
3. If Dayton doesn't publish the story wouldn't another reporter get the story anyway and get the credit for investigative reporting?	1	2	3	4	5
4. Since voting is such a joke anyway, does it make any difference what reporter Dayton does?	1	2	3	4	5
5. Hasn't Thompson shown in the past 20 years that he is a better person than his earlier days as a shop-lifter?	1	2	3	4	5
6. What would best service society?	1	2	3	4	5
7. If the story is true, how can it be wrong to report it?	1	2	3	4	5
8. How could reporter Dayton be so cruel and heartless as to report the damaging story about candidate Thompson?	1	2	3	4	5
9. Does the right of "habeas corpus" apply in this case?	1	2	3	4	5
10. Would the election process be more fair with or without reporting the story?	1	2	3	4	5
11. Should reporter Dayton treat all candidates for office in the same way by reporting everything she learns about them, good and bad?	1	2	3	4	5
12. Isn't it a reporter's duty to report all the news regardless of the circumstances?	1	2	3	4	5

Please consider the 12 issues above and rank which issues are the most important (*Circle the item number*).

Most important item	1 2 3 4 5 6 7 8 9 10 11 12
Second most important	1 2 3 4 5 6 7 8 9 10 11 12
Third most important	1 2 3 4 5 6 7 8 9 10 11 12
Fourth Most important	1 2 3 4 5 6 7 8 9 10 11 12

Cancer— (Story #3)

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

Do you favor the action of giving more medicine? (Circle one of the actions you favor

1 Should give Mrs. Bennett an increased dosage to make her die

2 Can't decide

3 Should not give her an increased dosage

Rate the following issues in terms of importance (Circle the number on the right scale from 1=Great importance to 5=No importance)

	Great	Much	Some	Little	No
1. Isn't the doctor obligated by the same laws as everybody else if giving an overdose would be the same as killing her?	1	2	3	4	5
2. Wouldn't society be better off without so many laws about what doctors can and cannot do?	1	2	3	4	5
3. If Mrs. Bennett dies, would the doctor be legally responsible for malpractice?	1	2	3	4	5
4. Does the family of Mrs. Bennett agree that she should get more painkiller medicine?	1	2	3	4	5
5. Is the painkiller medicine an active heliotropic drug?	1	2	3	4	5
6. Does the state have the right to force continued existence of those who don't want to live?	1	2	3	4	5
7. Is helping to end another's life ever a responsible act of cooperation?	1	2	3	4	5
8. Would the doctor show more sympathy for Mrs. Bennett by giving the medicine or not?	1	2	3	4	5
9. Wouldn't the doctor feel guilty from giving Mrs. Bennett so much drug that she died?	1	2	3	4	5
10. Should only God decide when a person's life should end?	1	2	3	4	5
11. Shouldn't society protect everyone against being killed?	1	2	3	4	5
12. Where should society draw the line between protecting life and allowing someone to die if the person wants to?	1	2	3	4	5

Please consider the 12 issues above and rank which issues are the most important (*Circle the item number*).

Most important item	1 2 3 4 5 6 7 8 9 10 11 12
Second most important	1 2 3 4 5 6 7 8 9 10 11 12
Third most important	1 2 3 4 5 6 7 8 9 10 11 12
Fourth Most important	1 2 3 4 5 6 7 8 9 10 11 12

APPENDIX K:

IRB APPROVAL LETTER TITLE CHANGE REQUEST

THE UNIVERSITY OF ALABAMA[®] | Office of the Vice President for
Research & Economic Development
Office for Research Compliance

March 6, 2017

Wei Liu
ESPRMC
College of Education
The University of Alabama
Box 870231

Re: IRB # 16-OR-303-A "The Relationship between Chinese College Students' Level of Gratitude, Moral Judgment Development and Indebtedness on Prosocial Outcomes"

Dear Ms. Liu:

The University of Alabama Institutional Review Board has reviewed the revision to your previously approved expedited protocol. The board has approved the change in your protocol.

Please remember that your protocol will expire on September 7, 2017.

Should you need to submit any further correspondence regarding this proposal, please include the assigned IRB application number. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants.

Good luck with your research.

Sincerely,



Carlynn R. Myers, Ph.D.
Director & Research Compliance Officer
Office for Research Compliance

358 Rose Administration Building | Box 870127 | Tuscaloosa, AL 35487-0127
205-348-8461 | Fax 205-348-7189 | Toll Free 1-877-820-3066

APPENDIX L:

IRB APPROVAL LETTER

THE UNIVERSITY OF
ALABAMA

Office of the Vice President for
Research & Economic Development
Office for Research Compliance

September 9, 2016

Wei Liu
ESPRMC
College of Education
Box 870231

Re: IRB # 16-OR-303, "Does Chinese College Students' Moral Judgment and Indebtedness Together Mediate their Gratitude and Prosocial Outcomes?"

Dear Ms. Liu:

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

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

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

Your application will expire on September 7, 2017. If your research will continue beyond this date, please complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, please complete the Modification of an Approved Protocol form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure form.

Please use reproductions of the IRB approved stamped consent forms to obtain consent from your participants.

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

Good luck with your research.



Stuart Usdan, Ph.D.
Chair, Non-Medical IRB
The University of Alabama

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