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GRATITUDE IN ADOLESCENTS: EXAMINING THE ROLE OF ATTACHMENT,  
PARENTAL GRATITUDE, AND DISCOUNTING

by

Savannah C. Rupp

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

EDUCATIONAL SPECIALIST

In

Psychology

Approved:

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UTAH STATE UNIVERSITY  
Logan, Utah

2020

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## ABSTRACT

Gratitude in Adolescents: Examining the Role of Attachment, Parental  
Gratitude, and Discounting

by

Savannah Rupp, Educational Specialist

Utah State University, 2020

Major Professor: Gretchen Gimpel Peacock, Ph.D.  
Department: Psychology

A growing body of research suggests that there are benefits of experiencing gratitude in youth. Previous research on gratitude in adults shows that gratitude may influence decisions to forgo a smaller reward now for a larger reward later, an area also known as delay discounting; however, the relationship between gratitude and delay discounting has not yet been studied in youth. In addition, the influence of maternal gratitude and mother-child attachment on the experience of gratitude in youth is unclear. Therefore, the purpose of the current study was threefold: (1) to explore the relationship between gratitude and delay discounting in youth, (2) to investigate the relationship between maternal and child gratitude, and (3) to determine whether mother-child attachment predicts gratitude in children. The study sample included a total of 204 participants (102 mothers, 102 adolescents) recruited through Qualtrics Panel, who completed appropriate measures (i.e., measures of gratitude, delay discounting, parent-

child attachment, prosocial behavior). Pearson's correlations did not reveal a significant relationship between trait gratitude and delay discounting in youth ( $r = .091$ ). There were moderate correlations between maternal trait gratitude and youth trait gratitude ( $r = .392$ ) and a moderate relationship between youth trait gratitude and prosocial behavior ( $r = .389$ ). Finally, a multiple regression analysis revealed three significant predictors of youth trait gratitude: mother-child attachment, youth state gratitude, and parental trait gratitude). While there was no significant relationship between gratitude and delay discounting in youth in the current study, results do suggest that further research on the relationship between the mother-child relationship and gratitude in youth is warranted.

(50 pages)

## PUBLIC ABSTRACT

Gratitude in Adolescents: Examining the Role of Attachment, Parental  
Gratitude, and Discounting

Savannah C. Rupp

From early childhood, parents often teach their children to use their manners by saying “Thank you”; however, are there any benefits from experiencing gratitude during youth? Understanding the relationship between gratitude and other areas, such as happiness and decision-making, can potentially help researchers in planning interventions for youth. The purpose of this study was to determine the relationship between gratitude and decision-making in youth, as well as the role of maternal gratitude and the mother-child attachment in determining gratitude in youth. Two hundred four participants (102 mothers, 102 adolescents) completed an online survey. Mothers and adolescents completed two gratitude questionnaires and indicated their preference for a hypothetical smaller reward now or a larger reward later. Adolescents completed two additional questionnaires about their behavior and their relationship with their mothers. Results indicated that there was not a relationship between gratitude in youth and their preferences in the decision-making task; however, there a relationship between their gratitude and their mother’s. Youth gratitude was also related to prosocial behavior. Finally, the mother-child relationship played a role in explaining youth gratitude. The results of the study give researchers greater insight into the importance of mothers

fostering gratitude in their children. By understanding this, researchers and professionals can be in a better position to help foster positive outcomes in children.

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# CHAPTER I

## INTRODUCTION

Gratitude is the positive emotion that people feel when they recognize another's (e.g., person, deity, cosmos) benevolence towards them, which often results in a desire to return the favor to the benefactor if the opportunity arises (Emmons & McCullough, 2003; Froh, Bono, & Emmons, 2010). Although expressing thanks is a ubiquitous part of the human experience, the scientific study of gratitude is relatively new. Since gratitude has become a focus of psychological research, researchers have found several positive benefits of this emotion. Adults who feel gratitude are more likely to report feeling optimistic, engaging in prosocial behaviors, and exercising; meanwhile, they are less likely to report physical complaints and having a negative effect, such as depression and anxiety (Emmons & McCullough, 2003; McCullough, Emmons, & Tsang, 2002). Gratitude is also important in the process of forming and maintaining relationships due to its reciprocal nature that reinforces desirable behavior (e.g., Algo, Haidt, & Gable, 2008; Bartlett, Condon, Cruz, Baumann, & DeSteno, 2012).

Perhaps a more surprising finding is that higher levels of gratitude in adults have been shown to increase willingness to put off smaller, immediate rewards for larger, delayed rewards in the future (DeSteno, Li, Dickens, & Lerner, 2014; Dickens & DeSteno, 2016). Temporal, or delay discounting, is the tendency to assign less value to future outcomes than immediate outcomes, thus resulting in "impulsive" decisions (Green, Myerson, Lichtman, Rosen, & Fry, 1996). Individuals who discount delayed outcomes prefer smaller, immediate rewards to larger, delayed rewards.

The study of delay discounting has called attention to its relevance in behaviors of social importance (Critchfield & Kollins, 2001). For example, those who use substances or engage in other addictive behaviors (drinking, smoking, gambling, drug use, etc.) have steeper discounting rates (i.e., discounting future rewards more) than those who do not use these substances and those who have stopped using substances; Audrain-McGovern et al., 2009; Kollins, 2003; Odum, Madden, Badger, & Bickel, 2000). Higher discount rates may even contribute to the acquisition of smoking behavior. Interventions that teach the value of weighing the outcomes of immediate versus future consequences may lower the likelihood of adolescents starting to smoke (Audrain-McGovern et al., 2009). Gratitude induction tasks may be a promising intervention in reducing discount rates, resulting in more patience.

The benefits of gratitude in adults has been well established; however, gratitude may also have an important role in the development of youth. Previous research demonstrates that, just as in adults, gratitude in school-aged children and adolescents is associated with greater life satisfaction and optimism. As it pertains to children, gratitude is also related to more satisfaction at school (Froh, Sefick, & Emmons, 2008). This is important because school satisfaction is a predictor of other positive outcomes, such as children feeling they are learning a lot and more academic success in school (Froh et al., 2008). In addition, research has demonstrated a positive relationship between gratitude and improved academic achievement (Froh, Emmons, Card, Bono, & Wilson, 2011; Froh, Fan, Emmons, Bono & Huebner, 2011; Froh, Kashdan, Ozimkowski, & Miller, 2009; Froh, Yurkewics, & Kashdan, 2009). Gratitude in youth also predicts social

integration with peers (Froh, Bono, & Emmons, 2010). Just as gratitude in adults is associated with engaging in prosocial behavior, researchers have found that gratitude in youth likewise predicts higher levels of prosocial behavior (Froh, Emmons et al., 2011; Froh, Fan, et al., 2011; Froh Kashdan et al., 2009; Froh, Yurkewics, & Kashdan, 2009).

Although gratitude has been shown to reduce discounting delayed rewards in adults (DeSteno et al., 2014; Dickens & DeSteno, 2016), no studies were found that have investigated this relationship in youth. In addition, few studies to date have studied the link between parental levels of gratitude and their children's gratitude (Hoy, Suldo, & Mendez, 2013). Therefore, in the current study, the following questions were addressed.

1. Is there a relationship between gratitude and delay discounting in youth? Because gratitude and its outcomes have been consistent among youth and adults, it is hypothesized that higher levels of gratitude will be associated with lower discount rates (less delay discounting).
2. What is the relationship between maternal levels of gratitude and levels of gratitude in their children? It is hypothesized that maternal gratitude positively predicts child gratitude.
3. What is the relationship between gratitude and prosocial behaviors in adolescents? It is predicted that higher levels of gratitude in youth will be associated with more prosocial behaviors.
4. How much variability in the child's level of gratitude is accounted for by their own discounting rate, their mothers' discounting rate(s), level(s) of gratitude, and the child's perceived mother-child attachment? Accounting for the relationship among these variables will allow for better understanding of what is most important when examining gratitude in youth. It is hypothesized that gratitude in youth will be predicted by levels of maternal gratitude and mother child attachment.

## CHAPTER II

### LITERATURE REVIEW

#### Benefits of Gratitude

In recent years, psychology has begun to focus not only on the study of mental illness, but also what characteristics or attributes cause people to thrive. This field, known as positive psychology, is the area of study concerned with identifying factors that promote people's subjective well-being or optimal functioning, including "ordinary human strengths and virtues" (Sheldon & King, 2001, p. 216; see also Gable & Haidt, 2005). *The Values in Action (VIA) Classification of Strengths* (Peterson & Seligman, 2004), an inventory designed to measure such characteristics, includes character strengths such as leadership, persistence, curiosity, kindness, hope, and gratitude (Park, Peterson, & Seligman, 2004). Professionals have utilized positive psychology interventions across several settings, including the workplace (e.g., Youssef & Luthans, 2007), schools (e.g., Shoshani & Steinmetz, 2013), and counseling (e.g., Conoley, Plumb, Hawley, Spaventa-Vancil, & Hernandez, 2015),

One of the "virtues" that has recently started to be of interest to psychologists is gratitude (e.g., Algoe et al., 2008; Emmons & McCullough, 2003; Froh et al., 2010; Rash, Matsuba, & Prkachin, 2011; Watkins, Woodward, Stone, & Kolts, 2003; Wood, Joseph, & Linley, 2007). Gratitude has been conceptualized in multiple ways (Emmons & Stern, 2013). First, it has been thought of as being a general attitude or response of thanksgiving towards life. Second, it has been defined as the positive emotion that people

feel when they recognize another's benevolence towards them. By this definition, gratitude is a cognitive-affective state that is "other" oriented because it first requires the recognition that another person has provided a benefit that was undeserved, thus producing positive affect. For example, a person might feel grateful when they receive an unexpected gift from a friend. This recognition often results in the desire to return the benefit to the person if or when the opportunity arises (Emmons & McCullough, 2003; Froh et al., 2010). Consequently, gratitude has been described to act as a "moral motive" that encourages reciprocity between the giver and the recipient (McCullough, Kilpatrick, Emmons, & Larson, 2001).

Previous research demonstrates numerous positive benefits of the emotion of gratitude. One of the earliest studies to examine the effects of a gratitude intervention required participants to keep a gratitude journal, a hassles journal, or a neutral journal in an exercise known as "Counting Blessings" (Emmons & McCullough, 2003). Participants in each group answered weekly prompts related to the condition to which they were assigned (gratitude, hassles, or neutral) over the course of 10 weeks. The results of this writing exercise showed that participants in the grateful condition reported more life satisfaction and optimism, fewer physical problems, and more time exercising than those in the hassles and neutral conditions. In a follow up study, participants who recorded what they were grateful for over two weeks also reported more engagement in prosocial behaviors.

Other studies have further examined the link between gratitude and prosocial behavior (e.g., Algoe & Haidt, 2009; Algoe et al., 2008; Bartlett et al., 2012; Bartlett &

DeSteno, 2006; DeSteno, Bartlett, Baumann, Williams, & Dickens, 2010). For example, one study examined gratitude in forming and maintaining relationships among sororities during Big Sister Week, a week in which “Big Sisters” give anonymous gifts to their “Little Sisters” and then reveal their identity at the end (Algoe et al., 2008). At the end of the week, both groups reflected on their relationships. Little Sisters who liked their gifts and rated their Big Sister as thoughtful were predictive of increased levels of gratitude. Participants’ levels of gratitude also predicted their initial interactions when they met as well as their relationship after one month. This research shows that gratitude does not merely play a role in repaying others—indebtedness can result in repayment as well (Watkins, Scheer, Ovnicek, & Kolts, 2006)—but that it also facilitates the process of building lasting relationships over time.

Gratitude may even promote prosocial behavior when there is a cost involved. For example, in an experiment designed to elicit gratitude, participants were recipients of a helpful act from another “participant” (a confederate; DeSteno et al., 2010). After the participant received help, the real participant engaged in an economic exchange on the computer. Participants believed they were playing another person at the same time. Results of the study showed that participants who felt gratitude were willing to share more money, on average, with another person even when they had the option to keep the money for themselves, which was more economically advantageous. This behavior occurred even when the participant believed they were playing a stranger, not only when they believed the other player was the confederate who had previously helped them.



## Gratitude's Influence on Decision-Making

More recently, research has shown that gratitude may play an important role in decision-making. Because people are confronted with decisions every day, both large and small (e.g., “What should we fix for dinner?”, “How much money should I save?”, “Who should I vote for?” etc.), researchers have long been interested in factors that influence people's choices, such as time (e.g., Kirby, Petry, & Bickel, 1999), mood (e.g., Lerner, Li, Valdesolo, & Kassam, 2015), and heuristics (e.g., Lau & Redlawsk, 2001).

One area of study within decision-making is the process of how people make intertemporal choices. Temporal, or delay, discounting is the tendency to assign less value to future outcomes than immediate outcomes (Green et al., 1996). Because of this tendency to assign less value to future outcomes, people often show more preference for immediate outcomes on measures of delay discounting, even when it would be more advantageous for them to wait for a larger benefit in the future; thus, delay discounting often results in more “impulsive” or less patient decision-making. Consider this example from Charlton et al. (2013).

...(a) you have just received a deposit of \$1000 into your checking account and (b) you just received a note telling you a \$1000 deposit will be made into your account in exactly 1 year. These two scenarios, while dealing with the same absolute amount of money, are not psychologically equivalent. Rather, the delayed deposit (b) is less valuable than the immediate deposit (a). (p. 10).

Delay discounting is a well-established area in the study of behavior. One reason it is important is because of its influence in social behaviors and decision-making (Critchfield & Kollins, 2001). For example, those who smoke demonstrate higher discount rates on measures of delay discounting than those who do not smoke, or even

previous smokers who have quit (Odum et al., 2000). This is also the case across individuals who use other addictive substances and behaviors, including opioids (Madden, Petry, Badger, & Bickel, 1997), heroin (Kirby et al., 1999), alcohol (Kollins, 2003), and gambling (Dixon, Marley, & Jacobs, 2003). Higher discount rates in college students is associated with earlier age of first-time drug use, and it is related to more use of illicit drugs (Kollins, 2003).

Although relationships between substance use and delay discounting is well documented, the direction of the relationship (whether discount rates cause substance use, or if substance use contributes to impulsivity) is not well known (Audrain-McGovern et al., 2009; Lagorio & Madden, 2005; Lempert & Phelps, 2016). There is evidence which suggests discount rates may promote smoking behaviors (Audrain-McGovern et al., 2009). This suggests that using interventions to teach weighing outcomes of immediate versus future consequences may lower the likelihood of adolescents starting to smoke. One such potential intervention that could help adults and adolescents think about the long-term effects of their decision is a mood induction procedure. Mood plays an important role in making intertemporal decisions. For example, people who are in “hot” emotional states (e.g., happy) are prone to prefer immediate, as opposed to delayed, outcomes on measures of delay discounting (Hirsch, Guindon, Morisano, & Peterson, 2010; Martinez & Zeelenberg, 2015).

However, some moods, such as gratitude, may work to counteract impulsive decisions. In two studies employing delay discounting measures, adults who reported higher levels of gratitude demonstrated increased preference for larger, delayed rewards

over smaller, immediate rewards (e.g., DeSteno et al., 2014; Dickens & DeSteno, 2016). These results were found regardless of whether an emotion-induction writing task was used (DeSteno et al., 2014) or in an experimental situation designed to elicit gratitude (Dickens & DeSteno, 2016). This research suggests that gratitude interventions may aid decision-making processes, helping people to make decisions that would be more beneficial for them in the long-term rather than the short-term. This may be especially beneficial when people are making financial or health decisions.

### **Gratitude in Youth**

Although research on gratitude and its outcomes have mostly been focused on adults, research also suggests that gratitude may have an important role in childhood and adolescence (e.g., Froh et al., 2008; Froh, Emmons et al., 2011). Like adults, adolescents who report feeling grateful also report having higher levels of well-being, life satisfaction, and increased positive affect (Froh et al., 2008). Gratitude in adolescents is also inversely associated with physical complaints (Froh, Yurkewics, & Kashdan, 2009). There is also evidence that gratitude in adolescents is related to positive social relationships, just as in their adult counterparts. For example, in one study, researchers provided questionnaires at three different points in time measuring gratitude and social integration, with the last questionnaire being given six months after the initial survey. By doing so, they found that gratitude is a predictor of future social integration with peers and helping behavior (Froh et al., 2010); gratitude also predicts greater family support (Froh, Yurkewic, & Kashdan, 2009).

The benefits of gratitude in youth development may be particularly important as it could influence outcomes in school. In one study, researchers surveyed over 1,000 high school students to compare differences between gratitude and materialism. While statistically controlling for social economic status, the researchers found that gratitude, compared to materialism, is a predictor of the following outcomes: more life satisfaction, more social integration, and higher GPA. It also predicts less envy and depression. In contrast, materialism was a predictor of lower GPA, less social integration, and higher levels of envy. Put together, the study of gratitude in youth shows that it is useful not only in promoting personal well-being but that is also helpful in promoting social well-being, two areas that are important in positive youth development (Barber, 2005).

### **Parental Influence on Gratitude**

In general, it is known that parents have a great influence on their children. Research supports the important role parents have in developmental outcomes, including depression and other mental illnesses (e.g., Elgar, Mills, McGrath, Waschbusch, & Brownridge, 2007; Mowbray, Bybee, Oyserman, MacFarlane, & Bowersox, 2006), emotional understanding (e.g., Denham, Zoller, & Couchoud, 1994), and child adjustment (e.g., Chaplin, Cole, & Zahn-Waxler, 2005; Gadeyne, Ghesquière, & Onghena, 2004). One area that may be an especially important influence on developmental outcomes in children is parent-child attachment. Parent-child attachment is a predictor of child commitment to school and more specifically, mother-child attachment has been found to predict peer attachment (Meeus, Oosterwegel, &

Vollebergh, 2002). Parent-child attachment is also positively associated with child self-esteem and overall psychological health. Because parent-child attachment has been found to promote positive well-being in adolescents, further investigation of the parent-child relationship and its association to other variables that influence positive outcomes in children is warranted. As has been previously established, one such variable appears to have an important role in the development of youth is gratitude (e.g., Froh et al., 2008; Froh, Emmons, et al., 2011). However, few studies to date have investigated the link between gratitude in parents and children (Hoy et al., 2013). Parent-child attachment may be important in understanding how children are taught to value gratitude in the process of their development.

One factor to consider in the study of the potential link between gratitude in parents and their children is the role of parenting style. Research suggests that there is a difference in mothers' and father's parenting styles which influences their child outcomes in several domains including, but not limited to, prosocial and antisocial behaviors, internalizing and externalizing behaviors, adaptive skills, and emotion-regulation (Berkien, Louwse, Verhulst, & van der Ende, 2012; Braza et al., 2015; Ruiz-Ortiz, Braza, Carreras, & Muñoz, 2017). Adding to this complexity is the match between parent and child gender. For example, one study found that mothers with a permissive parenting style led to more externalizing behaviors for boys, but not for girls (Ruiz-Ortiz et al., 2017). In addition to different parenting styles, mothers also tend to spend more time, on average, participating in caregiving activities than fathers (U.S. Bureau of Labor Statistics, 2018). Furthermore, previous research that has investigated the difference

between gratitude in parents and children suggests that there is no relationship between paternal and child gratitude; however, a significant correlation was found between maternal and child gratitude (Hoy et al., 2013).

### **The Current Study**

Although researchers have begun to investigate gratitude and its effect on delay discounting, no studies have examined this relationship in youth samples. Furthermore, little research has been done to explore the link between maternal and child gratitude. While both fathers and mothers have active roles in raising their children, the current study focused on mothers primarily because they are more likely to spend time participating in caregiving roles than fathers. This would also expand upon Hoy et al.'s (2013) previous findings. The current study investigated the relationship between mother-child attachment, maternal gratitude, and levels of gratitude in children. Therefore, the purpose of the current study is twofold: to identify the relationship, if any, between gratitude and delay discounting in an adolescent sample and to determine if maternal attachment and maternal gratitude predict gratitude in their children.

## CHAPTER III

### METHOD

#### Participants

A total of 204 participants (102 mothers, 102 adolescents) completed the study through a Qualtrics Panel. To be included in the study, adolescents were required to be between the ages of 12 and 14, and mothers were required to be at least 18 years of age. Adolescents or mothers who did not meet this criterion were not included in the final data analyses. The average age across mothers who reported their age ( $n = 84$ ) was 38.6 ( $SD = 6.57$ ); the average age across adolescents ( $n = 101$ ) was 13.14 ( $SD = .80$ ). The average number of individuals living in each household was approximately 4 to 5 individuals ( $M = 4.34$ ;  $SD = 1.583$ ). Tables 1 and 2 include other demographic variables of youth and mothers in the study.

Table 1

#### *Youth Demographics*

Characteristic	<i>n</i>	%
Grades		
Mostly A's	46	45.1
Mostly B's	40	39.2
Mostly C's	15	14.7
Mostly D's	1	1.0
Gender		
Male	56	54.9
Female	46	45.1

*Note.* Demographic variables for youth, including age, grades, and gender was provided by their mothers.

Table 2

*Mothers' Demographic Information*

Characteristic	<i>n</i>	%
Ethnicity		
Caucasian	73	71.6
Black/African American	12	11.8
Latino/Hispanic	11	10.8
Native American	2	2
Multi-ethnic	2	2
Other	2	2
Relationship to child		
Biological parent	93	91.2
Step parent	3	2.9
Legal guardian	6	5.9
Household income		
Less than \$15,000	18	17.6
\$15,000-30,000	18	17.6
\$30,000-45,000	23	22.5
\$45,000-60,000	18	17.6
\$60,000-75,000	11	10.8
More than \$75,000	14	13.7

**Measures**

The following five measures were utilized in the study to investigate the variables of interest: (a) 5-Trial Adjusting Delay Discounting Task, (b) Gratitude Questionnaire-6, (c) Gratitude Adjective Checklist, (d) Child Social Behaviour Questionnaire, and (f) the Inventory of Parent and Peer Attachment-Revised. The order of these tasks was randomized through the Qualtrics platform. Adolescents completed the 5-Trial Adjusting Delay Discounting Task, Gratitude Questionnaire-6, Gratitude Adjective Checklist, Child Social Behaviour Questionnaire, and the Inventory of Parent and Peer Attachment-Revised; mothers completed the 5-Trial Adjusting Delay Discounting Task, Gratitude



Questionnaire-6, and the Gratitude Adjective Checklist.

### **5-Trial Adjusting Delay Discounting Task**

The 5-Trial Adjusting Delay Discounting Task (DDT; Koffarnus & Bickel, 2014) was used as a measure of delay discounting. Compared to other measures of delay discounting, it is a shorter method in that it consists of completing five adjusting trials in order to estimate discount rates. Participants complete five trials in which they choose between a hypothetical smaller, immediate amount of money versus a larger, delayed amount of money, with the immediate amount always being \$500 and the delayed amount being \$1,000. The first trial begins with the larger amount being received in 3 weeks and then adjusts the delay up (if the delayed choice is made), or down (if immediate choice is made) by an index of eight delays. Delays in the measure range from 1 hour to 25 years (Koffarnus & Bickel, 2014). Discounting rates are calculated using the “discounting-rate parameter,”  $k$  (Kirby et al., 1999).

The final trial, as determined by the participant’s previous choices, is used to determine  $k$ , or the “discounting-rate parameter” (Kirby et al., 1999). These can vary from 0 to .25, with 0 representing preference for the delayed option all of the time and .25 representing preference for the immediate outcome all of the time (Black, & Rosen, 2011). For analyses,  $k$  was determined by coding the fifth trial according to the parameters presented in Table 1 of Koffarnus and Bickel (2014). The  $k$  value obtained from the table was used for final analyses.

Evidence supports the validity and reliability of the DDT as a measure of delay discounting (Koffarnus & Bickel, 2014). The DDT is highly correlated with the

computerized discounting task (Koffarnus & Bickel, 2014). Furthermore, research has demonstrated that there are no significant differences between making hypothetical choices and real choices when presented items from the adjusting delay discounting task on index cards (e.g., Lagorio & Madden, 2005). Of note, while other delay discounting tasks could have been used, the DDT was chosen due to its shorter length to increase likelihood that adolescents in the study would sustain attention with the task as well as its similarity to the original adjusting delay discounting task. The DDT does not appear to have been used in an adolescent population previous to this study.

### **Gratitude Questionnaire-6**

The Gratitude Questionnaire-6 (GQ-6; McCullough et al., 2002) is a six-item questionnaire designed to measure trait gratitude and its four components: frequency, intensity, density, and span (Froh, Emmons, et al., 2011; Hoy et al., 2013). It includes statements such as “If I had to list everything that I felt grateful for, it would be a very long list” and “I am grateful to a wide variety of people.” These statements are rated on a 1-7 Likert-type scale (1 = Strongly disagree; 7 = Strongly agree). The GQ-6 is considered a valid and reliable measure of trait gratitude in adults. The scale has an internal consistency reliability ( $\alpha$ ) of 0.82 in adult samples (Froh, Emmons, et al. 2011; McCullough et al., 2002). The GQ-6 has good internal consistency in youth populations as well. In six youth samples, ranging from ages 10 to 19, the GQ-6 demonstrated an internal consistency reliability above 0.70 in every sample. It also had medium to high correlations, which are evidence of convergent validity, with the Gratitude Resentment and Appreciation Test (GRAT)-short form. Consistent with previous research,

adolescents in this study received slightly modified version using “thankful” instead of “grateful” to use more developmentally-appropriate language as has been done in previous research (Froh, Emmons, et al., 2011; Froh, Fan, et al., 2011). Item 6 has also been cited as “difficult to understand” in a youth sample, so it will not be included in the analysis. The total raw score for mothers and the total raw score for youth obtained from the GQ-6 was used in the data analyses. In this sample, the internal consistency reliability for the GQ-6 for mothers was acceptable ( $\alpha = .78$ ) as well as for the adolescents ( $\alpha = .75$ ).

### **Gratitude Adjective Checklist**

The Gratitude Adjective Checklist (GAC; McCullough et al, 2002) is a three-item checklist consisting of gratitude-related adjectives (Grateful, Thankful, Appreciative) and asks participants to consider how they felt “yesterday.” The GAC is designed to measure levels of state gratitude, or how grateful one is feeling in the moment, while the GQ-6 is made to measure gratitude as a trait (how one feels on a consistent basis; Lambert, Fincham, & Stillman, 2012). Both are included in this study for considering gratitude’s relationship (if any) to delay discounting, which has been considered a trait but also asks questions about decisions made in the moment (Odum, 2011). These items are rated on a 5-point Likert type scale (1 = Not at all; 5 = Extremely). In adult samples, the GAC has an internal consistency of 0.87 (McCullough et al., 2002). Like the GQ-6, it has also been validated using youth samples and demonstrates internal consistency ranging from 0.82 to 0.90 (Froh, Emmons, et al., 2011). The GAC also demonstrates validity in youth samples being correlated with the GQ-6, with  $r$  ranging from .45-.58 (Froh et al., 2007; Froh et al., 2010). The total raw score obtained from the sum of the three items was used

in the data analyses. In the current sample, reliability of the GQ6 was acceptable for mothers ( $\alpha = .92$ ) and adolescents ( $\alpha = .94$ ).

### **Child Social Behaviour Questionnaire**

The Child Social Behaviour Questionnaire (CSBQ; Warden, Cheyne, Christie, Fitzpatrick, & Reid, 2003) is a measure of prosocial and antisocial behavior in school-aged children. Adolescents in this study completed the measure through self-report as has been done in prior research (Froh, Emmons, et al., 2011; Warden & Mackinnon, 2003). Participants completed the prompt “Have you ever...” by answering items such as “helped another child in your class with their work?” and “hit or kicked another child?” Items are rated on a 5-point Likert type scale, ranging from “Never” to “Very often.” The total raw score for each dimension (prosocial or antisocial behavior) was used for final analyses. Internal consistency for the measure is acceptable ranging from .68 to .80 (Froh et al., 2010; Froh, Emmons, et al., 2011). Research also supports the validity of the CSBQ. Construct validity was established by evaluating responses from various informants, including teachers and peers. Responses across informants were significantly correlated with one another (Warden et al., 2003). The reliability of the CSBQ in this sample of youth was acceptable ( $\alpha = .82$ ). Reliability within subscales was also acceptable (Prosocial  $\alpha = .72$  and Antisocial  $\alpha = .83$ ).

### **Inventory of Parent and Peer Attachment-Revised**

The Inventory of Parent and Peer Attachment-Revised (IPPA-R; Gullone & Robinson, 2005) is a measure with three questionnaires: attachment between child to

mother, child to father, and child to peer. Each questionnaire is composed of three subscales: Trust, Communication, and Alienation. Because participants in this study consisted of mother-adolescent pairs, children only completed items on the questionnaire about their attachment to their mother. Examples such as “My mother can tell when I’m upset about something” and “I trust my mother” are rated on a 5-point Likert scale (1 = Almost never or Never true, 5 = Almost Always or Always true). In adolescents, the Parent Attachment form of the IPPA-R is a reliable measure, with acceptable internal consistency for each subscale with Cronbach’s alpha coefficients of 0.85, 0.79, and, 0.81 for Trust, Communication, and Alienation, respectively. The IPPA-R demonstrates convergent validity with other measures of parental attachment (Gullone & Robinson, 2005). The total raw score obtained from the questionnaire assessing mother-child attachment was used in the data analyses. The reliability of the IPPA-R in this sample of youth was acceptable ( $\alpha = .79$ ).

### **Demographic Survey**

A brief demographic survey was included in the study (Appendix A). All participants were asked to report their age, gender, and ethnicity. In addition, mothers were asked to report their child’s academic grades and number of members in their household. Information regarding the child’s grades was obtained consistent with previous research of gratitude in adolescents and was used in determining the representativeness of the sample. Mothers were also asked information regarding their Annual Household Income and whether they have utilized mental health services. These questions were asked in order to determine the overall representativeness of the sample.

## Procedures

The Institutional Review Board (IRB) of the sponsoring institution approved the research materials and procedures in the current study. After receiving IRB approval, mother-child dyads were recruited through the online Qualtrics survey platform, using a Qualtrics panel. Because children in the study were under the age of 18, mothers provided consent for their child's participation as well as their own participation. Upon reading the informed consent form and providing consent, mothers answered demographic information about themselves and their children, then proceeded to complete the online survey. After finishing their part, the survey prompted the mothers to switch with their child. Next, adolescents in the sample completed the survey with appropriate measures modified for youth. Initially, a total of 220 participants (110 mothers, 110 adolescents) completed the survey. However, seven of the youth participants' ages were not in the correct range and these youth (along with their mothers) were not included in analyses. An eighth participant pair was not included in data analyses because the majority of the CSBQ responses were missing. After these adjustments, the total final sample size was 204 (102 mothers, 102 adolescents). For completing the survey, all participants received compensation from Qualtrics.

## Data Analyses and Research Questions

The following research questions were addressed in the study.

*1. Is there a relationship between gratitude and delay discounting in youth?*

Adolescents' total raw scores from the GQ-6, GAC, and the overall discounting

parameter obtained from the MCQ were used to analyze the research question.

Descriptive statistics including measures of central tendency, variability, and correlations were computed. Pearson's  $r$  correlations were used to evaluate the relationship between gratitude and delay discounting.

2. *What is the relationship between parental levels of gratitude and levels of gratitude in their children?*

Mothers' total raw scores from the GQ-6 and the GAC in addition to their child's total raw scores from the GQ-6 and GAC were used in this analysis. Pearson's  $r$  correlations were used to evaluate the association, if any, between parental levels of gratitude and their children's level of gratitude.

3. *What is the relationship between gratitude and prosocial behavior in adolescents?*

Adolescents' total raw scores from the GQ-6 and the GAC and their total raw scores on the CSBQ were used to complete the analysis. Pearson's  $r$  correlations between gratitude and prosocial behavior were used to analyze the research question.

4. *How much variability in the child's level of gratitude is accounted for by their own discounting rate, their mothers' discounting rate(s), level(s) of gratitude, and the child's perceived parent-child attachment?*

Scores that were analyzed to answer the research question included (1) the total raw score of the GQ-6 for mothers and the total raw score of the GQ-6 for their child, (2) the total raw score of the GAC for mothers and the total raw score of the GAC for their child, (3) the overall discount parameter for the parent and the overall discount parameter for the child, and (4) the child's total raw score obtained from IPPA-R. A multiple regression model was used to predict child gratitude using the child's and the mother's overall discount parameter, parental gratitude, and parent-child attachment.

## CHAPTER IV

### RESULTS

#### Preliminary Analyses

Descriptive statistics, including means, standard deviations, and ranges, were calculated for all variables and are presented in Table 3. Correlations between study variables are provided in Table 4.

Average scores on the GQ-6 across mothers indicate slightly lower levels of gratitude compared to a previous study in which the average in adults was 35.06 (Greene & McGovern, 2017) while gratitude in youth was also lower than a previous psychometric study of the GQ-6 in youth, in which the average score for 12- to 14-year-old youth falling being 29.58 to 29.63 (Froh, Fan et al., 2011). Gratitude as measured by

Table 3

#### *Descriptive Statistics*

Measures	Mothers			Youth		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
Gratitude Questionnaire-6	33.1	6.6	16.0-42.0	27.2	5.14	8.0-35.0
Gratitude Adjective Checklist	11.6	3.1	3.0-15.0	11.4	3.25	3.0-15.0
Delay Discounting Task	0.377	1.08	0-4.90	0.599	1.27	0.5-4.90
Child Social Behavior Questionnaire-Prosocial	—	—	—	15.9	2.97	7.0-20.0
Child Social Behavior Questionnaire-Antisocial	—	—	—	12	5.36	7.0-34.0
Inventory of Parents and Peer Attachment-Revised	—	—	—	100.1	14.6	56.0-107



Table 4

*Correlations*

Measures	Mother			Youth					
	DDT	GQ-6	GAC	DDT	GQ-6	GAC	CSBQ Prosocial	CSBQ antisocial	IPPA-R
Mothers									
DDT	—	-.115	-.009	.195*	-.094	-.023	-.043	.194	-.009
GQ-6		—	.446**	.010	.392**	.148	.104	-.223*	.158
GAC			—	-.120	.455**	.480*	.190	-.305**	.260**
Youth									
DDT				—	.091	.122	-.025	.287**	.054
GQ-6					—	.539**	.389**	-.311**	.391**
GAC						—	.386**	-.270**	.310**
Prosocial							—	-.339**	.376**
Antisocial								—	-.398**
IPPA-R									—

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

the GAC indicated higher levels of gratitude in mothers when compared to the typical average of the measure ( $M = 7.67$ ; McCullough et al., 2002). The mean level of gratitude in the youth sample was expected for their age when compared to the typical average, which ranges from 11.45 to 12.59 for adolescents between the ages 12 and 14 (Froh, Fan, et al., 2011).

The mean discount rate of mothers in the sample estimates that, on average, they were willing to forego the smaller, immediate reward for the larger, delayed reward for a delay of approximately 3 days. Mean youth discount rates obtained from the DDT estimate a preference for the smaller, immediate reward after a delay of approximately 1.5 days (refer to Table 1 in Kafarnus & Bickel, 2014).

On the CSBQ, youth in the sample rated themselves as would be expected for

their age, with the typical average for the prosocial domain of the measure, which is 12.77 (Froh et al., 2010). Due to difference of measurement in previous research, a direct comparison for the average of the IPPA-R could not be made, but scores indicate an overall positive relationship between children and their mothers.

## **Primary Analyses**

### **Gratitude and Delay Discounting**

In order to answer research question one regarding the relationship between gratitude and delay discounting in youth, the Pearson's correlation was looked at between gratitude (as measured by the GQ-6 and GAC) and the youth discount rate obtained from the DDT. The analysis showed that there were no significant relationships between gratitude in youth and delay discounting. Although not part of the research question, it is of note that there were also no significant correlations between gratitude and delay discounting in mothers (see Table 4).

### **Maternal and Child Gratitude**

To answer the second research question regarding the relationship between parental gratitude and their child's gratitude, the Pearson's correlation was looked at between gratitude in youth and their mothers' gratitude using the GQ-6 and the GAC. A moderate, positive association was observed between parent gratitude and youth gratitude as measured by the GQ-6. There was also a moderate positive correlation between mothers' gratitude as measured by the GAC and youth gratitude as measured on the GQ-6, as well as between both mothers' and youth gratitude as measured by the GAC (See

Table 2). These results suggest that youth with higher levels of gratitude also tended to have mothers with higher trait gratitude. Similarly, as levels of youth state gratitude increased, mother's state gratitude also increased. However, there was not a significant relationship between mothers' GQ-6 scores and youth GAC scores.

### **Gratitude and Prosocial Behavior in Youth**

In order to answer the third research question regarding the relationship between gratitude in youth and prosocial behavior, a Pearson's correlation between measures of gratitude and the prosocial behavior domain of the CSBQ was used. There was a moderate positive relationship observed between gratitude in youth and prosocial behavior. Youth gratitude as measured by responses on the GQ-6 and on the GAC were positively related to prosocial behavior as measured by the CSBQ. These results suggest that gratitude is associated with increased prosocial behavior. Of note, there were also small to medium negative correlations observed between gratitude as measured by both measures of gratitude and antisocial behavior as measured by the CSBQ, meaning that higher youth gratitude was associated with decreased antisocial behavior (See Table 2).

### **Predictors of Gratitude**

For the fourth research question regarding predictors of youth gratitude, a multiple regression was used to predict youth's trait gratitude (measured by the GQ-6) using the following variables as predictors: youth state gratitude (GAC), youth discount rate, mother's gratitude and discount rate, and youth relationship with mother (as reported on the IPPA-R).

The model showed that there were three significant predictors of trait gratitude in youth: youth state gratitude, parental trait gratitude, and the mother-child relationship,  $F(6, 98) = 12.905, p = .000, R^2 = .457$ . Youth state gratitude was a significant predictor of trait gratitude, meaning that for every standard deviation increase in state gratitude, there was an associated .388 standard deviation unit increase in trait gratitude. The second significant predictor of youth trait gratitude was parental trait gratitude. For every standard deviation increase in parental trait gratitude, there was an associated .257 standard deviation unit increase in trait gratitude. The mother-child relationship also significantly predicted youth trait gratitude; for every standard deviation increase in mother-child attachment, there was an associated .217 standard deviation unit increase in youth gratitude. Together, the regression model explained approximately 45% of the variability in youth trait gratitude. Values for the individual predictors from the regression analysis are presented in Table 5.

Table 5

*Multiple Regression of Trait Gratitude in Youth*

Predictor variables	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	<i>p</i>
Constant	3.837	3.251		1.18	0.241
Youth					
GAC	0.618	0.146	0.388	4.22	0
Youth DDT	0.189	0.326	0.047	0.57	0.564
Mother					
DDT	-0.337	0.375	-0.071	-0.898	0.372
Mother GQ6	0.201	0.069	0.257	2.926	0.004
Mother GAC	0.186	0.167	0.112	1.11	0.27
IPPA-R	0.077	0.029	0.217	2.675	0.009

## CHAPTER V

### DISCUSSION

The primary purpose of the current study was to investigate further benefits of gratitude in youth. Specifically, while previous studies (DeSteno et al. 2014; Dickens & DeSteno, 2016) have experimentally explored the causal relationship between these gratitude and delay discounting in adults (e.g., That gratitude increases willingness to wait for a larger, delayed reward), the present study investigated the relationship between these constructs in youth from 12-14 years old.

The first hypothesis, that there would be a statistically significant relationship between gratitude and delay discounting in youth, was not supported. There are several reasons that there may not have been a relationship between gratitude and delay discounting in youth. There have been different ideas on the development of gratitude in youth (Froh, Fan, et al., 2011). It is generally thought that gratitude is not an innate characteristic and that youth begin to have similar experiences with gratitude as adults around age 10 because of their ability to start taking the perspective of other people (Froh, Fan, et al., 2011). Given this context, while the youth in the current sample were over the age of 10, it is likely that their understanding of gratitude is still developing. This is also offset by their ability to orient themselves to the future and the long-term consequences of their decisions, as youth, overall, tend to have steeper discount rates (Steinberg et al., 2009).

Additional explanations are worth considering. In the current study, there were also no significant correlations between gratitude in parents and delay discounting, a

result that appears to be inconsistent with previous research in this area (DeSteno et al., 2014; Dickens & DeSteno, 2016). Previous research on the relationship between gratitude and delay discounting in adults has been experimental in nature, suggesting that gratitude can reduce impulsivity (DeSteno et al., 2014). In contrast with an experimental methodology, this study did not attempt to manipulate emotions to determine an effect on discounting choices; instead, it attempted to investigate whether there was already a naturally occurring relationship between gratitude and delay discounting in youth. This explanation likely accounts for the different results in establishing a relationship between the two variables. Finally, another consideration is that a relationship was not found due to differences in measures of delay discounting. While the hope is that the DDT increased adolescent engagement, as opposed to using a 27 or 42 item measure, it is possible that the DDT does not measure delay discounting as accurately as other measures and thus would produce a different relationship.

Another consideration is that research suggests the possibility that discounting behavior may be a personality trait; in other words, it is relatively enduring and consistent across time (Odum, 2011). While this does not mean that discount rates cannot change (Odum, 2011), it is still notable that previous protocols have not obtained a baseline measure of individual discount rates prior to the implementation of the experimental procedure. Thus, it is difficult to conclude that discount rates were changed for individuals, only that there was a difference between comparison group. This is necessary to consider in outcomes if gratitude is to be used for intervention purposes, a potential direction that has been posited (DeSteno et al., 2014).

The secondary purpose of the present study was to further examine the relationship between maternal gratitude and child gratitude, expanding upon the work of Hoy et al. (2013). The hypothesis, that maternal gratitude and child gratitude would be significantly, positively related to each other, received moderate support; results showed a moderate, positive relationship between levels of gratitude in youth and maternal gratitude. This finding is consistent with previous research that also found a significant relationship between gratitude in mothers and gratitude in their children who were ages 9-11 (Hoy et al., 2013). The results suggest that as maternal state gratitude increases, their children will also experience higher levels of trait and state gratitude. Interestingly, however, maternal trait gratitude as measured by the GQ-6 did not correlate with youth state gratitude. This could suggest that maternal state gratitude has a greater influence on their child's gratitude overall, as opposed to a more-enduring personality trait.

The third hypothesis was that there would be a relationship between prosocial behavior and gratitude in youth in the study. This was supported, as there was a moderate relationship between the two constructs. This result is also consistent with previous research in youth gratitude (e.g., Froh, et al., 2008; Froh et al., 2010) and adults (e.g., Bartlett & DeSteno, 2006; Emmons & McCullough, 2003).

Finally, results supported the fourth hypothesis that youth state gratitude, parental trait gratitude, and the mother-child relationship (as perceived by the child) were significant predictors of youth trait gratitude. This suggests that, of the variables in the current study, that some of the most important factors in determining gratitude in youth, as a consistent, enduring trait, is best explained by how grateful they are feeling in the

present moment, their perceived attachment to their mother, and their mother's levels of gratitude. In this way, the importance of the mother-child relationship is further accentuated in that the relationship is predictive of their child's emotional state, whether that be positive or negative, as discussed previously.

### **Limitations of the Present Study**

There are several limitations of the current study to consider. One of the primary limitations of the study is that it was conducted through online software and not in a lab setting. While the survey was designed in two parts (one for the mother to complete and one for the child to complete), there was not a way to ensure that mothers in the study did not also complete the youth portion of the survey. Similarly, it is possible that youth did completed both their own and their mother's part of the survey, although this would have been difficult as recruitment for the study went through mothers. Related to this issue, if the mother and youth were together through the entirety of the survey, it could have affected the answers selected (such as when youth completed the measure on their attachment to their mothers); thus, some responses may not have been as true reflection of their actual thoughts in a way to make themselves look better, a response bias that tends to be present in self-report questionnaires anyway. Although it seems unlikely based on the pattern of the responses observed, it is still a possibility that one person completed the whole survey or that answers were affected by having an observer present.

A further limitation of the study is the use of the two gratitude measures in youth. Although previous research has established the convergent validity of the GQ-6 and GAC



in youth (Froh, Fan, et al., 2011), one meta-analysis on the usefulness of gratitude interventions in youth and schools found that there was only around 22% shared variance between these measures, suggesting that the two questionnaires might be measuring different constructs (Renshaw & Olinger Steeves, 2016). For example, based on the wording on the GAC, “Think about how you felt yesterday...,” the GAC appears to measure an affective component of gratitude while the GQ-6 seems to measure a cognitive component of gratitude (e.g., If I had to list everything that I felt grateful for, it would be a very long list). While efforts have been made to account for this potential difference in constructs by identifying one as trait gratitude and another as state gratitude, as has been done elsewhere (i.e., Lambert et al., 2012), the difference in constructs could still impact the overall interpretation of findings. Related to this, an additional limitation is the measurement of delay discounting. Delay discounting is behavioral in nature but most measures of it currently are questionnaires. The use of questionnaires may limit the ability to capture what people would actually do given real choices.

Another limitation of the study is that it is correlational in nature. While it is necessary to establish a relationship between constructs to ultimately determine a causal effect, a majority of studies have examined correlates of gratitude (Renshaw & Olinger Steeves, 2016). In this way, some of the findings here are a replication, as opposed to contributing new information on a causal effect or potential intervention.

### **Implications and Future Research**

Results of the present study have implications for the study of gratitude and its

application for youth, as well as the study of gratitude and delay discounting. Although a few studies to date have examined the causal role of gratitude in reducing “impulsive” decisions in adults with promising findings (i.e., Bartlett & DeSteno, 2006; DeSteno et al., 2014; Dickens & DeSteno, 2016), the current study, at least, points to the need for further research into this relationship. As stated earlier, no studies have taken a baseline measure of discount rate, a step that would be helpful in determining the usefulness of gratitude as an intervention; furthermore, it would provide more direct evidence for the relationship between gratitude and delay discounting.

Regarding maternal-child attachment, Klein (1957, as cited in Froh, Fan, et al., 2011) first suggested that gratitude development in infancy was made possible through this relationship. While it is not suggested here that gratitude is developed in infancy, it is interesting to note the emphasis on the mother-child relationship. Given the results in the present study and in Hoy et al. (2013), further investigation into how mother-child attachment influences the development of gratitude in childhood and adolescents is warranted. Future research may also wish to include fathers for comparison to see if there are differential outcomes between parents.

In the area of prosocial behavior and gratitude, Renshaw and Olinger Steeves (2016) described that previous research has established a positive correlation between gratitude and prosocial behavior; however, evidence suggests the gratitude interventions that have been developed are not helpful in building or strengthening relationships, either with peers or adults. Those interested in this area may wish to focus on developing empirically supported interventions that could help strengthen these bonds.

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APPENDIX  
DEMOGRAPHIC INFORMATION

### Demographic Information

1. What is your relationship to the child?

- a. Biological Parent
- b. Step Parent
- c. Adoptive Parent
- d. Legal Guardian

2. Your Gender

- a. Male
- b. Female
- c. Other

3. Child's Gender

- a. Male
- b. Female
- c. Other

4. Your age: \_\_\_\_\_

5. Child's age: \_\_\_\_\_

6. Race/Ethnicity:

- a. Black/African American
- b. Latino/Hispanic
- c. Asian
- d. White/Caucasian
- e. Alaska Native
- f. Pacific Islander
- g. Multi-ethnic
- h. Other: \_\_\_\_\_

7. Annual Income

- a. Less than \$15,000
- b. \$15,000-30,000
- c. \$30,000-45,000
- d. \$45,000-60,000
- e. \$60,000-75,000
- f. More than \$75,000

8. What are your child's grades at school?
- a. Mostly A's
  - b. Mostly B's
  - c. Mostly C's
  - d. Mostly D's
  - e. Mostly F's
9. Has the child that you are completing these measures for ever received mental health services or medication for behavioral or mental health issues?
- a. Yes
  - b. No
10. Have you ever received mental health services or medication for behavioral or mental health issues?
- a. Yes
  - b. No
11. How many members do you currently have living in your household? \_\_\_\_\_