Gratitude As A Mechanism By Which Agreeable Individuals Maintain Good Quality Interpersonal Relationships

by

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A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
Department of Psychology
University of Toronto

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Abstract

The current dissertation employed a multi-method approach to examine gratitude as a mediator of the well-established relation between agreeableness and relationship quality. Study 1 examined this hypothesis in a sample of 158 same-sex best friend pair recruited from the Introductory Psychology subject pool at the University of Toronto, Mississauga. Each friend made self- and informant ratings of agreeableness and dispositional gratitude. Friends also made self-ratings of friendship quality. Structural equation model analyses with latent factors revealed that dispositional gratitude fully mediated the effects of agreeableness on friendship support, intimacy, and affection. Study 2 extended the findings of Study 1 by examining whether frequency of grateful affect was a more proximal mediator of the relation between agreeableness and marital quality. One hundred and ninety-seven family triads (student, mother and father) were recruited from the Introductory Psychology subject pools at the University of Toronto, St. George and Mississauga. Each member of the triad made self- and informant ratings of agreeableness, dispositional gratitude, frequency of grateful affect, and relationship quality. Structural equation model analyses with latent factors showed that frequency of spouses’ grateful affect fully mediated the effects of spouses’ agreeableness on marital support and intimacy and partially mediated the effect of agreeableness on marital companionship and affection. In sum,
the findings of the current dissertation suggest that gratitude is one way in which agreeable individuals maintain good quality friendships and marital relationships. The implications of these results for current theories of gratitude as well as relationship research are discussed.
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Chapter 1
General Introduction

1 General Introduction

For decades relationship researchers have endeavoured to identify the factors and processes that promote good quality interpersonal relationships. Although it is understood that social relationships are based on interdependence and that dyadic processes such as shared perceptions and behaviours help to create the shared reality that constitutes an interpersonal relationship, many researchers have also noted the contribution of personality traits to relationship quality. In general the Five-Factor Model (McCrae & Costa, 1999), which posits that there are five broad dimensions that represent the highest level of abstraction of personality traits, has been used to examine how personality influences relationship quality. Among the Big Five personality traits, agreeableness has emerged as a reliable predictor of relationship quality. Several studies have demonstrated that an individual’s level of agreeableness predicts his or her own ratings of relationship outcomes such as relationship quality. For example, agreeableness has been shown to positively predict individuals’ own relationship satisfaction (Dyrenforth, Kashy, Donnellan, & Lucas, 2010; Heller, Watson, & Ilies, 2004; Watson, Hubbard, & Weise, 2000; White, Hendrick, & Hendrick, 2004), relationship quality (Donnellan, Conger, & Bryant, 2004), closeness (Berry, Willingham, & Thayer, 2000) and negatively predict negative relationship interactions (Donnellan et al., 2004). Moreover some empirical studies have also found that an individual’s level of agreeableness also predicts his or her partner’s relationship outcomes (Berry, et al., 2000; Dyrenforth et al., 2010; Malouff, Thorsteinsson, Schutte, Bhullar, & Rooke, 2010; Watson et al., 2004). However, the evidence for partner effects of agreeableness on relationship quality is inconsistent as some studies have failed to find partner effects of agreeableness and when partner effects of agreeableness are found, they tend to be small (i.e., smaller than actor effects of
agreeableness) (Dyrenforth, et al., 2010). Nevertheless, when present, partner effects suggest that agreeableness has interpersonal consequences for relationship outcomes (Dyrenforth et al., 2010).

Despite ample empirical evidence that individual differences in agreeableness contribute to relationship quality, there are currently few theories that attempt to explain why this is the case. Agreeableness is thought to be a higher order personality trait that captures a general interpersonal and prosocial orientation. For example, agreeable individuals are typically kind, warm, trusting, cooperative, sincere, and compassionate as opposed to rude, callous, and cold. In other words, agreeable individuals possess traits that foster pleasant interpersonal interactions. According to McCrae and Costa (1995), agreeableness may constitute a characteristic adaptation which directs individuals high on this trait to typically act in a warm, friendly, and approachable manner. However, as mentioned previously, little is known about the mechanisms by which high levels of agreeableness translate into good quality interpersonal relationships. Thus the main goal of the current dissertation is to propose and empirically examine the thesis that gratitude is one mechanism employed by agreeable individuals to maintain good quality interpersonal relationships. More specifically, the current dissertation examines the hypothesis that gratitude mediates the relation between agreeableness and relationship quality. The introduction that follows is divided into four main sections. In the first section the existing theories of the conceptual components of gratitude are reviewed. In the second section the conceptual and empirical links between gratitude and agreeableness are reviewed in order to establish a theoretical basis for a causal link between agreeableness and gratitude. In the third section the current literature on the relational benefits of gratitude is reviewed in order to establish a theoretical causal link between gratitude and relationship quality. Lastly, in the fourth section the
main thesis of the current dissertation is described in detail and a brief overview of the studies of the current dissertation is provided.

1.1 Conceptual Components of Gratitude

Philosophers and theologians have long debated the benefits of gratitude to the social functioning of individuals and societies at large. For example, Adam Smith (1790/1969) considered gratitude to be one of the most basic social emotions that provides individuals with guidance for moral judgments and behaviour. Moreover, gratitude was described as one of the primary motivators of benevolent behaviour toward a benefactor in that gratitude prompts the beneficiary to seek out ways of acknowledging the benefit conferred to them, which creates a sense of goodwill and promotes social stability. Building on Smith’s (1790/1969) theory, Simmel (1950) argued that gratitude serves as a reminder of moral norms, such as reciprocity obligations. Similarly, Schwartz (1967) has argued that gratitude is a social force that causes individuals to maintain a prosocial orientation.

Despite a rich theoretical history, it has only been in the past 25 years that psychologists have begun to empirically examine gratitude. Most of the recent research on the benefits of gratitude has focused on subjective well-being. For example, gratitude has been shown to increase levels of life satisfaction and positive affect and decrease levels of negative affect (Emmons & McCullough, 2003; Watkins, Woodward, Stone & Kolts, 2003). However, few studies have followed up on earlier theories that linked gratitude to prosocial behaviours and good interpersonal relationships.

Emmons and Shelton (2002) have observed that one of the reasons for the paucity of empirical studies of gratitude is the elusive nature of the construct. Indeed, gratitude has been characterized in a myriad of ways, for example, as a disposition (McCullough, Emmons & Tsang, 2002), a
virtue or character strength (e.g., Peterson & Seligman, 2004; Roman philosopher Seneca, 1935), an emotion (e.g., Emmons and Crumpler, 2000), a moral sentiment (Smith, 1790/1969; McCullough, Kilpatrick, Emmons & Larson, 2001), a motive (e.g., McCullough et al, 2001), a coping response, a skill, and an attitude (Emmons & Crumpler, 2000). Moreover, concrete definitions of gratitude vary in terms of their complexity. Kant (1897/1964) defined gratitude as “honouring a person because of a kindness he has done to us” (p.123), whereas Solomon (1977) defined gratitude as “an estimate of gain coupled with the judgment that someone else is responsible for that gain” (p.316). Within the psychological literature, definitions of gratitude range from an emotion felt in response to a gift (Emmons & Crumpler, 2000) to an emotion and social force which operates at spiritual/religious/ecological/magical, moral and psychological, social, and socio-cultural levels (Komter, 2004). Current psychological research on gratitude, however, typically employs the conceptualization posited by McCullough et al (2001). Consistent with Rosenberg’s (1998) hierarchical structure of common affective experiences, McCullough and colleagues make an important distinction between gratitude as grateful affect and gratitude as an affective trait (i.e., dispositional gratitude).

1.1.1 Gratitude as Grateful Affect

While there exist several theories of emotion, typically emotions are thought of as transient reactions to specific encounters with the environment. McCullough and colleagues (2004) define grateful affect as an emotional response to a gift that involves the appreciation felt after one has been the beneficiary of an altruistic act. This definition is rooted in several classes of theories of emotion discussed below.
1.1.1.1 Causal Attribution-Based

Bernard Weiner’s (1985) attribution-emotion process highlights the role of causal attributions in the elicitation of emotions. Accordingly, individuals first appraise the outcome of events in terms of perceived successful achievement of or failure to achieve a desired goal. This “primary appraisal” is then followed by a general emotional response; positive (e.g. happiness) in the case of success or negative (e.g. frustration) in the case of failure. According to Weiner (1985), differentiated emotional experiences are produced when individuals make locus, stability, and controllability causal attributions for outcomes. Moreover, the specific emotional experience is closely related to the specific dimension of causality which underlies the causal attribution.

According to Weiner (1985), when an individual experiences a positive outcome, a positive “primitive” emotional response such as happiness follows. However, if the individual then attributes that positive outcome to another’s benevolence, the specific emotional experience of gratitude is elicited. In the case of gratitude, the key causal attributions that the individual makes are that the positive outcome is (a) the result of an external source (the benefactor) and (b) under the benefactor’s volitional control (controllable). Moreover, Weiner (1985) argued that for gratitude to be elicited, the beneficiary also has to perceive that the benefactor’s actions were intentional.

1.1.1.2 Appraisal-Based

A second model of emotion that influenced McCullough et al’s (2004) definition of gratitude as grateful emotion is Ortony, Clore and Collins’ (1988) cognitive theory of emotion which specifies the interrelations between different emotions as well as the characteristics of individual emotions. The main components of their theory are the appraisals that occur in response to individuals’ interactions with the world. According to their theory, emotions are organized into 3
groups in which each emotion within a particular group shares a set of eliciting conditions but can differ from one another in terms of intensity as well as the weight assigned to different components. At the broadest level, judgments of whether the eliciting condition stems from a focus on the consequences of events, actions of agents, or aspects of objects gives rise to undifferentiated, non-specific valenced reactions. Whether or not the valenced reaction is consciously experienced depends on the intensity of this reaction, which is in turn affected by local and global factors, and on further appraisals of the event, agent, or object. These further appraisals of the eliciting condition lead to differentiation between the emotions types within each group.

According to this framework, gratitude as grateful emotion is a compound emotion stemming from the convergence of ‘Well-being’ and ‘Attribution’ group emotions. Thus the emotions within this ‘Well-being/Attribution Compound’ group (e.g., gratitude, gratification, anger, and remorse) arise from simultaneously focusing on both the consequences of events and the actions of an agent. More specifically, gratitude is elicited when one appraises the consequences of a positive event as desirable and is pleased (e.g., joyful) and one judges another’s positive actions as praiseworthy and approves (e.g., admiration). Thus gratitude is the compound of joy and admiration.

Ortony et al. (1988) argued that the intensity of gratitude depends on: (1) the degree of judged praiseworthiness, (2) deviations of the agent’s action from person/role-based expectations, and (3) the degree to which the event is desirable. In other words, the intensity of grateful affect depends on the degree of local factors such as praiseworthiness and desirability as well as the degree of global factors such as unexpectedness. This conceptualization of gratitude highlights that importance of simultaneous appraisals of praiseworthiness and desirability. For example, if
an individual experiences an unexpected, pleasing positive event which he or she attributes to the praiseworthy actions of another, to the extent to which his or her focus is more on the praiseworthiness of the actions and not on the desirability of the event, he or she is more likely to experience intense (due to unexpectedness) admiration rather than gratitude. In this way, the desirability of the event (or even potential desirability of the event if the event fails to bring about the intended goal) must be salient in order to elicit gratitude. Similarly, if an individual experiences an unexpected, pleasing positive event which they attribute to the praiseworthy actions of another, to the extent to which his or her focus is more on the desirability of the event and not on the praiseworthiness of the actions of another, he or she is more likely to experience intense joy rather than gratitude. In this case, just because the event is appraised as desirable is insufficient to elicit gratitude. Ortony et al. (1988) used the example of an individual who benefits from the accidental actions of another. Although the consequences of the other’s actions are desirable, they are not judged as praiseworthy because the individual does not consider himself or herself to be the intended beneficiary of the other’s actions.

Another appraisal theory that has influenced McCullough et al.’s (2004) definition of gratitude as grateful affect is Lazarus’ (1991) cognitive-motivational-relational theory of emotions. One of the central premises of Lazarus’ (1991) theory of emotions is that an emotion is understood in terms of its specific appraisal pattern (i.e., whether something of relevance to the individual’s well-being has occurred and whether any given action might prevent harm or produce additional harm or benefit), its specific action tendency (or rather a more flexible plan or behaviour that is subject to feedback, i.e., coping processes), and its core relational theme. According to Lazarus (1991), core relational themes are the central relational harm or benefit in adaptational encounters that underlies each kind of emotion or emotion family (Lazarus, 1991), i.e., the relational meaning of an event. Thus core relational themes are dependent on specific person-
environment interactions and motivation. For Lazarus (1991) person-environment interactions are the combination of an environment with certain attributes and a person with certain attributes.

According to Lazarus and Lazarus (1994), gratitude is an empathic emotion in that the experience of gratitude depends on the beneficiary’s capacity to empathize with others. That is, to give a gift graciously depends upon the benefactor putting him or herself in the position of the beneficiary. The benefactor must be sensitive to the needs of the beneficiary, must be aware of the appropriate ways in which to help the beneficiary, and must be willing to contribute to the welfare of the beneficiary. In addition, in order to receive a gift graciously, the beneficiary must also be able to put him or herself in the position of the benefactor. The beneficiary must perceive that the benefactor’s reasons for providing the benefit are not based on personal gain or the expectation of an unwarranted future obligation (Lazarus & Lazarus, 1994). Thus, according to Lazarus and Lazarus (1994), the core relational theme associated with gratitude is recognition or appreciation of an altruistic gift.

Consistent with appraisal approaches to conceptualizing emotions, Tesser, Gatewood, and Driver (1968) experimentally examined whether grateful emotion can be predicted by three key beneficiary appraisals after the receipt of a benefit from another person. More specifically, the authors argued that gratitude is more likely to be elicited when the beneficiary perceives that: (1) the benefactor intentionally provided the benefit and expects only a minimal return, i.e., that the benefactor is motivated by altruism and not personal gain, (2) the benefactor incurs some cost as a result of providing the benefit, and (3) the benefit is of some value to him or herself. Using vignettes which described a benefit conferred to a protagonist, Tesser et al. (1968) varied the intensity of the protagonist’s perceptions of intentionality, cost, and value. Following the
experim ental manipulation, participants rated the extent to which the protagonist would feel
gratitude and indebtedness. The results showed significant main effects of intentionality, cost,
and value on participants’ reports of gratitude. Moreover, there was some support for the
hypothesis that a linear combination of intentionality, cost, and value predicted reports of
gratitude as there were no significant interactions between the three factors. These results offer
some support for theories that posit that gratitude is the outcome of specific appraisals of events.
However, one issue with these results is that gratitude was operationalized as a composite score
of gratitude and indebtedness due to the high correlation between participants’ ratings of
gratitude and indebtedness. Recent evidence has demonstrated that gratitude and indebtedness
are distinct constructs (Matthews & Green, 2010; Watkins et al., 2006) (see the next section for a
more detailed discussion), thus, based on these results, it is not known whether it is gratitude or
indebtedness that is associated with this pattern of appraisals.

1.1.1.3 Action Tendency-Based
Lastly, according to Fridja (1988), emotions are subjective experiences at the core of which is
the experience of pleasure or pain. This core is embedded within the awareness of situational
meaning structures that the framework with which primary as well as secondary appraisals can
be understood. However, Fridja (1986; 1988) contends that appraisals are not the only key
component of emotional experience. Another central component is action tendency because it
not only links the subjective experience of emotions to behaviour but also differentiates one
emotion from another. Action tendency is defined as changes in states of action readiness which
are elicited by events that are emotionally relevant. That is, action tendencies arise from
appraisals of events as important to one’s concerns, goals, or motivations. More specifically,
Fridja, Kuipers, and ter Schure (1989) define action tendency as the readiness of an individual to
engage in or disengage from interaction with some goal object. Action tendencies are
accompanied by a subjective experience, that is, when individuals are aware of action tendencies they are felt as impulses or urges to select and execute particular actions from the individual’s response repertoire.

With respect to gratitude, McCullough and colleagues (2001) argue that gratitude as an emotion is associated with a specific action tendency which is “to contribute to the welfare of the benefactor (or a third party) in the future” (p.252). According to McCullough et al. (2001), gratitude is linked to the above action tendency because it is thought to activate an internalized norm of reciprocity. According to Gouldner’s (1960) norm of reciprocity individuals help those who have helped them, and do not harm those who have helped them. Gouldner (1960) argued that reciprocity can be construed as a moral principle that guides social behaviour. More specifically, Gouldner (1960) and later Uehara (1995) argued that reciprocity is a “moral norm which directs that what one party received from the other requires some return” (Uehara, 1995, p. 2). Empirical research has shown that the norm of reciprocity, when internalized, guides behaviour in the absence of additional self-interest goals such as social approval or material incentives (e.g., Gallucci & Perugini, 2000). In this way, reciprocity is viewed as an internalized norm or goal and not just a strategy (Perugini & Gallucci, 2001). However, even though researchers such as Ekeh (1974) have pointed out that the moral obligation to reciprocate can be met in several ways which include indirect reciprocation, e.g., reciprocation to someone other than the original benefactor, or time-delayed reciprocation, reciprocity still implies that the reciprocated behaviour is enacted in response to a benefactor’s kindness and that the reciprocated behaviour is in kind, that is, of similar value as the received benefit. Therefore, simply stating that gratitude activates an internalized norm of reciprocity implies that grateful individuals are motivated to respond in kind to another’s benevolence, that is, that gratitude motivates individuals to merely reciprocate. However, this is it not the action tendency that is thought to be
associated with gratitude. Gratitude is thought to be associated with prosocial behaviour which is motivated by one’s concerns for the welfare of the recipient. Therefore, the link between gratitude and prosocial behaviour cannot solely be explained by the activation of the norm of reciprocity.

Another issue with reliance on Gouldner’s (1960) norm of reciprocity as an explanation for the association between gratitude and a prosocial action tendency is that, according to this perspective, internalization of the norm of reciprocity prescribes gain at the expense of another’s beneficial acts and induces within the beneficiary an uncomfortable state of obligation which he or she is motivated to relieve. Therefore, it is a sense of moral obligation that drives reciprocity and not the experience of gratitude. Unfortunately, much of the early writings and empirical research on gratitude have confounded gratitude and indebtedness by using the terms interchangeably (e.g., Greenberg, 1980; Ortony, et al., 1988; Tesser, et al, 1968). In this way gratitude was seen as having a dark side, especially in light of the unpleasant feelings associated with indebtedness (Greenberg et al., 1982) and in social and dominance inequalities in relationships (Komter, 2004; Watkins, 2004). However, Gouldner (1960) argued that both obligation and gratitude can influence reciprocation when he stated: “the motivation for reciprocity stems not only from the sheer gratification which Alter receives from Ego but also from Alter’s internalization of a specific norm of reciprocity which morally obliges him to give benefits to those from whom he has received them” (p. 174). Few empirical studies have directly examined the distinction between gratitude and indebtedness. Some studies have shown that gratitude is experienced by individuals as a pleasant psychological state (Mayer, Salovey, Gomberg-Kaufman, & Blainey, 1991; Reisenzein, 1994) while indebtedness (a sense of one’s obligation to repay to a benefactor’s intentional kindness) is experienced as an unpleasant and aversive psychological state (Buunk, Doosje, Jans, & Hopstaken, 1993; Greenberg, Bar-Tal,
Mowrey, & Steinberg, 1982). Moreover, there is some recent evidence of the dissociation between the relations of reciprocity to obligation and gratitude. Goei and Boster (2005) examined gratitude and obligation as two explanations of compliance with a favour after one has been the beneficiary of a favour. Goei and Boster (2005) found support for the gratitude-favour compliance link in that feelings of gratitude after receiving a favour lead to increased compliance with the benefactor’s request, even after controlling for the effects of obligation. This study provides indirect support for the distinction between gratitude and indebtedness in that obligation did not account for the relation between gratitude and compliance.

One theory that might explain gratitude’s specific action tendency is Fredrickson’s (1998, 2001) Broaden-and-Build theory of positive emotions. According to this theory, in contrast to the action tendencies associated with negative emotions which narrow an individual’s momentary thought-action repertoire by calling to mind an urge to act in a particular way, the action tendencies associated with positive emotions broaden an individual’s momentary thought-action repertoires by widening the array of thoughts and actions that come to mind. Therefore, as a positive emotion, gratitude should be associated with a thought-action tendency that broadens an individual’s repertoire of possible responses to another’s kindness. According to Fredrickson (2004) simple reciprocation of another’s kindness reflects a more narrow behavioural response, whereas prosocial behavior constitutes a broader action tendency as there are a wide range of possible actions that may contribute to the benefactor’s wellbeing. Thus gratitude is thought to urge individuals to creatively consider a variety of prosocial actions which can be used to reciprocate a kindness, benefit the benefactor, and reflect their felt gratitude.

Watkins et al. (2006) used vignettes that described a friend helping a protagonist in order to examine whether gratitude and indebtedness can be distinguished from one another in terms of
specific action tendencies. More specifically, the level of the benefactor expectations of a certain kind of response was varied in each vignette (e.g., no expectation, moderate expectation, high expectation) and participants’ emotional responses to the situation depicted in the vignettes (e.g., gratitude, indebtedness, obligation, gladness, resentment, guilt, irritation/annoyance, and pride) were measured. Participants’ thought/action tendencies were also assessed using a number of questions derived from Fridja’s (1986) approach. The action readiness dimensions employed in were: approach, active against/rejection/avoidance, yielding, adoration, passive against, passive negative, inhibition, apathy, and play/leisure.

Watkins et al. (2006) showed that as the level of expectation increased, participants’ ratings of gratitude decreased, but ratings of indebtedness increased. Moreover, consistent with Fredrickson’s (1998, 2001) Broaden-and-build model, participants’ endorsement of prosocial action tendencies such as adoration, approach and yielding decreased as the level of expectation increased. Gratitude responses were correlated positively with the total number of prosocial action tendencies and negatively correlated with the total number of antisocial action tendencies (active against, passive negative, rejection, inhibition, and passive against). These findings demonstrate that gratitude and indebtedness are distinct in terms of their emotional experience as well as the thought/action tendencies that they are associated with. Moreover, consistent with Fredrickson’s (2004) assertion, gratitude was associated with a broader array of prosocial tendencies compared to indebtedness.

1.1.1.4 Summary
To sum up, the emotional experience of gratitude can be understood using a wide range of theoretical frameworks. Based upon the preceding review, the emotion of gratitude seems to be elicited under certain conditions. When an event occurs, the beneficiary must appraise: (1) the
event as positive and (2) the consequences of the event as desirable, valuable, or important in accordance with his or her own goals. The beneficiary must also attribute the event to an external source or the agency of another, i.e., a benefactor. In addition, the beneficiary must judge the actions of the benefactor as: (1) intentional, (2) under the benefactor’s volitional control, (3) based on the benefactor’s desires to contribute to the welfare of the beneficiary and not personal gain, and (4) costly to the benefactor. Lastly, the beneficiary must experience a change in states of action readiness that permit the engagement in prosocial behaviours aimed at expressing his or her gratitude and contributing to the well-being of the benefactor.

1.1.2 Gratitude as an Affective Trait
McCullough et al. (2002) define gratitude as an affective trait as “a generalized tendency to respond with grateful emotion to the roles of other people’s benevolence in the positive experiences and outcomes that one obtains” (pp. 112). Thus a grateful disposition is thought to reduce the threshold for (1) recognizing when one has been the beneficiary of another’s goodwill and (2) responding with gratitude to the role of others’ in one’s positive outcomes. Furthermore, this disposition is thought to lead to discrete emotional experiences such as grateful affect and appreciation (McCullough et al., 2002). McCullough et al. (2002) contend that dispositional gratitude is composed of the following facets which are thought to co-occur: intensity, frequency, span, and density. More specifically, relative to less dispositionally grateful individuals, dispositionally grateful individuals should simultaneously: (a) experience more intense feelings of gratitude in response to positive events, (b) report feeling grateful many times each day and should have a lower threshold for experiencing gratitude (e.g., in response to simple pleasures), (c) feel grateful to a large number of life circumstances, and (d) refer to a large number of people as contributors to the positive outcomes that they have experienced. However, there are several issues with McCullough et al.’s (2002) conceptualization of
dispositional gratitude. First, McCullough et al. (2002) make no mention of how the grateful disposition influences the tendency to make the pattern of appraisals associated with grateful emotion. For example, from their discussion, it is unclear how a grateful disposition leads individuals to appraise the benefits that they obtain from others as costly to the benefactor, valuable to themselves, and altruistically motivated. Consistent with Tesser et al.’s (1968) findings that grateful affect stems from appraisals of intentionality, cost, and value, Wood, Maltby, Stewart, Linley, and Joseph (2008) proposed that the relation between dispositional gratitude and grateful affect can be explained by dispositionally grateful individuals’ tendency to appraise benefits in a certain ways. In three studies that used vignettes, daily diary methods, and an experimental manipulation of a gratitude-inducing situation. Wood et al. (2008) found that appraisals of benefits as costly, valuable, and altruistically motivated mediated the relation between dispositional gratitude and grateful affect. These findings are important as they empirically demonstrate that one reason why dispositionally grateful individuals, relative to less dispositionally grateful individuals, are more likely to experience grateful affect is because they have a tendency to appraise the good things that others provide them in ways that elicit grateful affect. Thus any theory of grateful disposition must account for the links between appraisals and grateful emotion. A second issue with McCullough et al.’s (2002) conceptualization of the grateful disposition concerns their underlying facets. These authors treat the underlying four facets as interrelated and co-occurring, all stemming from an underlying grateful disposition; however, this view is inconsistent with evidence that suggests that at least two of their facets are independent. For example, Schimmack and Diener (1997) provided evidence that suggests that there exist a disposition to experience intense emotions and that this disposition is separable from the disposition to experience emotions frequently. Therefore it still remains unclear how the grateful disposition accounts for co-occurrence of at least two facets of emotional experience,
i.e., intensity and frequency. In addition, it is unclear from their conceptualization how simple pleasures are sufficient to elicit grateful affect in the absence of specific instances in which the individual is the beneficiary of another’s kindness.

A second conceptualization of gratitude as an affective trait was proposed by Watkins, et al. (2003) who conceptualized dispositional gratitude as a predisposition to experience gratitude, i.e., feelings of thankful appreciation for favors received. These authors argue that grateful individuals should: (a) have a sense of abundance, (b) be appreciative of the contribution of others to their well-being, (c) have the tendency to appreciate simple pleasures in life, and (d) acknowledge the importance of experiencing and expressing gratitude. Watkins et al. (2003) created their Gratitude, Resentment, and Appreciation Test (GRAT) in order to capture individual differences in the four aforementioned characteristics of grateful individuals. However, similar to McCullough et al.’s (2002) conceptualization of a grateful disposition, Watkins et al. (2003) failed to provide an adequate theoretical basis for their conceptualization of a grateful disposition. For example, Watkins et al. (2003) focus primarily on demonstrating the internal consistency and factorial validity of their measure but do not provide a theory of how a grateful disposition leads to the tendency to experience grateful affect.

Lastly, some theorists have argued that a grateful disposition may be rooted in religiosity and/or spirituality as grateful individuals may also be oriented toward recognition to the contributions of non-human forces to their well-being (McCullough et al., 2002). These non-human forces could be luck (Teigen, 1997; Weiner, Russell, & Lerman, 1979) or a divine being. According to Emmons and Crumpler (2000), the roots of gratitude can be seen in many world religions which advocate gratitude in many of their teachings, texts, worship, and prayers. This religious focus on gratitude may result in spiritual or religious individuals adopting a grateful outlook, especially in
light of benefits that cannot be attributed to human effort (e.g., a lovely sunset) (McCullough et al., 2002). Moreover, religious individuals may see the ultimate source of all benefits that they receive in life as a benevolent God or similar divine being (Watkins et al., 2003). Although, there are only a few empirical studies that examine the link between gratitude and religiosity/spirituality, there is some empirical support for this link. For example, Watkins et al. (2003) also found that dispositional gratitude was positively correlated with individuals’ beliefs that their personal control stems from the assistance of a divine being (r = .49). In addition, dispositional gratitude was positively correlated with intrinsic religiosity (engagement in religious practices for their own sake) and negatively correlated with extrinsic religiosity (engagement in religious practices for other gains outside of religion, e.g., material gains and social status). Similarly, McCullough et al. (2002) found that both self and informant reports of dispositional gratitude were positively correlated with measures of spiritual transcendence (prayer fulfillment, a sense of universality, and a sense of connectedness), self-transcendence (self-consciousness versus self-forgetfulness, transpersonal identification versus self-isolation, and spiritual acceptance versus rational materialism), and religiousness (importance of religion, frequent attendance at religious activities, number of religious friends, amount of time spent reading sacred scriptures, frequency of prayer, feeling of having a personal relationship with God, and experience of spiritual union with God). Monomethod studies showed that the self-report correlations remained significant after controlling for Extraversion/Positive affect, Neuroticism/Negative affect, and Agreeableness (McCullough et al., 2002).

However, one important issue with the above findings concerns whether gratitude in response to the actions of another human is the same as gratitude in response to benefits that cannot be attributed to human effort. One response to this issue is that if individuals attribute intentionality to non-human agents through anthropomorphization, then one’s experience of gratitude is
consistent with the traditional definition of gratitude as stemming from appraisals of another’s benevolence. Another response, proposed by Lambert (2009) is that a distinction should be drawn between ‘benefit-triggered’ gratitude and ‘generalized’ gratitude. According to Lambert (2009), ‘benefit-triggered’ gratitude is consistent with traditional definitions of gratitude as stemming from receipt of a benefit from a specific benefactor while ‘generalized’ gratitude is viewed as an emotion that results from an awareness and appreciation of that which is valuable and meaningful to oneself. According to Lambert (2009) the two available measures of dispositional gratitude contain items that capture both ‘benefit-triggered’ and ‘generalized’ gratitude. Thus it is not known whether the aforementioned correlations between dispositional gratitude and religious/spirituality observed by McCullough et al., (2002) and Watkins et al., (2003) are due to the relations between religious/spirituality and the items within their measures that reflect ‘generalized’ gratitude and not ‘benefit-triggered’ gratitude.

A second issue concerns the direction of causality, that is, whether gratitude is rooted in religious/spirituality or whether experiences of gratitude promote belief in God. The findings from the few empirical investigations of gratitude and religious/spirituality are mixed. For example, while some surveys show that the majority of adult respondents express gratitude to a God or Creator (Gallup, 1998), others have suggested that experiences of gratitude may promote belief in God (Chesterton, 1908/1986). For example, Allport, Gillespie, and Young (1948) found that 37% of their participants cited gratitude as a reason why they were religious. Therefore, at this point, more research is needed in order to determine the contributions of religious/spirituality to gratitude.
1.1.2.1 Summary

In sum while the existing theoretical examinations of gratitude as grateful affect are comprehensive, the current theories of dispositional gratitude are somewhat limited as they fail to conceptually link the antecedents of grateful affect to individual differences in the tendency to experience grateful affect. Moreover, the existing theories of dispositional gratitude do not take into account the relations between gratitude and high order personality traits. The next section introduces a theory that accounts for the relation between a grateful disposition and grateful affect based on the Big Five taxonomy and further examines the validity of McCullough et al.’s (2002) widely-used measure of dispositional gratitude.

1.2 Relation of Dispositional Gratitude to Agreeableness

Based upon the aforementioned theories of gratitude as an emotion and affective trait that is not only interpersonal but also prosocial in nature, individual differences in the tendency to experience grateful emotion should be rooted in broader tendencies to experience prosocial emotions and engage in prosocial behaviours; that is, agreeableness. Although not made explicit in their conceptualization of dispositional gratitude, McCullough et al. (2001) posited that agreeable people may be more grateful because gratitude may be a useful mechanism for promoting and maintaining positive social interactions. In other words, the experience of gratitude may be one way in which agreeable individuals maintain social interactions that are characterized by low conflict and good quality. Moreover, agreeable individuals may also be more likely to attribute their positive outcomes to the intentional behavior of others, an appraisal thought to be important to the experience of gratitude. Currently, there are few studies that have examined the relations between dispositional gratitude and agreeableness. Moreover, these studies were primarily mono-method studies which make it difficult to examine the true relations
between dispositional gratitude and the Big Five due to measurement error. Nevertheless, mono-
method studies represent the first step in examining the contribution of agreeableness to a
grateful disposition. Saucier and Goldberg (1998) found that a personality trait based on self-
ratings of the adjectives grateful and thankful was positively correlated with self-ratings of
agreeableness. Another mono-method study by McCullough et al. (2002) showed that, across
two data sets, self-ratings of dispositional gratitude were reliably correlated with self-ratings of
agreeableness and multiple regressions using all of the Big Five traits showed that agreeableness
was a unique predictor of self-ratings of dispositional gratitude across the two data sets. Another
mono-method study by Wood, Joseph, and Maltby (2008) showed that self-ratings of
dispositional gratitude were positively correlated with self-ratings of agreeableness. Lastly, a
recent study by Breen, Kashdan, Lensen, and Fincham (2010) revealed that self-ratings of
dispositional gratitude were positively correlated with self-ratings of agreeableness even after
controlling for dispositional forgiveness, a construct that is positively related to gratitude.
Although, the results of these four mono-method studies show that dispositional gratitude is
reliably correlated with agreeableness as mentioned previously, these correlations are likely to be
inflated by evaluative bias (Anusic et al., 2009). Therefore studies that examine the relations
between dispositional gratitude and the Big Five across multiple methods are needed in order to
examine the true relations between dispositional gratitude and the Big Five. McCullough et al.
(2002) employed a multi-method approach which relied upon both self-ratings and the ratings of
multiple informants of dispositional gratitude and the Big Five traits. Self-ratings of dispositional
gratitude were positively correlated with self-ratings of agreeableness as well as informant
ratings of agreeableness. Furthermore, informant ratings of dispositional gratitude were positive
correlated with self-ratings of agreeableness. Although, McCullough et al.’s (2002) findings
suggest that dispositional gratitude is related to individual differences in agreeableness, the
validity of their measure of gratitude, The Gratitude Questionnaire-6, needs to be established by examining the full multitrait-multimethod correlation matrix. Given that McCullough et al. (2002) do not report the full multitrait-multimethod matrix; the discriminant validity of their measure of dispositional gratitude cannot be established. To address this limitation, my dissertation uses structural equation modeling of multi-method data to examine the convergent and discriminant validity of the Gratitude Questionnaire-6 and a measure of agreeableness.

Not only does the Five Factor Model suggest that there are five broad higher order dimensions; it also assumes that personality is hierarchically organized, with lower order facets existing under each of the Big Five traits (Costa & McCrae, 1992). Empirical evidence has identified at least six such facets under each of the Big Five dimensions. Examinations of the relations between dispositional gratitude and the facets of agreeableness may assist in explaining how dispositional gratitude is related to individual differences in agreeableness. Only one mono-method study thus far has examined the relations between dispositional gratitude and the facets of agreeableness. In general, Wood et al. (2008) found that dispositional gratitude was positively correlated with the trust, tender-mindedness, altruism, and compliance facets of agreeableness. These findings are consistent with the theory that dispositional gratitude is rooted in individual differences in agreeableness. For example, individuals who trust others are more likely to attribute the positive acts of others to altruistic motives, an appraisal important to the experience of grateful affect. That is, they are more likely to believe that the positive actions of others are rooted in others’ concerns for their wellbeing and genuine desires to help. On the other hand, distrustful individuals are more likely to be suspicious of the benevolence of others and attribute others’ kindesses to personal or selfish gain. In addition, perceptions that the motives of a benefactor are rooted in that benefactor’s concern for one’s wellbeing may also lead to appraisals of the positive actions of that benefactor as valuable to oneself (i.e., for the purpose of increasing one’s
wellbeing) which is also an appraisal important for the elicitation of gratitude. Tender-minded individuals should also be more likely to experience gratitude as these individuals are typically sensitive to others as well as more empathetic towards others. Thus these individuals should not only be more likely to appraise the kindness of others as intentional and valuable, but their ability to take the perspective of others may make it more likely that they recognize when it was costly or effortful for the benefactor to provide a particular benefit(s). Altruistic individuals should also be more likely to experience gratitude as these individuals should be more likely to have social interactions that are characterized by prosocial behavior; that is, both giving and receiving benefits. Moreover, these individuals should also be more likely to respond to gratitude-eliciting situations in ways that are consistent with the action-tendency thought to be associated with grateful affect. That is, altruistic individuals are more likely to respond to the kind acts of others with prosocial behavior. Lastly, individuals who are compliant are more likely to be liked by others, thus these individuals are more likely to be the recipients of others’ kindness.

1.2.1.1 Summary

In sum, although sparse, the existing empirical evidence supports the theory that individual differences in the tendency to experience grateful affect are partly rooted in stable individual differences in agreeableness. In other words, the grateful disposition constitutes a second-order trait that is distinct from, but partly rooted in, individual differences in agreeableness. I now turn to the role of gratitude in the quality of social relationships.

1.3 Relational Benefits of Gratitude

Lay theories and empirical investigations of social relationships have shown that social relationships vary in terms of the similarity (or dissimilarity) of the actual characteristics or
perceived characteristics of the relationship and its members (Bell, 1981; Newcomb, 1961). Bateman (1958) referred to this notion in his conceptualizations of symmetry and complementarity (asymmetry) of relationship styles. Later, Sluzki and Beavin (1977) refined Bateman’s concepts and defined symmetry and asymmetry as “the structural similarity or dissimilarity (respectively) of the reciprocal communicative behaviours of the members of a dyadic system” (pp.75). Simply put, in symmetrical relationships, interpersonal behaviours are met with behaviours that are of the same valence, whereas in asymmetrical relationships, interpersonal behaviours are met with behaviours that are opposite in valence depending on the particular dimension of symmetry/asymmetry. Typically, researchers have described friendships, as well as marital and dating relationships, as symmetrical (Davis, 1968) as these types of relationships typically strive towards egalitarianism. Within these relationships, both members of the dyad share their resources equally and the main purpose of the dyad is the mutual benefit, growth and development of both members (Fish, 2000). In contrast, parent-child relationships typify asymmetrical relationships in that within these relationships, both members share differently and the main purpose of the relationship is the care, growth, and development of one member of the dyad.

Another theoretical conceptualization that highlights the symmetry of social relationships was provided by Clark and Mills (1979). According to Clark and Mills (1979), social relationships can be characterized by either exchange or communal norms that govern each member’s behaviour (Clark and Mills, 1979). Members of communal relationships are concerned about each other’s welfare and as such, benefits are given in response to a need for the benefit. On the other hand, in exchange relationships, benefits are given in response to receipt of a benefit. Thus, in a communal relationship, the receipt of a benefit does not create a specific obligation within the beneficiary to return a comparable benefit. Indeed, return of a comparable benefit may
undermine the members of the relationships’ beliefs about motivations for providing benefits. For example Mills and Clark (1982) showed that liking for a benefactor depended on whether the aid provided was appropriate given the type of relationship. More specifically, liking increased when the aid was perceived as given in response to the beneficiary’s needs in communal relationships whereas in exchange relationships, liking increased when help was provided in response to a previous favour. Mills, Clark, Ford, and Johnson (2004) argue that close social relationships, such as close friendships, romantic and marital relationships are characterized by communal norms whereas nonclose relationships such as those between strangers or acquaintances are characterized by exchange norms.

Several theorists have proposed that gratitude plays a role in building and fostering good quality communal relationships (e.g., Fredrickson, 2004; Komter, 2004; McCullough et al., 2001). One explanation that has been proposed to explain the social benefits of gratitude is that gratitude promotes reciprocal altruism (McCullough, Kimeldorf, & Cohen, 2008). According to this view, because feelings of gratitude are associated with prosocial action tendencies, when an individual realizes that he or she has been the recipient of another’s benevolence and experiences grateful emotion, he or she is more likely to respond to such kindnesses by contributing to the well-being of the benefactor (Fredrickson, 2004; Watkins, et al., 2006). Moreover, McCullough et al. (2001) posit that feelings of gratitude also serve a reinforcing function that further facilitates prosocial behavior. When a beneficiary expresses his or her felt gratitude to a benefactor, these expressions are thought to reinforce the benefactor’s prosocial behaviour, increasing the likelihood of continued prosocial behaviour. Several studies have supported the link between gratitude and prosociality. For example, in an investigation of cultural differences in gratitude between Japanese and Thai students, Naito, Wangwan, and Tani (2005) presented a conceptualization of gratitude in terms of its antecedents, associated feelings and outcomes. They argued that
gratitude is associated with antecedents that are involved in appraisal of the situation (similar to those reviewed in previous sections), positive feelings of thankfulness and negative feelings of indebtedness, as well as outcomes such as requital and prosocial motivation. These authors posited that in Japanese society, people feel indebtedness along with gratitude when they receive favours, and that strong feelings of indebtedness can also lead to prosocial behaviour because repayment for help is emphasized. In contrast, in Thai society, people are not expected to feel strong indebtedness when they receive a favour because only awareness of receiving a favour is emphasized. Participants read short vignettes in which the protagonist felt gratitude in response to receiving care for physical symptoms in which the benefactor-beneficiary relationship was varied (their father, mother, best friend or a stranger). Participants then answered questions about feelings that were evoked by being helped, how they expected to repay the benefactor, and whether the participant felt they would want to help the benefactor if he/she needed help in the future. The results showed that the positive feelings of gratitude experienced in response to the favour were related to enhancement of prosocial motivation. This result is consistent with gratitude’s proposed action tendency and supports McCullough et al.’s (2001) argument that gratitude motivates prosocial behavior. The results also support the distinction between gratitude and indebtedness as all participants experienced both positive and negative feelings in response to the favour, but indebtedness only led to enhanced prosocial motivation in Japanese but not Thai participants. Even though this study provides support for the hypothesis that gratitude leads to increased prosocial motivation, one limitation is the reliance on scenarios. Reliance on scenarios may result in low psychological realism, differences in both the presence/absences and strength of feelings of gratitude, increased transparency which may lead to increased social desirability or demand effects (Tsang 2006). This study also examined gratitude and indebtedness in the context of specific social relationships and cultural practices which limits its
generalizability. In addition, this study relied on self-reports of prosocial motivation by asking participants about whether, after having received a favour, they would help the benefactor in the future. Subsequent studies have addressed these issues using experimental manipulations to induce gratitude within participants. For example, using a money allocation task, Tsang (2006) found that participants who thought that their partner’s allocations were motivated by benevolence gave significantly more money to their partner than those who believed that their partner’s allocations were due to chance. Moreover, these participants also rated the motivation to express appreciation as more important. Lastly, across conditions, participants’ allocation of money was positively related to appreciation and prosocial motives. Bartlett and DeSteno (2006) induced gratitude in their participants and found that feelings of gratitude increased the likelihood that participants would help either a specific benefactor or a stranger on a tedious task in return. A more recent study by Grant and Dino (2010) showed that when a benefactor recognizes a beneficiary’s grateful response to their kindness they are more likely to continue to behave prosocially not only towards a specific beneficiary but also to strangers and that this effect was primarily due to increased feelings of self-worth in response to expressions of gratitude. The findings of this last study also highlight the importance of expressions of gratitude within the context of social interactions. Expressions of gratitude may convey to benefactors that their efforts are valued and appreciated. For example, Berger and Janoff-Bulman (2006) found that engaging in costly communal behaviours in the marriage was positively related to women’s relationship satisfaction when they felt that their efforts were appreciated by their partner. On the other hand, relationship dissatisfaction ensued when participants felt that their efforts were not appreciated. More specifically, when participants felt appreciated for performing costly communal behaviours in marriage, these costly behaviours were more likely to be framed as gains in the relationship whereas a lack of appreciation resulted in the same behaviours being
framed as losses. Even though the above study focused on appreciation which has been traditionally treated as a separate construct, recently Wood, Maltby, Stewart, and Joseph (2008) have proposed that gratitude and appreciation literatures are similar if not identical constructs.

Although the above findings support the relation between gratitude and prosociality, they fail to examine the quality of social relationships. Moreover, the above findings say little about the role of gratitude in ongoing social relationships. In light of the hypothesis that gratitude supports the adoption and/or the maintenance of communal norms within social relationships by promoting reciprocal altruism, gratitude should be related to important aspects of the quality of ongoing relationships that are based on reciprocity such as companionship (giving and receiving of time and fun), intimacy (sharing private thoughts and feelings), affection (exchange of gestures of love and caring), and support (exchange of emotional and social aid). Lazarus and Lazarus’s (1994) conceptualization of gratitude is consistent with the above theoretical relations. If gratitude involves a sensitivity to the needs of a beneficiary and an awareness of the good intentions (i.e., the concern for the other’s welfare) of the benefactor then gratitude should also be related to more general feelings of liking and love (i.e., affection) between beneficiaries and benefactors as well as a general orientation towards each others’ needs. Thus gratitude should foster certain cognitions and behaviours that promote high relationship quality (Algoe, Gable, & Maisel, 2010) and general relationship satisfaction.

There is some empirical evidence that gratitude can influence key factors that affect the initial phases of social relationships, such as liking and perceptions of physical attractiveness. For example, using short video vignettes which depicted a male bar patron providing a favour to a female target, Hendrickson and Goei (2009) examined the influence of gratitude on compliance in response to receipt of a favour. Hendrickson and Goei (2009) found that participants’ ratings
of recipient gratitude in response to the favour positively predicted participants’ ratings of recipient liking for the benefactor. This increase in liking then led to increases in participants’ ratings of the perceived physical attractiveness of the benefactor which subsequently increased compliance with a subsequent request for a favor. Although these findings imply that gratitude can play a role in the early stages of relationship building they do not shed any light on gratitude’s effects on relationship quality within the context of ongoing social relationships. Moreover, although liking is thought to be important to aspects of relationship quality such as satisfaction, warmth and closeness, these findings do not provide information on the direct link between gratitude and other aspects of relationship quality that are reciprocal in nature, such as intimacy and support.

More recent studies by Algoe and colleagues (2008, 2009, 2010) have examined the contributions of gratitude to the quality of ongoing social relationships. In one study, Algoe and Haidt (2009) asked participants to recall a specific time in which they saw someone known to them demonstrating either gratitude, admiration, or joy. Following this manipulation, participants were asked to report the ways in which their relationship with and their cognitions about that person had changed. Their results revealed that those participants who were made to think about someone known to them demonstrating gratitude also reported feeling closer to that person and wanting to build the relationship with that person by engaging in behaviours such as spending more time with that person and acknowledging or repaying past kindness. More direct empirical evidence for the relational benefits of gratitude comes from Algoe, Haidt, and Gable (2008) who examined the consequences of grateful feelings in a sample of sorority sisters during ‘Big Sister Week’. During ‘Big Sister Week’ older sorority members (big sisters) typically provide gifts to newer sorority members (little sisters). Algoe et al. (2008) found that little sisters’ reports of grateful feelings in response to a gift from their big sister predicted their in-the-moment liking of
their benefactor regardless of how much they liked the gift itself. In a follow-up one month assessment, little sisters’ reports of gratitude positively predicted the quality of their relationship with their sorority big sister. Little sisters’ grateful feelings also positively predicted big sister reports of relationship quality and time spent with each other. These findings bolster the claim that gratitude confers interpersonal benefits by examining grateful feelings within the context of real-world social relationships. In addition, by showing that grateful feelings in the initial phases of relationship building impact both members of the relationship’s perceptions of the relationship later on, these results support the hypothesis that gratitude positively contributes to relationship building and maintenance. More recently, Algoe, Gable, and Maisel (2010) examined the contributions of feelings of gratitude and indebtedness to the quality of ongoing romantic relationships. Using a daily diary method, both members of each couple were asked to report instances in which they did something thoughtful for their partner and instances in which their partner did something thoughtful for them every day for two weeks. In addition, dating partners reported how much gratitude and indebtedness they felt in response to their partner’s actions as well as self-perceptions of daily relationship satisfaction and connectedness. The results showed that previous-day feelings as well as same-day feelings of gratitude predicted both the beneficiary’s self-reported relationship quality as well as partner’s (benefactor) reports of relationship quality while controlling for previous day relationship quality, thus showing the importance of gratitude to change in perceptions of relationship quality. Moreover, when feelings of gratitude and indebtedness were included as simultaneous predictors of relationship quality, only gratitude significantly predicted change in relationship quality. The authors argue that these results show that gratitude “can help to remind an individual of his or her feelings toward their partner and inspire mutual responsiveness which in turn increases the bond between the couple” (pp.221). Taken together, the above findings are important in that they demonstrate the effects of
grateful feelings on perceptions of the important aspects of ongoing social relationships, namely
closeness, companionship, satisfaction, and connectedness and that these perceptions are not
limited to only one member of the social relationship. Moreover, these results show that the
effects of grateful feelings on relationship quality can be observed across different types of social
relationships (e.g., friendships between women and romantic relationships) that are symmetrical
and communal in nature. One issue with the above studies is that they failed to take into account
whether the relationship-enhancing effects of gratitude are found after controlling for the effects
of other individual-level traits that positively impact relationship quality, namely agreeableness.
In order to address this limitation, my dissertation included self- and informant measures of both
gratitude and agreeableness in order to examine their independent contributions to the quality of
ongoing social relationships.

Although the above studies focused primarily on the link between grateful feelings and
relationship outcomes, only one study thus far has examined the relation between dispositional
gratitude and a specific aspect of relationship quality, perceived social support. In a longitudinal
study, Woods, Maltby, Gillett, Linley, and Josephs (2008) found that dispositional gratitude
predicted increased well-being and increased perceptions of social support. In addition, their
results showed that whereas agreeableness was correlated with positive perceptions of social
support, there was a unique effect of dispositional gratitude. Moreover the correlations between
dispositional gratitude and perceived social support were stronger than those between
agreeableness and perceived social support. Although Woods et al. (2008) did not directly assess
relationship functioning within the context of actual ongoing social relationships, these results
are important as they show that gratitude plays a role in perceptions of social relationships.
Moreover, the most important implication of the above findings is that they suggest that, unlike
agreeableness, gratitude may be a more proximal predictor of relationship quality and thus a good candidate as a mediator of the relation between agreeableness and relationship quality.

1.3.1 Summary

In sum, although most of the existing research has focused on the relations between gratitude and prosocial behaviour, the few studies that have examined the relations between gratitude and indicators of relationship quality suggest that further empirical examination of the relational benefits of gratitude is warranted. First, these studies have shown that gratitude is related to both self- and partner perceptions of relationship quality across a variety of social relationships. Second, these findings suggest that gratitude may influence relationship quality concurrently as well as over time. Lastly, these findings suggest that the relation between gratitude and relationship quality may exists over-and-above the contribution of agreeableness.

1.4 The Current Dissertation: Gratitude as a Mechanism of Agreeable Individuals

Based upon the empirical evidence reviewed in the preceding sections of this introduction, I propose that one reason why agreeable individuals tend to have good quality social relationships is because these individuals are more likely to experience grateful affect in response to the perceived contributions of others to the positive outcomes that they experience in life. More specifically, the empirical evidence suggests that agreeable individuals are more likely to trust others, be tender-minded, and altruistic which increases their tendency to appraise the positive acts of others as intentional, valuable, costly, and altruistically motivated. This tendency to appraise situations in which one has been the beneficiary of another’s kindness in this way gives rise to a grateful disposition which in turn, increases the likelihood that these individuals will experience grateful affect in response to these types of situations. Lastly, the experience of
grateful affect is expected to lead to actual improvements in the quality of the social relationship which are reflected in shared positive perceptions of relationship quality. This last expectation is based on several research findings. First, the experience of grateful affect increases the likelihood that individuals will respond prosocially (Bartlett & DeSteno, 2006; Grant & Dino, 2010; Naito et al., 2005; Tsang, 2006; Watkins, et al., 2006). Prosocial behaviour within the context of an ongoing relationship leads to increased self and partner perceptions of relationship quality, e.g., closeness, companionship, helping, and security (Sanderson, Rahm & Beigbeder, 2005). Strong agreement between self and partner perceptions of relationship quality are more likely to reflect the actual quality of the relationship as opposed to individual tendencies to perceive the relationship in a positive light. Second, grateful affect is expected to increase an individual’s focus on his or her partner as well as on the relationship (Algoe et al., 2010). This increased focus on their partner and the relationship increases the individual’s liking for their partner as well desire for closeness (Algoe et al., 2008; Hendrickson & Goei, 2009; Matthews & Green, 2010). Sanderson et al. (2005) showed that when individuals pursue intimacy goals (i.e., desire closeness) within the context of an interpersonal relationship, both the individual and their partner experience higher levels of relationship satisfaction and quality because each individual is more likely to engage in behaviours that improve the quality of their relationship, such as spending more time together, exchanging more social support, and increased self-disclosure. In general, then, the effects of gratitude on relationship quality are expected to go beyond the benefits conferred to a relationship from simple reciprocity. These effects of gratitude on relationship quality are expected to be especially apparent in symmetrical communal relationships given the communal norms that govern these relationships and gratitude’s ability to increase perceptions of the communal strength of a relationship (Lambert, Clark, Durtschi, Fincham, & Graham, 2010). In addition, individuals within a symmetrical communal
relationship tend to match each other’s behaviour in terms of type as well as frequency and this matching contributes to overall relationship quality and satisfaction (Oswald, Clark, & Kelly, 2004). Therefore, in general, my dissertation examined the hypothesis that gratitude mediates the relation between agreeableness and relationship quality.

Figure 1 pictorially depicts the proposed general ‘Gratitude-As-A-Mediator’ Model at the level of the relationship dyad. This model attempts to represent the interdependent nature of social relationships. That is, that relationship partners create a shared reality that is more than just the sum of each individual’s experiences. An important aspect of the shared reality that is created by relationship members is their shared perceptions of the relationship (Agnew, Van Lange, Rusbult, & Langston, 1998). If gratitude does indeed impact the actual quality of the social relationship, then it is reasonable to expect that this will be reflected in both members’ individual perceptions of the relationship. Therefore, modeling the extent to which both relationship members share the same view of the quality of the relationship as the main outcome variable better captures this outcome as opposed to modeling individual relationship member’s perceptions of relationship quality which reflect individual experiences and biases that do not contribute to the shared reality of the social relationship.

In Figure 1, paths ‘a’ represent the intrapersonal effect of agreeableness on dispositional gratitude. Paths ‘b’ represent the effect of each relationship partner’s dispositional gratitude on their shared perceptions of relationship quality. Paths ‘c’ represent the direct effect of agreeableness on the relationship partner’s shared perceptions of relationship quality. It was hypothesized that there would be a significant indirect effect of agreeableness on relationship quality through dispositional gratitude for each relationship partner.
Correlation ‘d’ represents the actual similarity in relationship partners’ agreeableness whereas correlation ‘e’ represents the residual correlation between relationship partners’ dispositional gratitude. Typically, research shows that there is little actual similarity between relationship partners’ levels of agreeableness (Watson et al., 2000). Thus this correlation is expected to be close to zero. To date there are no studies that have examined similarity between relationship partners’ levels of dispositional gratitude. Therefore the model allows this coefficient to be freely estimated to examine this question without making a priori predictions. Similarity in gratitude could reflect assortment based on similar dispositions because grateful individuals prefer relationships with other grateful individuals. It could also reflect mutual influence on each other’s personality over time. However, it is also possible that there is no similarity in dispositional gratitude, although reciprocity should produce similarity in actual experience of gratitude within a relationship.
1.5 Overview of Dissertation Studies

Each of the studies in my dissertation used structural equation modeling to create latent variables based upon the shared variance between self reports and informant reports from at least one informant. In addition, the analyses in each study were based on dyads and symmetry within the dyad was assumed by constraining equivalent path coefficients.

Study 1 (Chapter 2) examined the ‘Gratitude-As-A-Mediator’ Model in a sample of 158 young adult same-sex best friend dyads recruited from the University of Toronto, Mississauga. Each participant made self and informant ratings of agreeableness and dispositional gratitude and latent factors that reflected the shared variance between self and informant ratings were used as the measures of agreeableness and dispositional gratitude, respectively. Participants also made self ratings of friendship companionship, support, intimacy, and affection. Latent factors that reflected the shared variance between friends’ ratings of each aspect of friendship quality were used as the measures of friendship quality. According to the ‘Gratitude-As-A-Mediator’ Model, I predicted that: (1) there would be a significant direct effect of agreeableness on dispositional gratitude, (2) there would be a significant direct effect of dispositional gratitude on friendship quality, and (3) there would be a significant indirect effect of agreeableness through dispositional gratitude on friendship quality.

Study 2 (Chapter 3) extended the findings of Study 1 by (1) including a measure of grateful affect to test the hypothesis that actual experience of grateful affect is a more proximal mediator of the relation between agreeableness and relationship quality than dispositional gratitude and (2) examining the ‘Gratitude-As-A-Mediator’ Model in marital relationships. One hundred and ninety-seven students and both of their parents were recruited from the University of Toronto, St. George and Mississauga campuses. Each participant made self and informant ratings of
agreeableness, dispositional gratitude, frequency of grateful affect, and relationship quality. However, unlike Study 1, the latent factors created to reflect agreeableness, dispositional gratitude, and frequency of grateful affect were based on the variance shared between self-ratings and the ratings of two informants (one relationship member and one non-relationship member). In addition, in Study 2 each marital quality item was reworded to improve the validity of ratings as indicators of marital quality. Specifically, items were worded as judgments of the relationship as opposed to the subjective perception of relationships (e.g., “My husband and I spend a lot of free time with each other” as opposed to “I spend a lot of free time with my husband”) in order to better capture shared perceptions of the quality of the marital relationship. Therefore the latent factors created to represent the quality of each relationship dyad were based on the level of agreement between two self-ratings and 4 informant ratings of the relationship. According to the ‘Gratitude-As-A-Mediator’ Model, I predicted that: (1) there would be a significant direct effect of agreeableness on dispositional gratitude, (2) there would be a significant direct effect of dispositional gratitude on frequency of grateful affect, (3) there would be a significant direct effect of frequency of grateful affect on marital quality, and (4) there would be a significant indirect effect of agreeableness on marital quality through dispositional gratitude and frequency of grateful affect.
2 Gratitude as a Mediator of the Relation between Agreeableness and Friendship Quality (Study 1)

2.1 Introduction

The main goal of Study 1 was to examine the ‘Gratitude-As-A-Mediator’ Model within the context of ongoing young adult same-sex best friendships. Figure 2.1 pictorially depicts the ‘Gratitude-As-A-Mediator’ Model for friendships in which dispositional gratitude was hypothesized to mediate the relation between agreeableness and friendship quality. More specifically, within the context of young adult same-sex best friendships, I expected that: (1) there would be a significant direct effect of agreeableness on dispositional gratitude (paths ‘a’), (2) there would be a significant direct effect of dispositional gratitude on friendship quality (paths ‘b’), and (3) there would be a significant indirect effect of agreeableness on friendship quality through dispositional gratitude (not shown). This model also shows the direct effect of agreeableness on friendship quality (paths ‘c’). If the predicted indirect effect of agreeableness on friendship quality through dispositional gratitude is significant, then the presence or absence of this path reveals whether the expected mediation is partial or complete. This model also allowed for a correlation between friends’ agreeableness (correlation ‘d’) and a residual correlation between friends’ dispositional gratitude (correlation ‘e’).
The current study also compared the ‘Gratitude-As-A-Mediator’ Model to two alternative models of the relations between agreeableness, dispositional gratitude, and friendship quality. The first alternative model proposed that although both agreeableness and dispositional gratitude directly affect friendship quality, there is no direct effect of agreeableness on dispositional gratitude. This model (depicted in Figure 2.3) tests whether agreeableness directly contributes to the grateful disposition which is a crucial step in demonstrating mediation (i.e., that the predictor variable (agreeableness) is directly related to the mediator variable (dispositional gratitude)) (Baron & Kenny, 1986).
The second alternative model proposed that although agreeable individuals are more likely to have the tendency to experience gratitude and have good relationships, there is no unique relationship between dispositional gratitude and relationship quality. In other words, agreeableness accounts for any relationship between dispositional gratitude and relationship quality. Figure 2.3 pictorially depicts the second alternative model. This model also represents a test of a crucial component of mediation, that there is a nonzero relation between the mediator (gratitude) and the outcome (friendship quality) after controlling for the independent variable (agreeableness) (Baron and Kenny, 1986).
2.2 Method

2.2.1 Participants

Participants were 158 same-sex friendship pairs (32% male and 68% female) recruited from the Introductory Psychology subject pool at the University of Toronto, Mississauga. Participants received either partial course credit or $20 for their participation. Alternative options for partial course credit were available for students who did not want to participate. Participants’ age ranged from 17 to 44 years ($M = 18.93$ years). Length of friendship ranged from 6 months to 26 years ($M = 4.79$ years). On average, participants rated the friendship as ‘very close’ with convergent validity in these reports between friends, $r(158) = .46$. 

![Diagram of friendship network](image-url)
2.2.2 Procedure

Informed consent was obtained from each participant upon arrival at the laboratory for a two-hour testing session. Within each pair, the subject pool participant was designated the target while the other participant was designated the friend. Each member of the pair was assigned a number and seated in their own cubicle with a desk and computer terminal with a partition separating the two cubicles. Participants then completed a paper-and-pencil survey package which included self- and informant ratings of agreeableness and dispositional gratitude and self-ratings of relationship quality.

2.2.3 Measures

Agreeableness. A modified version of The Big Five Inventory (BFI: John, Donahue, & Kentle, 1991) was used to assess agreeableness. Participants rated the extent to which they agreed or disagreed with each of the six agreeableness items and the extent to which they thought their friend agreed or disagreed with each item using a 7-point Likert scale ranging from 1 (strongly disagreed) to 7 (strongly agreed). Negative items were reverse coded and the average of all of the items calculated. The reliability of this scale in the present sample was good for both self ratings (alpha > .78) and informant ratings (alpha > .80).

Dispositional Gratitude. The Gratitude Questionnaire-6 (GQ-6: McCullough et al., 2002) was used to measure participants’ general disposition towards gratefulness. Participants indicated their agreement or disagreement with each of the 6 items and the extent to which they thought their friend agreed or disagreed with each item using a 7-point Likert scale ranging from 1 (strongly disagreed) to 7 (strongly agreed). The reliability of this scale in the present sample was high for both self ratings (alpha > .80) and informant ratings (alpha > .77).
Friendship Quality. The Network Relationships Inventory (NRI: Furman & Burhmester, 1992) was used to assess relationship quality. This measure consists of 42 items which assess the following dimensions of friendship quality: Companionship, Conflict, Instrumental Aid, Antagonism, Intimacy, Nurturance, Affection, Admiration, Relative Power, Reliable Alliance, Support, Criticism, Dominance, and Satisfaction. Participants rated the extent to which they agreed or disagreed with each statement using a 5-point Likert scale ranging from 1 (strongly disagreed) to 5 (strongly agreed). In the current study, the subscales for companionship, support, intimacy, and affection were used as these subscales represent the aspects of relationships thought to be most reciprocal in nature and thus most likely to be influenced by gratitude. The reliability of each of the subscales in the present sample was alpha > .70.

2.2.4 Data Analysis Approach

After examination of the observed correlations between each variable, latent factor models were constructed and structural equation modeling software (MPLUS) was used to analyze each model. The dyadic design of the current study produced dependencies in the data. As a result, in order to examine the relations between agreeableness, dispositional gratitude, and friendship quality, the data analysis used dyads (N = 158) as the units of analysis. In addition, because the ratings of same-sex friends represent unordered pairs, the two friends of a pair were randomly allocated to separate variables for friend A and friend B. At the measurement level the residual variances between ratings made by the same rater were free to covary in order to account for nonrandom error due to common rater bias. Latent variables reflecting the shared variance between self and informant ratings of agreeableness and dispositional gratitude were created for variables representing the two friends to obtain more accurate estimates of friends’ true levels of agreeableness and dispositional gratitude. A single latent variable that represented the perceptions of the quality of the friendship shared between friends was created for each
dimension of friendship quality. Given that there were only two indicators for each latent variable, in order for the model to be identified the latent factor loadings on each indicator were fixed at 1. This constraint implies that self-ratings and informant ratings are equally valid, which is a plausible assumption for personality ratings (Schimmack, 2010). Lastly, to reflect the symmetrical nature of the same-sex dyads, equivalent coefficients were constrained to be equal. These latent variables were then used in structural equation models to examine the relations between agreeableness, dispositional gratitude, and friendship quality.

The overall fit of each model was assessed with a number of fit indices. The chi square test statistic was used in order to test the hypothesis that the population covariance matrix is equal to the model-implied covariance matrix (Schermelleh-Engel, Moosbrugger, & Müller, 2003). Generally, a nonsignificant chi square value indicates good model fit. However, the significance of the chi square test statistic is sensitive to both model complexity and sample size; therefore the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Residual (SRMR) were also used. RMSEA provides an index of the discrepancy due to approximation per degree of freedom of the proposed model. Generally, RMSEA values ≤ .05 indicate good fit (Browne & Cudek, 1993; Steiger, 1990). SRMR also examines differences between elements of the predicted and observed matrices. According to Hu and Bentler (1995), SRMR values of less than .08 indicate acceptable fit.

More important than overall fit is the comparison of different theoretical models. In order to compare the relative fit of the ‘Gratitude-As-A-Mediator’ and alternative models several approaches were employed. First, because the ‘Gratitude-As-A-Mediator’ and the alternative models are nested the difference in fit between these models can be directly compared by examining the difference in the chi square statistic values where a significant difference in model
fit is indicative that the model with the smaller chi square value is to be preferred. Second, models were also compared using the Comparative Fit Index (CFI: Bentler, 1990) which ranges from zero to one with higher values indicating better fit (generally $\geq .95$). Third, to take into account parsimony, the Akaike Information Criterion (AIC: Akaike, 1974; 1987) was used. According to Burnham and Anderson (2002) AIC differences of 0-2 show little difference between competing models, however, differences of 4-7 show more support for the model with the lowest AIC. Fourth, Wagenmakers (2007) provided an alternative to the conventional use of the Bayesian Information Criterion (BIC: Schwarz, 1978) values to compare nested and nonnested models. Typically the model with the lower BIC value is preferred over the model with the higher BIC value. Wagenmakers (2007) argued that the transformation of BIC values to approximations of posterior probabilities of each hypothesis being tested is a more intuitive and insightful method that offers several advantages over the conventional use of BIC values. For example calculation of the Bayes factor (and subsequent posterior probabilities) allows for comparisons of nested and nonnested models. In addition when comparing competing models that are equally probable a priori calculation of posterior probabilities allows researchers to easily interpret the strength of the evidence in favor of each hypothesis. According to Wagenmakers (2007) a posterior probability between .75 and .95 can be interpreted as positive evidence in favor of a model while a posterior probability between .50 and .75 constitutes weak evidence in favor of a model.

2.3 Results

Table 2.1 shows the descriptive statistics and the observed correlations between variables for Study 1.
Table 2.1. Study 1 Descriptive Statistics and Observed Correlations among Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
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<th>4</th>
<th>5</th>
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<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. AS-AAG</td>
<td>5.21</td>
<td>1.07</td>
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<td></td>
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<tr>
<td>2. AI-BAG</td>
<td>5.20</td>
<td>0.99</td>
<td>.33</td>
<td>-</td>
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<td></td>
<td></td>
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<tr>
<td>3. AS-ADG</td>
<td>5.80</td>
<td>0.99</td>
<td>.37</td>
<td>.28</td>
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<tr>
<td>4. AI-BDG</td>
<td>5.42</td>
<td>1.05</td>
<td>.21</td>
<td>.55</td>
<td>.41</td>
<td>-</td>
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<tr>
<td>5. AS-COMP</td>
<td>2.53</td>
<td>1.97</td>
<td>.04</td>
<td>.23</td>
<td>.13</td>
<td>.40</td>
<td>.56</td>
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<tr>
<td>6. AS-SUPP</td>
<td>3.74</td>
<td>1.51</td>
<td>.03</td>
<td>.23</td>
<td>.19</td>
<td>.39</td>
<td>.58</td>
<td>.79</td>
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<tr>
<td>7. AS-INT</td>
<td>2.60</td>
<td>0.74</td>
<td>.15</td>
<td>.32</td>
<td>.28</td>
<td>.51</td>
<td>.60</td>
<td>.67</td>
<td>.73</td>
<td>-</td>
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<tr>
<td>8. AS-AFF</td>
<td>3.72</td>
<td>0.89</td>
<td>.14</td>
<td>.36</td>
<td>.08</td>
<td>.20</td>
<td>.08</td>
<td>.15</td>
<td>.04</td>
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<tr>
<td>9. BS-BAG</td>
<td>5.09</td>
<td>0.87</td>
<td>.19</td>
<td>.07</td>
<td>.12</td>
<td>.02</td>
<td>.09</td>
<td>.07</td>
<td>.14</td>
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<tr>
<td>10. BI-AAG</td>
<td>5.09</td>
<td>0.79</td>
<td>.22</td>
<td>.15</td>
<td>.18</td>
<td>.22</td>
<td>.14</td>
<td>.09</td>
<td>.15</td>
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<td>.61</td>
<td>-</td>
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<td>11. BS-BDG</td>
<td>5.17</td>
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<tr>
<td>12. BI-ADG</td>
<td>5.57</td>
<td>0.96</td>
<td>.11</td>
<td>.26</td>
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<td>.45</td>
<td>.45</td>
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<td>.60</td>
<td>-</td>
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</tr>
<tr>
<td>13. BS-COMP</td>
<td>2.19</td>
<td>1.11</td>
<td>.02</td>
<td>.02</td>
<td>.07</td>
<td>.26</td>
<td>.51</td>
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<tr>
<td>14. BS-SUPP</td>
<td>3.74</td>
<td>1.61</td>
<td>.08</td>
<td>.16</td>
<td>.11</td>
<td>.26</td>
<td>.30</td>
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<td>.24</td>
<td>.60</td>
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<tr>
<td>15. BS-INT</td>
<td>2.66</td>
<td>0.74</td>
<td>.08</td>
<td>.09</td>
<td>.12</td>
<td>.24</td>
<td>.23</td>
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<td>16. BS-AFF</td>
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<td>.10</td>
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<td>.26</td>
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<td>.36</td>
<td>.66</td>
<td>.67</td>
<td>.66</td>
<td>-</td>
</tr>
</tbody>
</table>

N.B. N = 159.


Correlation coefficients in bold represent agreement between self- and informant ratings.

From Table 2.1, there was agreement between self- and informant ratings of agreeableness which is consistent with previous findings for convergent validity of self- and informant ratings of agreeableness (e.g., McCrae & Costa, 1987; Watson et al., 2000). There was also agreement between self- and informant ratings of relationship quality which provides evidence of convergent validity of these measures of relationship quality. The agreement between self- and informant ratings of dispositional gratitude was lower than the agreement (a) observed between self- and informant ratings of the other variables of interest and (b) reported in the two
previously published multi-method studies of dispositional gratitude (Breen et al., 2010; McCullough et al., 2002).

### 2.3.1 Structural Equation Model Analyses

The overall and relative fit indices as well as model comparisons for the ‘Gratitude-As-A-Mediator’ and ‘Agreeableness’ Models are provided in Table 2.3.

Table 2.2. Study 1, ‘Gratitude-As-A-Mediator’ and Alternative Models Fit Indices and Model Comparisons.

<table>
<thead>
<tr>
<th>Friendship Quality</th>
<th>Model</th>
<th>Model Fit Indices</th>
<th>Model Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$X^2$ (df)</td>
<td>CFI</td>
</tr>
<tr>
<td></td>
<td>M2: Alternative #1</td>
<td>38.62 (25)</td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td>M3: Alternative #2</td>
<td>40.40 (25)</td>
<td>.96</td>
</tr>
<tr>
<td><strong>Support</strong></td>
<td>M1: ‘Gratitude-As-A-Mediator’</td>
<td>22.63 (24)</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>M2: Alternative #1</td>
<td>32.87 (25)</td>
<td>.98</td>
</tr>
<tr>
<td></td>
<td>M3: Alternative #2</td>
<td>28.45 (25)</td>
<td>.99</td>
</tr>
<tr>
<td><strong>Intimacy</strong></td>
<td>M1: ‘Gratitude-As-A-Mediator’</td>
<td>22.17 (24)</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>M2: Alternative #1</td>
<td>33.02 (25)</td>
<td>.98</td>
</tr>
<tr>
<td></td>
<td>M3: Alternative #2</td>
<td>35.50 (25)</td>
<td>.99</td>
</tr>
<tr>
<td><strong>Affection</strong></td>
<td>M1: ‘Gratitude-As-A-Mediator’</td>
<td>19.43 (24)</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>M2: Alternative #1</td>
<td>34.12 (25)</td>
<td>.98</td>
</tr>
</tbody>
</table>
Examination of Table 2.2 showed that for each friendship quality variable, the ‘Gratitude-As-A-Mediator’, ‘Alternative Model #1’ and ‘Alternative Model #2’ had good absolute fit. However, from Table 2.2, the positive differences in chi-square and AIC values as well as the posterior probabilities of the Bayes factors also indicated that for each friendship quality variable, the ‘Gratitude-As-A-Mediator’ Model was favored over the both of the Alternative models. These results suggest that: (1) there is an effect of agreeableness on dispositional gratitude, and (2) there is a unique relationship between gratitude and friendship quality not accounted for by individual differences in friends’ agreeableness.

In order to examine gratitude as a potential mediator of the relation between agreeableness and friendship quality, first the existence of an effect to be mediated must be examined. Because the current study employed structural equation modeling with latent variables, the ‘Gratitude-As-A-Mediator’ Model was used to estimate the total effect of agreeableness on each friendship quality variable. This method is preferable to estimating two models, one with gratitude as a mediator and one without gratitude as the paths from agreeableness to friendship quality are not comparable because the factor loadings would be different. Structural equation analyses showed that there were significant total effects of agreeableness on friendship support ($\beta_{\text{total}} = .21, p = .03$), intimacy ($\beta_{\text{total}} = .14, p = .05$), and affection ($\beta_{\text{total}} = .16, p = .04$), but not friendship companionship ($\beta_{\text{total}} = .01, n.s$). These results suggest that agreeableness has a total (combined direct and indirect effects) on friendship support, intimacy, and affection. In order to test whether
gratitude fully or only partially mediated the effect of agreeableness on friendship support, intimacy, and affection, each ‘Gratitude-As-A-Mediator’ model was tested against a model in which there was no direct path from agreeableness to friendship quality (‘Gratitude-As-A-Full-Mediator’ Model). Table 2.3 shows the overall and relative fit indices as well as model comparisons for the ‘Gratitude-As-A-Mediator’ and ‘Gratitude-As-A-Full-Mediator’ Models.

Table 2.3. Study 1, ‘Gratitude-As-A-Mediator’ and ‘Gratitude-As-A-Full-Mediator’ Model Fit Indices and Model Comparisons.

<table>
<thead>
<tr>
<th>Friendship Quality</th>
<th>Model</th>
<th>X²</th>
<th>df</th>
<th>CFI</th>
<th>AIC</th>
<th>BIC</th>
<th>RMSEA</th>
<th>SRMR</th>
<th>Model Comparisons</th>
<th>∆X²</th>
<th>∆AIC</th>
<th>Bayes Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>M1: ‘Gratitude-As-A-Mediator’</td>
<td>22.63</td>
<td>24</td>
<td>1.00</td>
<td>4108.69</td>
<td>4234.25</td>
<td>.00</td>
<td>.09</td>
<td></td>
<td>0.00</td>
<td>2.00</td>
<td>13.55 (.93)</td>
</tr>
<tr>
<td></td>
<td>M2: ‘Gratitude-As-A-Full-Mediator’</td>
<td>22.63</td>
<td>25</td>
<td>1.00</td>
<td>4106.69</td>
<td>4229.19</td>
<td>.00</td>
<td>.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intimacy</td>
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<td>22.17</td>
<td>24</td>
<td>1.00</td>
<td>4136.46</td>
<td>4262.02</td>
<td>.00</td>
<td>.10</td>
<td></td>
<td>.99</td>
<td>1.01</td>
<td>8.65 (.88)</td>
</tr>
<tr>
<td></td>
<td>M2: ‘Gratitude-As-A-Full-Mediator’</td>
<td>23.16</td>
<td>25</td>
<td>1.00</td>
<td>4135.45</td>
<td>4257.95</td>
<td>.00</td>
<td>.09</td>
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<tr>
<td>Affection</td>
<td>M1: ‘Gratitude-As-A-Mediator’</td>
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<td>24</td>
<td>1.00</td>
<td>3977.88</td>
<td>4103.45</td>
<td>.00</td>
<td>.10</td>
<td></td>
<td>1.11</td>
<td>.89</td>
<td>8.24 (.89)</td>
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<tr>
<td></td>
<td>M2: ‘Gratitude-As-A-Full-Mediator’</td>
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<td>25</td>
<td>1.00</td>
<td>3976.99</td>
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<td>.00</td>
<td>.10</td>
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</tr>
</tbody>
</table>

N.B. Posterior probabilities of Bayes factor in favor of model with the lower BIC value are shown in parentheses.

Table 2.3 shows that, for friendship support, intimacy, and affection, fit of the ‘Gratitude-As-A-Full-Mediator’ Model was good. Given that the ‘Gratitude-As-A-Full-Mediator’ Model was the more parsimonious model and that the posterior probabilities of the Bayes factors favored this model, full mediation was indicated.
2.3.2 Gratitude as a Full Mediator of the Relations between Agreeableness and Friendship Support, Intimacy, and Affection

Figures 2.4 to 2.6 show the results of the structural equation analyses of the ‘Gratitude-As-A-Full-Mediator’ Model for friendship support, intimacy, and affection respectively. As predicted agreeableness significantly predicted dispositional gratitude ($\beta_{\text{direct}}$ ranged from .47 to .59, $p < .05$). As predicted, dispositional gratitude directly predicted friendship support, intimacy, and affection ($\beta_{\text{direct}}$ ranged from .30 for intimacy to .45 for affection, $p < .05$). Most importantly, there was a significant indirect effect of agreeableness through dispositional gratitude on friendship support ($\beta_{\text{indirect}} = .18$, $p = .01$), intimacy ($\beta_{\text{indirect}} = .15$, $p = .01$), and affection ($\beta_{\text{indirect}} = .23$, $p < .01$).

*Figure 2.4. ‘Gratitude-As-A-Full-Mediator’ Structural Equation Model for Friendship Support. *$*$ denotes coefficients significant at $p < .05$. 
Figure 2.5. 'Gratitude-As-A-Full-Mediator' Structural Equation Model for Friendship Intimacy. * denotes coefficients significant at \( p < .05 \).

Figure 2.6. 'Gratitude-As-A-Full-Mediator' Structural Equation Model for Friendship Affection. * denotes coefficients significant at \( p < .05 \).
2.3.3 Gratitude and Friendship Companionship

Because there was no total effect of agreeableness on friendship companionship, the structural equation analysis of the general ‘Gratitude-As-A-Mediator’ was conducted to examine whether there was still a significant indirect effect of agreeableness on friendship companionship through dispositional gratitude. Figure 2.7 shows the results of this structural equation analysis. As predicted, agreeableness significantly predicted dispositional gratitude ($\beta_{\text{direct}} = .47, p < .05$). There was a negative direct effect of agreeableness on companionship that approached significance ($\beta_{\text{direct}} = -.23, p < .07$). There was a direct effect of dispositional gratitude on companionship ($\beta_{\text{direct}} = .40, p < .05$). Lastly, there was also a significant indirect effect of agreeableness through dispositional gratitude on companionship ($\beta_{\text{indirect}} = .25, p = .05$). Thus, the failure of finding a significant total effect is due to an unexpected direct negative effect of agreeableness. Whether this is a reliable finding or a chance finding needs to be examined in future studies.

Figure 2.7. ‘Gratitude-As-A-Full-Mediator’ Structural Equation Model for Friendship Companionship. * denotes coefficients significant at $p < .05$. 
2.3.4 Similarity between Friends

The next set of results concern similarity between friends’ agreeableness and dispositional gratitude. Consistent across all relationship quality variables there was similarity between friends’ agreeableness (rs ranged from .37 to .42, p < .05). Also, consistent across all relationship quality variables the residual correlation between friends’ dispositional gratitude was strong and ranged from rs = .61 to .66, p < .05. This is a novel finding. One explanation could be that individuals with a grateful disposition assort with each other. Another explanation could be that agreeable people are more altruistic which makes it more likely that they maintain friendships even with less grateful friends.

2.3.5 Reverse Causal Effect: Friendship Quality as a Direct Predictor of Gratitude

It was theoretically plausible that friendship quality has a direct effect on friends’ dispositional gratitude. In other words, both agreeableness and friendship quality contribute to friends’ dispositional quality and dispositional gratitude does not mediate the effect of agreeableness on friendship quality. In order to test this, the final ‘Gratitude-As-A-Mediator’ Models for each friendship quality variable was compared to a reverse causal model in which friendship quality directly predicted friends’ dispositional gratitude. Structural equation analyses showed that, for all dimensions of friendship quality, the reverse causal model had acceptable fit to the data (X²(25) ranged from 21.55 to 40.56, CFI ranged from .96 to .97). However, model comparisons showed that, relative to the ‘Gratitude-As-A-Mediator’ Model, the reverse causal model had a worse fit to the data (AIC ranged from 3955.62 to 4145.89, ΔAIC ranged from 3.70 to 7.26, BIC ranged from 4081.38 to 4233.77, posterior probabilities of Bayes factors in favor of ‘Gratitude-As-A-Mediator’ Model ranged from .80 to .91). These results suggest that gratitude mediated
the effect of agreeableness on friendship quality because this alternative model fails to account for this significant indirect link between agreeableness and friendship quality.

2.4 Discussion

The main goal of Study 1 was to examine the ‘Gratitude-As-A-Mediator’ Model within the context of same-sex best friendships. There were several important findings. First, the model showed clearly distinct factors for agreeableness and dispositional gratitude. Second, agreeableness emerged as a consistent direct predictor of dispositional gratitude. Third, model fit comparisons revealed that dispositional gratitude fully mediated the relation between agreeableness and friendship support, intimacy, and affection. Fourth, dispositional gratitude partially mediated the relation between agreeableness and companionship. Fifth, consistent across all models there was similarity between friends’ agreeableness and between friends’ dispositional gratitude. The implications of these findings are discussed below.

2.4.1 Agreeableness as a Contributor to the Grateful Disposition

The first main finding of clearly distinct factors for agreeableness and dispositional gratitude is important as it provides first evidence that agreeableness and gratitude measures have discriminant validity. The second main finding that agreeableness directly predicted dispositional gratitude provides strong support for the theory that the tendency to experience grateful affect is in part rooted in agreeableness. This finding has important implications for theories of dispositional gratitude because they suggest that theoretical treatments of gratitude should include the relation of gratitude to higher order personality traits such as agreeableness. As theorized in Chapter 1, agreeable individuals may be more likely to appraise situations in which they have been the beneficiary of another’s kindness as more costly, valuable, intentional, and
altruistically motivated which leads to an increased tendency to experience gratitude. Future research is needed to empirically determine whether this is in fact the case.

2.4.2 Gratitude as a Mechanism by which Agreeable Individuals Maintain Good Quality Friendships

The results from Study 1 supported the main thesis of the current dissertation that gratitude is one mechanism employed by agreeable individuals to maintain good quality friendships. Dispositional gratitude was shown to fully mediate the relations between agreeableness and friendship support, intimacy, and affection. This finding suggests that because agreeable friends are more likely, on average, to experience gratitude in response to the contributions of others to their welfare, they are also more likely to provide emotional and social support to each other, share their innermost thoughts, secrets, and emotions with each other, and express their liking and love for each other. This finding is consistent with theories that gratitude motivates prosocial behaviour (McCullough et al., 2001) and positive reciprocity within social relationships (Komter, 2004). Several researchers have characterized the deep structure (i.e., social meaning) of friendships as rooted in symmetrical reciprocity or mutuality (Hartup & Stevens, 1997). That is, the giving, and taking, and returning in kind or degree of a wide range of social and emotional resources. Aspects of friendship quality such as support, intimacy, and affection fit within this conceptual framework as they are resources that can be exchanged between friends. Thus these aspects should be bolstered by factors, such as gratitude, that promote reciprocity. The present finding also extends previous research that showed that gratitude increased relationship partners liking for each other (Hendrickson & Goei, 2009) as well as closeness and feelings of connectedness to each other (Algoe et al., 2008; 2010) by demonstrating that the effects of gratitude on these aspects of relationship quality are independent of the effects of higher order personality traits.
The results for friendship companionship were less straightforward as, contrary to expectations, there was no total effect of agreeableness on friendship companionship. However, there was a significant positive indirect effect of agreeableness on friendship companionship through dispositional gratitude. Given that there was a direct effect of agreeableness on companionship in the opposite direction that approached significance this finding may suggest a case of inconsistent mediation in which the mediated effect has a different sign than the direct effect in a model (MacKinnon, Fairchild, & Fritz, 2007). Therefore the total effect of agreeableness on friendship companionship is close to zero. It may be the case that in general, agreeable friends do not spend more time with each other, but agreeable friends who are also more grateful do spend more time together. Although this finding is interesting, future research is needed to determine whether this is a reliable finding.

2.4.3 Similarity between Friends

Consistent across all models, there was similarity between friends’ agreeableness. This finding is inconsistent with previous research that shows little to no actual similarity between friends in terms of the Big Five personality traits (Watson et al., 2000). One explanation may be that Watson et al., (2000) examined similarity between friends’ manifest self-reports of agreeableness. This method does not adequately control for (a) validity contained within self-reports and (b) sampling error. Therefore, their finding of little to no similarity between friends’ agreeableness may have been attenuated. One new finding was that there was residual similarity between friends’ dispositional gratitude. The presence of this residual correlation (in addition to the similarity between friends’ agreeableness) shows that the similarity between friends’ agreeableness is not sufficient to account for the observed similarity in friends’ dispositional gratitude. The presence of this residual correlation suggests that there may be other causal factors that make friends similar, independent of their agreeableness. One possibility is assortment.
other words, friends may be similar in dispositional gratitude because grateful individuals seek out other grateful individuals as potential friends.

2.4.4 Limitations

There are several limitations of the current study. First, although my agreeableness and dispositional gratitude latent variables were created based upon the variance shared between self and informant ratings of these variables, my relationship quality variables were based on ratings from members of the friendship dyad. Thus, measurement error shared by members of the friendship dyad may have biased the results. Study 2 attempted to address this limitation by creating relationship quality latent variables that reflected the variance shared between self and informant ratings of each relationship member as well as informant ratings by a non-relationship member (e.g., students’ ratings of their parents’ marriage). Second, Study 1 did not include measures of actual affective experience of gratitude; that is, gratitude as grateful affect. Thus it is not known whether trait-level differences in gratitude or specific aspects of grateful affect are more important to relationship quality. Study 2 of the current dissertation attempted to address this limitation by collecting self and informant ratings of frequency of grateful affect in order to more clearly show that dispositions influence actual experiences and that actual experience of gratitude contribute to relationship quality.
3 Gratitude as a Mediator of the Relation between Agreeableness and Marital Quality (Study 2)

3.1 Introduction

The main goal of Study 2 was to examine gratitude as a mechanism employed by agreeable individuals to maintain good quality relationships in a sample of married couples. As shown in Study 1, one reason why agreeable individuals have good quality friendships was because they are more likely to be grateful in response to the contributions of others to their welfare. Study 2 extended this model by including a measure of actual experience of grateful feelings to examine the hypothesis that one reason why agreeable spouses have good quality marriages is because they have the tendency to experience gratitude which leads to more frequent experiences of grateful affect.

Figure 3.1 shows the general ‘Gratitude-As-A-Mediator’ Model for marital relationships. I expected that: (1) a significant direct effect of agreeableness on dispositional gratitude (paths ‘a’), (2) a significant direct effect of dispositional gratitude on frequency of grateful affect (paths ‘b’), (3) a significant direct effect of frequency of grateful affect on marital quality (paths ‘c’), and (4) a significant indirect effect of agreeableness on marital quality through dispositional gratitude and frequency of grateful affect. This model shows the direct effect of agreeableness on marital quality (paths ‘e’). If the predicted indirect effect of agreeableness on marital quality through dispositional gratitude and frequency of grateful affect is significant, then the presence or absence of this path reveals whether the expected mediation is partial or complete. This model also shows the direct effect of dispositional gratitude on marital quality (paths ‘d’). Inclusion of these paths allows for the examination of whether frequency of grateful affect also mediates the relation between dispositional gratitude and marital quality. Lastly, this model also allowed for similarity between spouses’ agreeableness (correlation ‘f’), residual similarity between spouses’
dispositional gratitude (correlation ‘g’) and residual similarity between spouses’ frequency of grateful affect (correlation ‘h’).

Study 2 also compared the ‘Gratitude-As-A-Mediator’ Model to three alternative models of the relations between agreeableness, dispositional gratitude and relationship quality. The first alternative model proposed that although agreeableness, dispositional gratitude, and frequency of grateful affect directly affect marital quality, there is no direct effect of agreeableness on dispositional gratitude. This first alternative model (depicted in Figure 3.2) tested whether agreeableness directly contributes to the grateful disposition which is a crucial step in demonstrating mediation (Baron & Kenny, 1986). The second alternative model (depicted in Figure 3.3.) proposed that although agreeableness, dispositional gratitude, and frequency of grateful affect directly predict marital quality, there is no direct effect of dispositional gratitude on frequency of grateful affect. This second alternative model tested whether dispositional
gratitude directly predicted frequency of grateful affect. This is also a crucial step in testing the mediation hypothesis as the more distal mediator (dispositional gratitude) should be directly related to the more proximal mediator (frequency of grateful affect). The third alternative model (depicted in Figure 3.4) proposed that although agreeableness and dispositional gratitude both directly predict marital quality, there is no effect of frequency of grateful affect on marital quality. This third alternative model tested whether frequency of grateful affect directly predicts marital quality which is a crucial step in testing mediation.

*Figure 3.2: Alternative Model #1 for Marital Relationships*
Figure 3.3. Alternative Model #2 for Marital Relationships

Figure 3.4. Alternative Model #3 for Marital Relationships
3.2 Method

3.2.1 Participants
Participants were 197 students and their parents. As part of a larger study of personality and family dynamics, students were recruited from the Introductory Psychology subject pools at the University of Toronto, St. George and the University of Toronto, Mississauga. Eligible students had to be living at home with both of their biological parents. Students received either partial course credit or $25 whereas each parent received $25 for their participation. Students’ age ranged from 17 to 30 years (M = 19.83 years), mothers’ age ranged from 37 to 61 years (M = 48.21 years), and fathers’ age ranged from 38 to 66 (M = 51.49 years).

3.2.2 Procedure
Students and their parents were surveyed during a two-hour testing session either in the laboratory or at their home. Informed consent was obtained from each participant prior to the testing session. Then each participant was seated separately at their cubicle in the case of families tested in the laboratory, or in a room within their house in which they felt most comfortable in the case of families tested in their home. Participants then completed a paper-and-pencil survey package that included several measures of personality, wellbeing, and relationship functioning. Relevant to the current dissertation, participants made self and informant ratings of dispositional gratitude, grateful affect, Big Five personality traits, and relationship quality.

3.2.3 Measures
Dispositional Gratitude. The Gratitude Questionnaire-6 (GQ-6: McCullough et al, 2002) was used to measure participants’ general disposition towards gratefulness. Participants rated the extent to which they agreed or disagreed with each of the 6 items and the extent to which they thought their friend agreed or disagreed with each item using a 7-point Likert scale ranging from
1 (strongly disagreed) to 7 (strongly agreed). The reliability of this scale in the present sample was high for both self ratings (alpha > .82) and informant ratings (alpha > .77).

Grateful Affect. A 3-item measure of grateful feelings (McCullough et al, 2002) was used to measure how frequently participants experienced grateful affect in the past 6 months. Participants rated how frequently they felt thankful, grateful, and appreciative and how frequently they thought their other two family members felt thankful, grateful, and appreciative using a 7-point Likert scale ranging from 1 (almost never) to 7 (almost always). The reliability of this scale in the present sample was high for both self ratings (alpha > .84) and informant ratings (alpha > .81).

Agreeableness. A modified 22-item version of the Big Five Inventory (John, Donahue, & Kentle, 1991) was used to measure aspects of personality on the Big Five traits of neuroticism, extraversion, conscientiousness, openness to experience, and agreeableness. Participants rated the extent they agreed or disagreed with each statement and the extent to which they thought their other two family members agreed or disagreed with each statement using 7-point Likert scale ranging from 1 (strongly disagreed) to 7 (strongly agreed). The reliability of the 3-item agreeableness subscale in the present sample was high for both self ratings (alpha > .80) and informant ratings (alpha > .77).

Marital Quality. The Network Relationships Inventory (NRI: Furman & Burhmester, 1992) was used to assess marital quality. This measure consists of 42 items which assess the following dimensions of relationship quality: Companionship, Conflict, Instrumental Aid, Antagonism, Intimacy, Nurturance, Affection, Admiration, Relative Power, Reliable Alliance, Support, Criticism, Dominance, and Satisfaction. In order to allow for comparisons across studies, again the subscales for companionship, support, intimacy, and affection were used in the current study. All items were worded to reflect the extent to which two members of a relationship shared the
same perception of the quality of the social relationship (e.g., “How happy are you and this family member with the way things are in your relationship?”). Participants rated the extent to which they endorsed each statement using a 5-point Likert scale ranging from 1 (little to none) to 5 (the most). Then participants were instructed to take the perspective of the other two participating family members and rate the extent to which they thought these family members endorsed each statement using the same rating scale. The reliability of each of the subscales in the present sample was alphas > .72 for self and informant ratings.

3.2.4 Data Analysis Approach
One hundred and ninety-seven triads were used as the unit of analysis. After examination of the observed correlations between each variable, latent factor models were constructed and structural equation modeling software (MPLUS) was used to analyze each model. At the measurement level the residual variances between ratings made by the same rater were free to covary in order to account for nonrandom error due to a common rater bias. In addition husbands’ and wives’ self-ratings of dispositional gratitude and frequency of grateful affect were free to covary in order to account for the unique relationship between relationship members’ self-ratings of these variables. Latent variables reflecting the shared variance between self and two informant ratings of agreeableness, dispositional gratitude, and frequency of grateful affect were created for wives and husbands to obtain more accurate estimates of spouses’ true levels of agreeableness, dispositional gratitude, and frequency of grateful affect and the factor loadings on each indicator were constrained to be equal. Lastly, latent variables reflecting the shared variance between self and two informant ratings of marital quality were created for wives’ and husbands’ separately. Then latent variables reflecting the shared variance between the wives’ and husbands’ marital quality were created. These latent variables were then used in structural equation models to estimate the (1) direct effects of agreeableness, dispositional gratitude, and frequency of grateful
affect on each dimension of marital quality and (2) the indirect effects of agreeableness on each dimension of marital quality through dispositional gratitude and frequency of grateful affect. The relations between latent factors for husbands and wives were constrained to be equal in order to reflect relationship symmetry. The overall fit of each model as well as comparisons of the relative fit of each model was assessed using the same absolute fit indices and model comparisons used in Study 1.

3.3 Results

Tables 3.1 shows the descriptive statistics for Study 2 variables.

Table 3.1. Descriptive Statistics for Study 2

<table>
<thead>
<tr>
<th>Marital Quality</th>
<th>Target</th>
<th>Rater</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
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<td>1.04</td>
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<td>Husband</td>
<td>3.85</td>
<td></td>
<td>0.99</td>
</tr>
</tbody>
</table>
65

| Intimacy | Wife | Husband | 3.51 | 1.04 |
| Student | Husband | 3.59 | 1.02 |
| Student | Student | 3.89 | 1.07 |

| Affection | Wife | Husband | 4.34 | 0.83 |
| Student | Husband | 4.22 | 0.92 |
| Student | Student | 4.41 | 0.85 |

N.B. N = 197 triads

3.3.1 Structural Equation Model Analyses

The overall and relative fit indices of each of the models and model comparison results are provided in Table 3.2.

Table 3.2. Study 2, ‘Gratitude-As-A-Mediator’ and Alternative Models Fit Indices and Model Comparisons.

<table>
<thead>
<tr>
<th>Marital Quality</th>
<th>Model</th>
<th>Model Fit Indices</th>
<th>Model Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>X² (df)</td>
<td>CFI</td>
</tr>
<tr>
<td>Companionship</td>
<td>M1: ‘Gratitude-As-A-Mediator’</td>
<td>229.74 (168)</td>
<td>.98</td>
</tr>
<tr>
<td></td>
<td>M2: Alternative #1</td>
<td>328.50 (169)</td>
<td>.94</td>
</tr>
<tr>
<td></td>
<td>M3: Alternative #2</td>
<td>329.61 (169)</td>
<td>.94</td>
</tr>
<tr>
<td></td>
<td>M4: Alternative #3</td>
<td>241.36 (169)</td>
<td>.97</td>
</tr>
<tr>
<td>Support</td>
<td>M1: ‘Gratitude-As-A-Mediator’</td>
<td>235.21 (168)</td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td>M2: Alternative #1</td>
<td>327.38 (169)</td>
<td>.93</td>
</tr>
</tbody>
</table>
Table 3.2 shows that the ‘Gratitude-As-A-Mediator’ had good overall fit and had a better fit to the data compared to all three alternative models. These comparisons indicate that the conditions for mediation have been met in that there are direct effects of: (1) agreeableness on dispositional gratitude, (2) dispositional gratitude on frequency of grateful affect, and (3) frequency of grateful affect on marital quality.

In order to examine dispositional gratitude and frequency of grateful affect as potential mediators of the relation between agreeableness and marital quality, first the existence of an effect to be mediated must be examined. Again, because the current study employed structural equation
modeling with latent variables, the ‘Gratitude-As-A-Mediator’ Model was used to estimate the total effect of agreeableness on each marital quality variable. There were significant total effects of agreeableness on marital support ($\beta_{\text{total}} = .28$, $p < .01$), intimacy ($\beta_{\text{total}} = .18$, $p < .05$), and affection ($\beta_{\text{total}} = .39$, $p < .01$). The total effect of agreeableness on marital companionship approached significance ($\beta_{\text{total}} = .11$, $p = .07$). In order to test whether dispositional gratitude and frequency of grateful affect fully or only partially mediated the effect of agreeableness on marital support, intimacy, and affection, each ‘Gratitude-As-A-Mediator’ model was tested against a model in which there was no direct path from agreeableness to marital quality (‘Gratitude-As-A-Full-Mediator’ Model). Table 3.3 shows the overall and relative fit indices as well as model comparisons for the ‘Gratitude-As-A-Mediator’ and ‘Gratitude-As-A-Full-Mediator’ Models.

Table 3.3. Study 2, ‘Gratitude-As-A-Mediator’ and ‘Gratitude-As-A-Full-Mediator’ Model Fit Indices and Model Comparisons.

<table>
<thead>
<tr>
<th>Marital Quality</th>
<th>Model</th>
<th>Model Fit Indices</th>
<th>Model Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>M1: ‘Gratitude-As-A-Mediator’</td>
<td>$X^2$ (df)</td>
<td>CFI</td>
</tr>
<tr>
<td></td>
<td>235.21 (168)</td>
<td>.97</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>M2: ‘Gratitude-As-A-Full-Mediator’</td>
<td>238.25 (169)</td>
<td>.97</td>
</tr>
<tr>
<td>Intimacy</td>
<td>M1: ‘Gratitude-As-A-Mediator’</td>
<td>234.05 (168)</td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td>M2: ‘Gratitude-As-A-Full-Mediator’</td>
<td>234.24 (169)</td>
<td>.97</td>
</tr>
<tr>
<td>Affection</td>
<td>M1: ‘Gratitude-As-A-Mediator’</td>
<td>223.10 (168)</td>
<td>.98</td>
</tr>
<tr>
<td></td>
<td>M2: ‘Gratitude-As-A-Full-Mediator’</td>
<td>234.35 (169)</td>
<td>.98</td>
</tr>
</tbody>
</table>

N.B. Posterior probabilities of Bayes factor in favor of model with the lower BIC value are shown in parentheses.
Table 3.3 shows that, for marital support, intimacy, and affection, fit of the ‘Gratitude-As-A-Full-Mediator’ Model was good. For marital support and intimacy, the ‘Gratitude-As-A-Full-Mediator’ Model did not have significantly worse fit than the general ‘Gratitude-As-A-Mediator’ Model. Therefore, since the ‘Gratitude-As-A-Full-Mediator’ Model was the more parsimonious model and the posterior probabilities of the Bayes factors favored this model, full mediation was indicated. For marital affection, the general ‘Gratitude-As-A-Mediator’ Model was favored indicating partial mediation.

3.3.2 Gratitude as a Mediator of the Relations between Agreeableness and Marital Support, Intimacy, and Affection

Figures 3.5 to 3.6 show the results of the structural equation analysis for the final ‘Gratitude-As-A-Full-Mediator’ Model for marital support and intimacy respectively, whereas Figure 3.7 shows the results for the ‘Gratitude-As-A-Mediator’ Model for marital affection.

Direct effects: As expected, agreeableness had a consistent direct effect on dispositional gratitude ($\beta_{direct}$ ranged from .56 to .59, $p < .01$). There was also a consistent direct effect of dispositional gratitude on frequency of grateful affect ($\beta_{direct} = .75$, $p < .01$). There was also a significant direct effect of dispositional gratitude on marital affection ($\beta_{direct} = .16$, $p = .05$) only. Lastly, as expected, frequency of grateful affect had direct effects on marital support ($\beta_{direct} = .33$, $p < .01$), intimacy ($\beta_{direct} = .21$, $p < .01$), and affection ($\beta_{direct} = .17$, $p = .02$).

Indirect effects: First, there was a consistent significant indirect effect of agreeableness on frequency of grateful affect through dispositional gratitude ($\beta_{indirect}$ ranged from .42 to .44, $p < .01$). Second, there were significant indirect effects of dispositional gratitude through frequency of grateful affect on marital support ($\beta_{indirect} = .25$, $p < .01$), intimacy ($\beta_{indirect} = .15$, $p = .01$), and affection ($\beta_{indirect} = .13$, $p = .02$).
There was a significant indirect effect of agreeableness though dispositional gratitude on marital affection \( (\beta_{\text{indirect}} = .09, p = .05) \) only. Lastly, as predicted, there were significant indirect effects of agreeableness through dispositional gratitude and grateful affect on marital support \( (\beta_{\text{indirect}} = .14, p < .01) \), intimacy \( (\beta_{\text{indirect}} = .09, p = .01) \), and affection \( (\beta_{\text{indirect}} = .07, p = .02) \).

*Figure 3.3* ‘Gratitude-As-A-Full-Mediator’ Model for Marital Support

\*\*denotes coefficients significant at \( p < .05 \).
Figure 3.6: ‘Gratitude-As-A-Full-Mediator’ Model for Marital Support

* denotes coefficients significant at \( p < .05 \).

Figure 3.7: ‘Gratitude-As-A-Mediator’ Model for Marital Affection

* denotes coefficients significant at \( p < .05 \).
3.3.3 Gratitude and Marital Companionship

Since there was no total effect of agreeableness on marital companionship, the structural equation analysis of the general ‘Gratitude-As-A-Mediator’ was conducted to examine whether there was still a significant indirect effect of agreeableness on marital companionship through dispositional gratitude and frequency of grateful affect. Figure 3.8 shows the results of this structural equation analysis. Agreeableness significantly predicted dispositional gratitude ($\beta_{\text{direct}} = .58, p < .01$). There was a direct effect of dispositional gratitude on frequency of grateful affect ($\beta_{\text{direct}} = .75, p < .01$). There was also a direct effect of frequency of grateful affect on marital companionship ($\beta_{\text{direct}} = .28, p < .01$). There was a significant indirect effect of agreeableness through dispositional gratitude on frequency of grateful affect ($\beta_{\text{indirect}} = .43, p < .01$). There was also a significant indirect effect of dispositional gratitude through frequency of grateful affect on marital companionship ($\beta_{\text{indirect}} = .21, p < .01$). Lastly, there was a significant indirect effect of agreeableness through dispositional gratitude and frequency of grateful affect on marital companionship ($\beta_{\text{indirect}} = .12, p < .01$).
3.3.4 Similarity between Spouses

The next set of results concern similarity between spouses’ agreeableness, dispositional gratitude, and frequency of grateful affect. Consistent across all models there was no similarity between spouses’ agreeableness. The results of the ‘Gratitude-As-A-Mediator’ Model showed strong residual similarity between spouses’ dispositional gratitude (rs ranged from .83 to .86, p < .01) and frequency of grateful affect (rs ranged from .88 to .91, p < .01). The high similarity in gratitude is particularly remarkable in the absence of similarity in agreeableness. This finding suggests that whereas similarity in dispositional gratitude may reflect assortment, the similarity in frequency of grateful affect reflects social influence rather than assortative mating.
3.3.5 Reverse Causal Effect: Marital Quality as a Direct Predictor of Gratitude

As in Study 1, it was theoretically plausible that marital quality has a direct effect on spouses’ dispositional gratitude and frequency of grateful affect. In order to test this possibility, the final ‘Gratitude-As-A-Mediator’ Models for each marital quality variable was compared to a reverse causal model in which marital quality directly predicted spouses’ dispositional gratitude and frequency of grateful affect. Structural equation analyses showed that, for all dimensions of marital quality, the reverse causal model had acceptable fit to the data ($X^2$ (168) ranged from 241.86 to 250.19, CFI ranged from .96 to .97). Model comparisons showed that, relative to the ‘Gratitude-As-A-Mediator’ Models, the reverse causal model had a worse fit to the data (AIC ranged from 10862.56 to 11653.69, ΔAIC ranged from 4.35 to 23.09, BIC ranged from 11368.18 to 12162.58, posterior probabilities of Bayes factors in favor of ‘Gratitude-As-A-Mediator’ Model ranged from .87 to .99). These results again suggest that gratitude mediated the effect of agreeableness on marital quality because this alternative model fails to account for this significant indirect link between agreeableness and marital quality.

3.4 Discussion

Study 2 revealed several important findings. First, again the model showed clearly distinct factors for agreeableness, dispositional gratitude, and frequency of grateful affect. This finding provides strong evidence that measures of agreeableness, dispositional gratitude, and frequency of grateful affect have discriminant validity. Second agreeableness was a consistent predictor of dispositional gratitude. Third, dispositional gratitude was a consistent predictor of frequency of grateful affect. Fourth, the main thesis of my dissertation, that gratitude is a possible mechanism by which agreeable spouses maintain a good quality marriage was supported. More specifically, frequency of grateful affect: (1) fully mediated the effect of agreeableness on marital support and
intimacy, and (2) partially mediated the effect of agreeableness on marital affection. Fifth, Study 2 showed that there was strong similarity between spouses’ dispositional gratitude and frequency of grateful affect but no actual similarity between spouses’ agreeableness. The following discussion explores the implications of the above main findings.

3.4.1 The Grateful Disposition

Consistent with Study 1, agreeableness consistently emerged as a significant predictor of dispositional gratitude. However, Study 2 also showed that dispositional gratitude, but not agreeableness, directly predicted how frequently spouses experienced grateful affect. These findings support my contention that theories of dispositional gratitude should incorporate the contributions of higher order personality traits such as agreeableness. Furthermore, these findings support McCullough et al.’s (2002) conceptualization of dispositional gratitude as the tendency to experience grateful affect. The multi-method model shows that measures of dispositional gratitude and grateful affect have discriminant validity. Moreover, the mediation model shows that the dispositional measure is more strongly related to agreeableness, a broad personality disposition. This finding supports the construct validity of the disposition measure as a measure of dispositional gratitude. In this regard, including agreeableness was valuable to demonstrate validity, even though it did not directly contribute to the prediction of grateful affect. In addition, these findings also support McCullough et al.’s (2002) contention that individuals who are dispositionally grateful should also experience more frequent grateful affect relative to less dispositionally grateful individuals. Lastly, these findings provide an empirical link between the grateful disposition and actual emotional experience of gratitude. Only two studies thus far have empirically supported McCullough et al.’s (2002) conceptualization of dispositional gratitude as the tendency to experience grateful affect. As previously mentioned, McCullough et al. (2004) showed that dispositional gratitude predicted day to day experience of
grateful affect and Wood et al. (2008) showed that dispositional gratitude directly predicted beneficiaries’ appraisals of others’ kindness as costly, valuable, and altruistically motivated which led to increased experience of grateful affect.

3.4.2 Gratitude as a Mechanism by which Agreeable Spouses Maintain Good Quality Marriages

Several findings of Study 2 supported the main hypothesis that gratitude is one mechanism by which agreeable spouses maintain good quality marriages. First, the ‘Gratitude-As-A-Mediator’ Model had a better fit to the data relative to the reverse causality model in which a good marriage predicts spouses’ dispositional gratitude and frequency of grateful affect. Second, structural equation analyses of the ‘Gratitude-As-A-Mediator’ Model revealed that whereas frequency of grateful affect fully mediated the relation between agreeableness and marital support and intimacy, frequency of grateful affect partially mediated the relation between agreeableness and marital affection. Third, for marital support, intimacy, and affection, all of the expected indirect effects were present which supports the hypothesis that frequency of grateful affect is a more proximal mediator of the relations between agreeableness, dispositional gratitude, and marital quality than dispositional gratitude. More specifically, if this hypothesis were plausible, then there should be an indirect effect of: (1) agreeableness through dispositional gratitude and frequency of grateful affect on marital quality and (2) agreeableness through dispositional gratitude on grateful affect. Taken together, these results suggest that one reason why agreeable individuals tend to have good quality marriages is because they are more likely to be grateful. As a result of being more grateful, these individuals tend to experience frequent grateful affect which leads to mutual exchange of emotional and social support and intimate thoughts, emotion, and secrets. The results also suggest that there are several ways in which agreeable individuals enjoy a marriage characterized by mutual exchanges of love and liking. First, agreeable
individuals are more likely to be tender-minded and caring and thus are more likely to
demonstrate their affection for their relationship partner in general. Second, agreeable
individuals are more likely to be grateful which leads to not only more frequent experiences of
gratitude, but may also lead to more intense feelings of gratitude. Future research is needed in
order to examine the contributions of other aspects of the experience of gratitude to relationship
quality. For example, as previously mentioned, McCullough et al. (2002) argue that a grateful
disposition leads to not only more frequent and intense experiences of grateful affect, but also
increased grateful feelings to a large number of life circumstances and people as contributors to
the positive outcomes that they have experienced. The results for marital companionship showed
that, whereas the total effect of agreeableness on marital companionship did not reach
significance, there was a significant indirect effect of agreeableness through dispositional
gratitude and frequency of grateful affect. The failure to demonstrate a direct effect may simply
be a problem of low power (Shrout & Bolger, 2002). This finding suggests that one way that
agreeable spouses experience of relationship that is companionable is by being dispositionally
grateful and thus experiencing more frequent grateful affect.

There are several implications of the above findings. First, the strength of the triadic design with
latent variables based on shared variance between self and informant reports of each spouses’
perceptions of the marriage supports the hypothesis that frequent experience of grateful affect
influences the actual quality of the marriage and not just each spouse’s individual engagement or
perception of the marriage. Second, these findings provide empirical support for aforementioned
arguments that gratitude confers benefits to social relationships. Furthermore, the current
findings are consistent with previous research that shows that feelings of gratitude predict
relationship members liking for each other (Algoe et al., 2009; Hendrickson & Goei, 2009) as
well as closeness to each other (Algoe et al., 2010; Lambert et al., 2010). Third, the main finding
that frequency of grateful affect mediated the relation between agreeableness and marital quality is consistent with Karney and Bradbury’s Vulnerability-Stress-Adaptation Model of marriage in which adaptive processes mediate the relation between enduring vulnerabilities and strengths (e.g., personality traits) and marital quality. According to Gonzaga, Campos, and Bradbury (2007), affective experiences during day-to-day interactions between relationship partners constitute an important part of these adaptive processes which directly impact marital quality.

### 3.4.3 Similarity between Spouses

The absence of actual similarity between spouses’ agreeableness was consistent with previous research (e.g., Dyrenforth et al., 2010; Watson et al., 2000) and suggests that individuals do not assort on agreeableness. However, the results showed strong residual correlations between spouses’ dispositional gratitude and frequency of grateful affect. The residual similarity between spouses’ dispositional gratitude suggests that grateful individuals seek out other grateful individuals to marry. However, assortment on dispositional gratitude is not sufficient to explain the strong residual similarity between spouses’ frequency of grateful affect. For example, if similarity between spouses’ dispositional gratitude leads to similarity in the frequency with which spouses experience grateful affect, the residual correlation between spouses’ frequency of grateful affect should be close to zero. The strong residual correlation between spouses’ frequency of grateful affect suggests that there are other causal factors that produce similarity in spouses’ experience of gratitude independent of similarity in their grateful dispositions. One possibility is that relationship partners mutually influence each other’s affective experiences and thus become more emotionally similar over time (Anderson, Keltner, & John, 2003; Gonzaga et al., 2007). According to McCullough et al. (2001), experiences and expressions of gratitude are thought to (a) motivate the beneficiary to engage in prosocial behaviour towards the benefactor and (b) reinforce the benefactor’s kindness thus making it more likely that the benefactor would
behave prosocially toward the beneficiary in the future. Thus, in the context of a close relationship such as marriage, when one spouse experiences gratitude and behaves prosocially toward their partner, the other spouse would be more likely to experience gratitude as well. Over time, such exchanges are likely to produce similarity in spouses’ experiences of grateful affect. Although there is some evidence that experiences of gratitude motivate prosocial behavior in beneficiaries and benefactors (see McCullough et al., 2001 for a review), future research is needed to examine whether this produces emotional convergence between relationship partners over time.

3.4.4 Limitations

One limitation of Study 2 is that the underlying mechanism by which frequency of grateful affect actual relationship behaviours impacts the relationship behaviours which lead to shared perceptions of good marital quality was not directly examined. In other words, future research is needed to determine whether frequent experience of grateful affect actually increases spouses’ engagement in behaviours that make a marriage more companionable, supportive, intimate, and affectionate. Second, the current study has implications only for the benefits of gratitude to ongoing social relationships and does not address existing arguments that gratitude aids in the establishment of social relationships.
4 General Discussion

My dissertation examined gratitude as a mechanism employed by agreeable individuals to maintain good quality interpersonal relationships. Both studies 1 and 2 showed that: (1) agreeableness positively contributes to the grateful disposition and (2) gratitude mediated the relation between agreeableness and support, intimacy, and affection in both same-sex best friendships and marital relationships. Moreover, both studies also investigated similarity in relationship partners’ gratitude. The following discussion explores the implications of these main findings.

4.1 Conceptualizations of the Grateful Disposition

Several findings from Studies 1 and 2 have important implications for current conceptualizations of gratitude. First, the results from both studies showed that agreeableness directly predicts dispositional gratitude. Second, the results from Study 2 showed that dispositional gratitude but not agreeableness directly predicted frequency of grateful affect. These results support existing conceptualizations of gratitude as both an emotion and an affective trait as frequency of grateful affect emerged as not only a stronger predictor of relationship quality but also a more proximal mediator of the relation between agreeableness and relationship quality. Moreover, these results support current definitions of dispositional gratitude as the tendency to experience grateful affect. As previously discussed in Chapters 2 and 3, these findings also suggest that agreeableness should be included in theories of dispositional gratitude. However, future empirical research is needed in order to examine why agreeable individuals also tend to be more grateful. For example, future research should examine whether agreeableness predicts individual differences in the tendency to appraise benefits conferred by others as costly, valuable, intentional, and altruistically motivated.
4.2 The Role of Gratitude in Social Relationships

The main thesis of the current dissertation was that gratitude is one mechanism by which agreeable individuals maintain good quality interpersonal relationships. In general, the results supported this thesis in that for both friendships and marital relationships, gratitude mediated the relation of agreeableness with support, intimacy, and affection. More specifically, my dissertation showed that agreeable individuals are more likely to have the tendency to experience grateful affect and that this disposition leads to more frequent experiences of grateful affect. In turn, grateful affect directly influences not only relationship members’ shared perceptions of relationship quality, but also non-relationship members’ perceptions of relationship quality (Study 2). One unexpected result was that gratitude fully mediated the relation between agreeableness and friendship affection whereas gratitude only partially mediated the relation between agreeableness and marital affection. One reason why agreeableness directly affected marital affection as opposed to friendship affection could be that displays of affection are more normative within marriages as opposed to same-sex best friendships. Future research is needed in order to test whether type of relationship moderates the mediation effect of agreeableness on marital affection. Nevertheless, the finding that gratitude consistently mediated the relation between agreeableness and relationship quality is notable for several reasons. First, within both the personality and relationships literatures, the finding that individual differences in agreeableness are positively correlated to relationship outcomes is well-established. However, few studies have attempted to empirically examine why this is the case. One previous study by Berry et al (2000) examined whether accommodation style can explain the relation between agreeableness and friendship quality. Although, these authors failed to find consistent evidence of mediation, they suggest that “more fine-grained behavioural taxonomies will be more successful in identifying the source of links between affectivity, personality, and friendship
quality” (Berry, et al., 2000, pp. 105). The findings of the current dissertation suggest that gratitude may be one such construct that can explain these links in that the construct of gratitude: (1) in part stems from more broad level individual differences in personality such as agreeableness, (2) contributes to individual differences in the experience of grateful affect, and (3) mediates the relation between agreeableness and relationship quality.

Another unexpected finding was that agreeableness was unrelated to both friendship and marital companionship. However, companionship was conceptualized as not only as the extent to which relationship partners spend time together, but also as how fun and enjoyable that time was. It may be more likely that extraversion is directly related to companionship relative to agreeableness. Extraversion is thought to capture individual differences in a wide range of positive social behaviours that are generally related to excitement and fun. On the other hand, the results from both Studies 1 and 2 did show that both agreeable friends and spouses tend to have more companionable interpersonal relationships by being more likely to experience gratitude. However, this positive effect of agreeableness was undermined by a direct negative effect of agreeableness. Future research needs to examine whether this is a reliable effect and what processes mediate this relationship. Finally, it is noteworthy that the model clearly suggested positive effects of gratitude on companionship. Thus, all tests showed positive effects of gratitude on a variety of indicators of positive relationships.

In general, the results of my dissertation showed that gratitude was a stronger predictor of companionship, support, intimacy, and affection than agreeableness. This finding is important as it provides compelling empirical support for decades of theorizing that gratitude plays a role in the establishment and maintenance of positive social relationships. The present findings provide the most compelling evidence for these positive effects yet because the studies examined within
the context of actual social relationships, across different types of social relationships, and by using dyadic designs that capture the interdependencies of social relationships. The methodology employed in the current dissertation also goes beyond previous studies by using a multi-method approach to the measurement of gratitude and relationship quality and by testing competing models of correlational data. One final issue with previous empirical studies of the relational benefits of gratitude concerns the operationalization of gratitude. Unlike many previous studies which focused on only one conceptualization of gratitude, the current dissertation assessed both dispositional gratitude and frequency of grateful feelings. In other words, the current dissertation assessed the effects of both individual differences in the tendency to experience gratitude (i.e., dispositional gratitude) and the actual affective experience of gratitude (frequency of grateful affect).

The finding that gratitude contributes positively to relationship quality also has implications for current empirical work on gratitude interventions. Briefly, several studies have shown that promoting a focus on those things in life for which one is grateful has positive effects on individuals’ well-being (e.g., Carlson, Charlin, & Miller, 1988; Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2008; Lyubomirsky, Sheldon & Schkade, 2005; Seligman, Steen, Park & Peterson, 2005; Watkins et al, 2003) and prosociality (Bartlett & DeSteno, 2006; Tsang, 2006). The present results are encouraging as they suggest that fostering grateful feelings within an intervention context may promote good relationship quality in an important way. Previous research on gratitude interventions emphasizes the benefits of fostering a ‘grateful outlook’. That is, these studies emphasize the ways in which encouraging individuals’ to perceive and acknowledge the contributions of others to the positive outcomes they experience promote higher wellbeing. My dissertation shows that the benefits of gratitude for relationship quality go beyond individual perceptions of reality in that gratitude has a direct impact on the actual shared reality
of the relationship. Whether or not such gratitude interventions are beneficial (both in the short
term and in the long-term) to the quality of the relationships of people in general or limited to
those people who are already more likely to experience gratitude (e.g., agreeable individuals) is
an empirical question that needs to be investigated by future studies. However, given that studies
have consistently shown relationship well-being to be a strong predictor of subjective well-being
(e.g., Diener & Fujita, 1995; Diener, Suh, Lucas, & Smith, 1999; Heller et al., 2000), the current
findings suggest an additional way in which gratitude may positively impact well-being.

4.3 Similarity between Friends and Spouses
The results of the current dissertation revealed that there was similarity between friends’
agreeableness and no similarity between spouses’ agreeableness. Whereas the results for friends
are inconsistent with previous studies, the results for spouses are consistent with previous
findings of little to no similarity between relationship partners’ Big Five personality traits
(Watson, et al., 2000; Watson, Klohn, Casillas, Simms, Haig, & Berry, 2004). Further research
on similarity between friends’ agreeableness that uses advanced methods and analyses (such as
structural equation modeling with latent variables) is needed to examine whether the similarity
between friends’ agreeableness revealed in the present dissertation is a reliable finding. Both
Studies 1 and 2 showed similarity between relationship partners’ dispositional gratitude.
Similarity in the residuals that control for effects of agreeableness showed that agreeableness
cannot account for the similarity in dispositional gratitude between friends and spouses and
suggest that there are other causal factors that produce similarity in dispositional gratitude. One
previously mentioned possibility is that grateful individuals seek out other grateful individuals as
potential relationship partners. One question that remains is why spouses, but not friends, assort
on dispositional gratitude but not on agreeableness. First, marriages often involve higher levels
of commitment, loyalty, willingness to help, and overt expressions of positive emotions compared to friendships (Connolly, Craig, Goldberg, & Pepler, 1999; Davis & Todd, 1985). Second, marriages are also more difficult to dissolve than friendships (Fehr, 1996). Therefore it is more important for individuals to choose a potential spouse who is similar to them on traits that are closely related to relationship functioning compared to a potential friend. As such, one possible explanation is that assortment on dispositional gratitude is more important to individuals’ selection of a potential spouse than assortment on agreeableness because gratitude is more closely related to relationship functioning than agreeableness. The current findings that gratitude was more strongly related to relationship quality than agreeableness and that gratitude mediated the relation between agreeableness and relationship quality offer some support for this explanation. As a result, it may be beneficial to marry a spouse who is grateful and appreciative in the context of the marital relationship, but not necessarily agreeable in other contexts. For example, disagreeable people tend to be successful in a number of jobs, which may lead to higher income which would benefit both spouses (Gere & Schimmack, 2011).

Another question that can be examined in future research is whether similarity in gratitude has benefits for social relationships. Similarity in personality traits like agreeableness is often not a positive predictor of relationship outcomes (Dyrenforth et al., 2010). However, different results might be obtained for gratitude.

4.4 Conclusion

In conclusion, given the importance of good quality interpersonal relationships to individuals’ general well-being, the factors that lead to good quality relationships are especially important to identify. While psychologists have long recognized the contributions of agreeableness to relationship quality, it is only within the past two decades that psychologists have begun to
explore gratitude as an important contributor to relationship outcomes. My dissertation has not only provided strong empirical support for the long-held beliefs of philosophers and theologians on the role of gratitude in interpersonal functioning, but has also provided a bridge between agreeableness and gratitude as contributors to relationship quality. Using a multi-method approach my dissertation has demonstrated that, across different types of symmetrical interpersonal relationships, the well-established link between agreeableness and several aspects of relationship quality can be explained by gratitude.
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Appendices

Appendix A

TITLE:
Dissertation Study 1 Model 4 Basic Script (Companionship Example);

DATA:

VARIABLE:

NAMES ARE a1-a8 b1-b8;

! 1 = self-rated disp. Gratitude, 2 = informant rated disp. Gratitude, 3 = self-rated agreeableness, 4 = informant rated
! agreeableness, 5 = companionship, 6 = support, 7 = intimacy, 8 = affection

USEVARIABLES a1 a2 a3 a4 a5 b1 b2 b3 b4 b5;

MISSING IS a1-a11 b1-b11 (999);

ANALYSIS:

MODEL = NOCOV, NOMEANSTRUCTURE;

MODEL:

fRQ by a5@1;
fRQ by b5@1;
fRQ* (frqres);
fADGRAT by a1@1;
fADGRAT by a2@1;
fBDGRAT by b1@1;
fBDGRAT by b2@1;
faagre*(aagrevar);
fbagre*(bagrevar);
fRQ on fAGR* (p1);
fRQ on fBGR* (p1);
fRQ on fAAGREE* (p2);
fRQ on fBAGREE* (p2);
FADGRAT on fAAGREE* (p3);
FBDGRAT on fBAGREE* (p3);
a1 with a3* (b1);
b1 with b3* (b1);
a1 with a5* (b2);
b1 with b5* (b2);
a1 with b2* (b3);
b1 with a2* (b3a);
a1 with b4* (b4);
b1 with a4* (b4);
a3 with a5* (b5);
b3 with b5* (b5);
a3 with b2* (b6);
b3 with a2* (b6);
a3 with b4* (b7);
b3 with a4* (b7);
a5 with b2* (b8);
b5 with a2* (b8);
a5 with b4* (b9);
b5 with a4* (b9);
b2 with b4* (b10);
a2 with a4* (b10);
FADGRAT with FBDGRAT*;
FAGREE with FBAGREE*;
MODEL INDIRECT:
fRQ IND fAAGREE*;
fRQ IND fBAGREE*;
OUTPUT: SAMP MOD(3) RESIDUAL STANDARDIZED CINTERVAL TECH4;
Appendix B

TITLE:
Dissertation Study 2 Basic Input Script (Companionship Example);

DATA:

VARIABLE:
NAMES ARE m111-m113 m121-m123 m311-m313 m321-m323 m411-m413 m421-m423 m611-m613
m621-m623 m711-m713 m721-m723 m811-m813 m821-m823 m911-m913 m921-m923;

! first number is the construct (1 = disp. gratitude, 3 = grateful affect, 4 = agreeableness
! 6 = companionship, 7 = support, 8 = intimacy, 9 = affection)
! second number is the target (1 = wife, 2 = husband, 3 = student)
! third number is the rater (1 = wife, 2 = husband, 3 = student)
MISSING ARE m111-m113 m121-m123 m311-m313 m321-m323 m411-m413 m421-m423 m611-m613
m621-m623 m711-m713 m721-m723 m811-m813 m821-m823 m911-m913 m921-m923(999);
USEVARIABLES m111-m113 m311-m313 m611-m613 m621-m623;

ANALYSIS:

TYPE IS GENERAL;
MODEL = NOCOV, NOMEANSTRUCTURE;
INFORMATION = EXP;

MODEL:
WGQ by m111*.6 (l1);
WGQ by m112*.7 (l1);
WGQ by m113*.8 (l1);
WGQ@1;
HGQ by m121*.7 (l1);
HGQ by m122*.7 (l1);
HGQ by m123*.7 (l1);
HGQ@1;
WGA by m311*.7 (l2);
WGA by m312*.8 (l2);
WGA by m313*.7 (l2);
WGA@1;
HGA by m321*.7 (I2);
HGA by m322*.7 (I2);
HGA by m323*.6 (I2);
HGA@1;
WAGR by m411*.6;
WAGR by m412*.6;
WAGR by m413*.5;
WAGR@1;
HAGR by m421*.6;
HAGR by m422*.7;
HAGR by m423*.6;
HAGR@1;
RQ by m611*.7;
RQ by m612*.7;
RQ by m613*.5;
RQ by m621*.7;
RQ by m622*.7;
RQ by m623*.5;
RQ@1;
WGQ ON WAGR* (p1);
HGQ ON HAGR* (p1);
WGA ON WGQ* (p2);
HGA ON HGQ* (p2);
RQ ON WGA* (p3);
RQ ON HGA* (p3);
RQ ON WGQ* (p4);
RQ ON HGQ* (p4);
RQ ON WAGR* (p5);
RQ ON HAGR* (p5);
WGQ with HGQ*;
WGA with HGA*;
WAGR with HAGR*;
m111-m113 pwith m121-m123*;
m111-m113 pwith m311-m313*;
m111-m113 pwith m321-m323*;
m111-m113 pwith m411-m413*;
m111-m113 pwith m421-m423*;
m111-m113 pwith m611-m613*;
m111-m113 pwith m621-m623*;
m121-m123 pwith m111-m313*;
m121-m123 pwith m121-m323*;
m121-m123 pwith m411-m413*;
m121-m123 pwith m421-m423*;
m121-m123 pwith m611-m613*;
m121-m123 pwith m621-m623*;
m311-m313 pwith m321-m323*;
m311-m313 pwith m411-m413*;
m311-m313 pwith m421-m423*;
m311-m313 pwith m611-m613*;
m321-m323 pwith m411-m413*;
m321-m323 pwith m421-m423*;
m321-m323 pwith m611-m613*;
m321-m323 pwith m621-m623*;
m411-m413 pwith m421-m423*;
m411-m413 pwith m611-m613*;
m411-m413 pwith m621-m623*;
m421-m423 pwith m611-m613*;
m421-m423 pwith m621-m623*;
m611-m613 pwith m621-m623*;
m111 with m122*;
m311 with m322*;
MODEL INDIRECT:
RQ IND WAGR*;
RQ IND HAGR*;
RQ IND WQG*;
RQ IND HGQ*;
WGA IND WAGR*;
HGA IND HAGR*;
OUTPUT: SAMP MOD(3) RESIDUAL STANDARDIZED CINTERVAL TECH1 TECH4;