UNDERSTANDING PEER EXCHANGE RELATIONSHIPS: A SOCIAL RELATIONS ANALYSIS OF RECIPROCITY PERCEPTIONS

by

Jane Elizabeth Thomas

A dissertation submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in
Organizational Science

Charlotte

2015

Approved by:

_____
Dr. David Woehr

_____
Dr. Linda Shanock

_____
Dr. Janaki Gooty

_____
Dr. Lisa Walker

ABSTRACT

JANE ELIZABETH THOMAS. Understanding peer exchange relationships: A social relations analysis of reciprocity perceptions. (Under the direction of DR. DAVID J. WOEHR)

Although the majority of social exchange research within the organizational sciences relies on reciprocity as the underlying theoretical mechanism in exchange relationships, reciprocity is rarely studied in its own right. The current research sought to directly examine perceptions of reciprocity in the context of peer exchange relationships and to investigate the extent to which peer perceptions of reciprocity are attributable to individuals and also to relationship-specific factors. The results of a social relations analysis indicated that the variance in peer ratings of reciprocity is predominately attributable to the person who is doing the rating (i.e., the perceiver) and/or the unique relationship between the rater and the person being rated (i.e., the relationship). The results also suggested that exchange ideology, conscientiousness, and gender were not significantly related to perceiver or target effects for reciprocity perceptions although agreeableness and neuroticism were significantly related to reciprocity perceiver effects. In regard to relationship effects, perceived similarity was significantly related to relationship effects for reciprocity perceptions. The results also indicated that the extent to which an individual wants to continue working with a specific peer is significantly influenced by agreement in reciprocity perceptions between the two peers. Overall, the results support the conceptualization of reciprocity as both a relational phenomenon and an individual difference. The ways in which theory, methods, and analyses can be aligned to account for these findings are discussed.

DEDICATION

To Patrick.

ACKNOWLEDGMENTS

I would like to acknowledge the support of several individuals and groups who made this research possible. First and foremost, I'd like to thank my chair, Dave Woehr, for his guidance and support over the years. I have been fortunate to have Dave "in my corner" throughout this research endeavor and many others. I'd like to acknowledge the members of my committee, Janaki Gooty, Linda Shanock, and Lisa Walker for their thoughtful suggestions and insights as I completed this project. I am especially grateful to Janaki for taking me under her wing during my first year of graduate school and for serving as a mentor, role model, and friend to me ever since. In addition to my committee members, I'd like to thank the other faculty members at UNC Charlotte with whom I have had the opportunity to collaborate with and learn from - Steven Rogelberg, Tammy Beck, and Denis Arnold. Also, I would be remiss if I didn't thank Alicia Grandey and the faculty at Penn State who, over a decade ago, changed the course of my life by introducing me to the field of I/O Psychology.

I am thankful for the students in the Organizational Science program, particularly my cohort, who have helped me throughout graduate school. I am lucky to have been a part of such a collegial and supportive group of students. Special thanks to Zoa Ordóñez-Franz for her friendship as we traveled on this journey together.

I would like to thank my family for their continued support and encouragement. My parents, John and Rosemary Shumski, taught me from an early age the importance of an education. They have never doubted that I could accomplish great things, and for this I am forever grateful. I am also appreciative of the continued reassurance and lightheartedness that has come from the other members of my family, Vincent Shumski,

Alex Shumski, and Adam Shumski. Additionally, I'd like to thank my father-and-mother-in-law, Jim and Michele Thomas, for understanding what it takes to complete a doctoral program and for encouraging me every step of the way. To my grandmothers, the late Violet Shumski and Jean Miskavage: thank you for showing me what determination and perseverance truly is. And finally, to my husband, Patrick: thank you for your unconditional love and support. This could not have been possible without you.

TABLE OF CONTENTS

INTRODUCTION AND STATEMENT OF PURPOSE

Over the past half-decade, organizational scholars have focused extensively on the nature of social exchange relationships in the workplace. These relationships include exchanges between employees and their leaders, coworkers, teams, and organizations (Cropanzano & Mitchell, 2005; Eisenberger, Huntington, Hutchison, & Sowa, 1986; Graen & Uhl-Bien, 1995; Rhoades & Eisenberger, 2002; Seers, 1989; Seers, Petty, & Cashman, 1995). Workplace relationships can influence employees in meaningful ways, with positive interactions associated with greater well-being and less strain and negative interactions associated with opposite effects (Dutton & Ragins, 2007; Grant & Parker, 2009). The study of peer exchange relationships is particularly important because 90% of employees spend a portion of their day working with their colleagues (Chiaburu & Harrison, 2008).

For exchange relationships to be possible both parties must follow certain "rules" of exchange (Cropanzano & Mitchell, 2005). Reciprocity is one such "rule" and the majority of the organizational research on social exchange focuses on the "norm of reciprocity" (Gouldner, 1960) as the guiding principle in exchange relationships (Cropanzano & Mitchell, 2005). For example, reciprocity has been used to explain why employees engage in citizenship behaviors (Settoon, Bennett, & Liden, 1996) and are loyal and committed to their organizations (Eisenberger et al., 1986). Generally, scholars suggest that when an employee is the recipient of a positive, beneficial action (either from another individual or on behalf of the organization), they then feel obligated to reciprocate in a positive manner.

Although reciprocity is consistently theorized as the underlying social exchange mechanism in organizational research, it is rarely studied in its own right (for exceptions see: Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001; Uhl-Bien & Maslyn, 2003; Wu et al., 2006). Instead, reciprocity is often simply inferred or expected to occur in social exchange relationships (Rousseau, 1998; Wilson, Sin, & Conlon, 2010). As noted by Wu and colleagues, "social exchange theory remains conceptually underdeveloped, in part due to the coarse-grained depiction of one of its prime theoretical foundations: the norm of reciprocity (Coyle-Shapiro & Conway, 2004, 2005; Cropanzano & Mitchell, 2005)" (p. 378).

Even though reciprocity is a universal human norm that is valued and expected by most people (Gouldner, 1960), individuals may also differ in the extent to which they endorse and engage in reciprocity (Cropanzano & Mitchell, 2005; Perugini, Gallucci, Presaghi, & Ercolani, 2003). Reciprocity, therefore, is theorized to be both a relational phenomenon and, to some extent, an individual difference (Cropanzano & Mitchell, 2005; Perugini et al., 2003). To date, however, it is less clear how reciprocity is perceived by exchange partners and to what extent these perceptions are influenced by relationship-specific factors versus individual differences.

Perceptions of others' reciprocity are important for team and organizational functioning. For example, when individuals are perceived as contributing to the group without the expectation of self-serving returns, they are appreciated more by others when they contribute (Kim & Glomb, 2010). Additionally, group members tend to be skeptical of new ideas offered by those who they perceive to be acting only for their own gain whereas group members are more receptive to suggestions by those who they perceive as

more “giving”, even when their ideas might threaten the status quo of the group (Grant, Parker, & Collins, 2009). But what influences reciprocity perceptions and to what extent are these perceptions influenced by the same sources of variance (individual vs. relationship) that are theorized to underlie reciprocity in social exchange?

In this research, I suggest a new approach to the study of peer exchange relationships through an examination of reciprocity perceptions among colleagues. Drawing on Sahlins' (1972) continuum of reciprocity, I investigate how peers perceive each other as reciprocators. Specifically, I examine reciprocity perceptions among peers within larger workgroups (i.e., round-robin ratings) and the extent to which individuals perceive generalized reciprocity, balanced reciprocity, and negative reciprocity among their peers. By collecting round-robin ratings, I am able to address a variety of interesting research questions. Specifically, to what extent are reciprocity perceptions due to the dyadic relationship between exchange partners and to what extent are reciprocity perceptions driven by the individual characteristics of the exchange partners? For example, are there individual differences (e.g., exchange ideology, personality, gender) that make people more or less likely to view their colleagues as reciprocators? Additionally, are there certain traits in peers that make a person more likely to *evoke* certain reciprocity perceptions from others? For example, are certain individuals more or less likely to be viewed by their colleagues as reciprocators? Also, to what extent does perceived similarity among peers influence reciprocity perceptions? And to what extent are future intentions to work with a colleague driven by agreement in reciprocity perceptions?

To answer these questions, I turn to interpersonal perception research. Scholars of interpersonal phenomena have suggested that interpersonal perceptions may be a function of the larger group to which the two people belong, aspects of the perceiver, aspects of the perceiver's partner (i.e., the target of the rating), and also the unique qualities of the two people's interpersonal relationship (Christensen & Kashy, 2012; Kenny, 1994b; Kenny, Mohr, & Levesque, 2001; Livi & Kenny, 2009; Livi, Kenny, Albright, & Pierro, 2008; Snijders & Kenny, 1999). Through an analytical approach called social relations modeling (SRM), it is possible to unpack these different sources of variance in interpersonal perceptions (i.e., group, perceiver, target, and relationship). SRM can be used to examine interpersonal behaviors as well as interpersonal perceptions (Bergman, Small, Bergman, & Rentsch, 2010; Christensen & Kashy, 2012; Kenny, 1994b; LeDoux, Gorman, & Woehr, 2012; Livi & Kenny, 2009; Livi et al., 2008). Although SRM is most commonly used in social-psychological research, it is also applicable to the study of interpersonal phenomena in the workplace.

In a series of studies, one cross-sectional and one round-robin, I examine reciprocity perceptions in peer exchange relationships. In the first study, I modify an existing measure of perceived reciprocity types (i.e., change the referent from the leader-member context to the peer context) and evaluate its factor structure using a cross-sectional sample. This measure is then used in a second study with a sample of 107 student project teams using a round-robin design. Using social relations modeling, I partition the variance of reciprocity perceptions into perceiver, target, and relationship effects and test potential individual-level (e.g., exchange ideology, personality, gender) and relationship-specific correlates (e.g., perceived similarity) of these various effects.

This research contributes to the study of peer social exchange relationships in a number of ways. First, this study examines people's perceptual tendencies in evaluating the reciprocity of their peers. Peers tend to behave differently when interacting with colleagues who they believe have different underlying intentions (Grant et al., 2009; Kim & Glomb, 2010). Therefore, it is important to understand if certain individuals have a tendency to see others as more giving (i.e., generalized reciprocity) or more taking (i.e., negative reciprocity) and to also examine some of the potential correlates of these perceptual tendencies. Additionally, I examine whether certain people tend to evoke certain reciprocity perceptions from others and the extent to which perceived similarity influences peer reciprocity perceptions.

Second, this research examines negative reciprocity (i.e., taking), which is often overlooked in social exchange research. The majority of research on social exchange in the organizational sciences draws from Blau's sociological perspective (Blau, 1964). In line with this approach, high-quality exchange relationships are theorized to evolve over time into commitments marked by loyalty, trust, and mutual consideration (Cropanzano & Mitchell, 2005). Blau suggested that these high-quality exchanges (i.e., "social exchanges") are distinct from low-quality exchanges (i.e., "economic exchanges"). Blau's conceptualization of social vs. economic exchange, however, excludes the possibility of negative exchange relationships (Sparrowe & Liden, 1997). Instead, low-quality exchange relationships are classified as "economic exchanges". Economic exchanges do not capture situations in which one relationship partner is purposefully using the other partner for their own benefit (i.e., something that would not be expected in a contractual, economic exchange).

Third, this study uses social relations modeling to simultaneously account for multiple levels-of-analysis (i.e., group, relationship/dyadic, and individual). Social exchange and reciprocity are inherently dyadic phenomena that require special considerations regarding levels-of-analysis in theory and methods (Klein, Dansereau, & Hall, 1994; Kozlowski & Klein, 2000; Krasikova & LeBreton, 2012; Rousseau, 1985). Although it is important to acknowledge the dyadic nature of social exchange relationships, individuals within these relationships may also have certain tendencies in the way in which they perceive their exchange relationships with others (Clark & Mills, 1979; Murstein, Cerreto, & Mac Donald, 1977). Therefore, both the individuals and the dyadic relationship between exchange partners are important to consider simultaneously.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Social Exchange Theories in the Organizational Sciences

Social exchange has a long history in the organizational sciences and has been applied to a variety of different topics. Scholars have drawn upon social exchange theory in studies of leadership (Liden, Sparrowe, & Wayne, 1997), psychological contracts (Rousseau, 1995), and perceived organizational support (Eisenberger et al., 1986). Over time, different approaches to social exchange have emerged. Scholars across these different approaches, however, tend to agree that social exchange consists of a series of interactions that engender obligations between parties (Emerson, 1976). These interactions are typically viewed as interdependent and contingent on the actions of the exchange partner (Blau, 1964). Additionally, although the specific theories of social exchange may differ, there are basic concepts and assumptions across these theories (Molm, 2012). Specifically, there are four basic core topics in social exchange. These four foundational elements include 1) the actors involved in the exchange, 2) the resources that are exchanged between actors, 3) the structures of the exchange relationships, and 4) the process of exchange (Molm, 2012).

Actors

The actors who engage in social exchange can be individuals or groups that are viewed as a single entity (i.e., a company, an organization, etc.). The flexibility in actors allows for various types of relationships to be examined within the context of social exchange – from interpersonal interactions to interactions with organizations (Molm, 2012). For example, individual employees (e.g., leader and subordinate) are conceptualized as the relevant actors in leader-member exchange research whereas

employees and their employing organization are the actors in perceived organizational support research (Graen & Uhl-Bien, 1995; Liden et al., 1997; Settoon et al., 1996; Wayne, Shore, & Liden, 1997). Social exchange theories tend to make few assumptions about actors, however, most social exchange theories assume that actors are self-interested and look to decrease negatives while increasing benefits (Molm, 2012). In this study, I examine peers who work together as the relevant actors in exchange relationships.

Resources

Social exchanges involve the transfer of certain commodities between partners (Foa & Foa, 1976). Some resources of exchange are easy to identify (e.g., exchanging hours worked for a salary) while other exchanges are less obvious (e.g., exchanging information for respect). Resources are defined as "anything that can be transmitted from one person to another" (Foa & Foa, 1976, pp., p. 1010). This broad definition includes many different things including money, commitment, loyalty, a wave, a look, or assistance formatting a report. If one were to think about every single type of resource, there are far too many to classify. Therefore, scholars have relied on typologies to organize various forms of resources.

In the organizational sciences, the resources of social exchange are often collapsed into two forms: economic and socioemotional resources (Cropanzano & Mitchell, 2005). Additionally, conservation of resources scholars often classify resources into four classes: energy, personal, condition, and material resources (Gorgievski-Duijvesteijn, Halbesleben, & Bakker, 2011). Finally, the resource theory of social exchange suggests that there are as many as six different types of resources (Foa & Foa,

1976, 1980). These resources include love, status, information, money, goods, and services (Berg & Wiebe, 1993; Foa & Foa, 1976, 1980). When examining peer relationships, it is possible for colleagues to exchange all of the types of resources described here.

Structures

Exchange relations can be examined in dyads or in networks of exchange (Molm, 2012). In both dyads and larger networks, exchange relationships "develop within structures of mutual dependence, i.e.; between actors who are dependent on one another for valued resources" (Molm, 2012, p. 27). These structures of dependence are classified into three different forms: direct exchange, generalized exchange, and productive exchange (Molm, 2012). In direct exchange relationships, the two parties depend directly on each other and behaviors are reciprocated between exchange partners (e.g., Dave gives Steven important information and Steven gives Dave additional information in return). Generalized exchange relationships involve at least three actors and the reciprocal dependence between exchange partners is indirect. Examples of generalized exchange include donating blood and reviewing journal manuscripts. In these situations, an actor's giving to another actor is reciprocated by another actor in the larger network. Productive exchange is the final structural form of exchange: All parties in the exchange jointly contribute to a common outcome that benefits everyone. Co-authoring a journal manuscript is an example of a productive exchange.

The majority of research on social exchange has focused on direct exchanges with little attention paid to generalized and productive exchanges (Molm, 2012). In this study I focus on direct exchanges between peers in dyads (nested within groups) due to my

interest in direct reciprocity perceptions. I do not focus on generalized or productive exchanges although I acknowledge that the relationship between two colleagues in a network is likely to affect the exchanges of other peers in the same network (especially if the relations share a focal actor, e.g., A-B and A-C).

Process of Exchange

The process of exchange describes how the interaction between exchange partners plays out. Social exchange can be examined in various temporal phases starting with exchange opportunities, then exchange initiations, moving to the acceptance of the initiation, and finally the exchange transaction. When actors have a series of repeated exchange transactions, it is considered an exchange relation (Molm, 2012). By working together over time, peer colleagues have opportunities to initiate and reciprocate exchange transactions with each other and form exchange relationships.

Within the context of direct exchange structures, exchange transactions can be negotiated or reciprocal (Cropanzano & Mitchell, 2005; Molm, 2012). Negotiated exchange transactions involve explicit bargaining and an understanding between exchange partners as to what is going to be given to whom and when (i.e., purchasing a car and signing an agreement). In contrast, reciprocal transactions involve one actor performing an act for the exchange partner without knowing how or when the partner may reciprocate (Cropanzano & Mitchell, 2005; Molm, 2012). Reciprocal transactions are more ambiguous for exchange partners than negotiated transactions. Reciprocal transactions are common in social exchanges between friends, family, etc. (Molm, 2012). Although it is possible for peers to engage in negotiated exchanges in the workplace (i.e., more formal and binding), prior research has demonstrated that reciprocal transactions

produce higher quality relationships than negotiated transactions and is related to higher levels of trust and commitment between exchange partners (Molm, 2001, 2003). Therefore, I focus exclusively on reciprocal transactions among peers in this study and I describe reciprocity in more detail in the following section.

Reciprocity in Social Exchange

There are different types of reciprocity that can be classified in terms of three basic dimensions: immediacy, equivalency, and interest of each exchange partner. Immediacy refers to the amount of time that an exchange partner has to reciprocate in order to no longer have an obligation to the other partner. The immediacy of returns could range from a very short amount of time (i.e., immediately) or an unspecified time in the future (Sparrowe & Liden, 1997). Therefore, "low immediacy of returns reflects reciprocity at some distant point in the future, whereas relatively high immediacy of returns depicts nearly simultaneous reciprocation" (Sparrowe & Liden, 1997, p. 524). Equivalence of returns describes the extent to which partners exchange similar types of things and in the same quantity. If exchange partners have high equivalence in their reciprocity, one would expect an exchange of highly similar or equal goods. Low equivalence in returns reflects the reciprocation of a resource that is very different from the original resource or is the same resource, but much less or much more valuable. The final underlying dimension is interest. Interest "reflects the nature of the exchange partners' involvement in the exchange process and ranges from unbridled self-interest, through mutual interest, to interest in and concern for the other (Sahlins, 1972)" (Sparrowe & Liden, 1997, p. 524).

The combination of these three dimensions in various configurations creates a continuum of reciprocities in which different types of social exchanges can be positioned (Sparrowe & Liden, 1997). For example, research on leader-subordinate relationships has demonstrated that high quality exchange relationships were characterized by low immediacy, low equivalence, and mutual interest as well as a concern for the other person whereas low-quality exchange relationships were characterized by high immediacy, high equivalence, and self-interest (Uhl-Bien & Maslyn, 2003).

The three types of reciprocity described by Sahlins (1972) include generalized reciprocity, balanced reciprocity, and negative reciprocity. Generalized reciprocity is marked by indefinite immediacy and equality with exchange partners most concerned with the needs of their partner. Helping, generosity, and citizenship behaviors are examples of generalized reciprocity behaviors (Sparrowe & Liden, 1997). Thus, generalized reciprocity can be thought of as "giving". Balanced reciprocity reflects high immediacy, high equivalence, and mutual self-and-other interest. Examples of balanced reciprocity include equitable trades (Sparrowe & Liden, 1997). Balanced reciprocity, therefore, captures "matching". The final form of reciprocity as described by Sahlins is negative reciprocity. Negative reciprocity is similar to Gouldner's (1960) norm of retaliation. Negative reciprocations involve high immediacy, high equivalence, and exclusive self-interest (Sahlins, 1972; Sparrowe & Liden, 1997) and can be thought of as "taking".

A person's perceived reciprocity has important implications for their relationships with their peers. For example, people who are perceived as takers (i.e., negative reciprocity) may suffer from low status and respect in groups due to their tendency to ask

for favors without reciprocation (Flynn, 2003). Those who engage in generalized reciprocity or giving, however, can earn respect and prestige from their colleagues through their perceived generosity (Flynn, 2003).

The Study of Peer Social Exchange Relationships

Studies of peer relationships are fragmented across different streams of literature in the organizational sciences (e.g., social support from coworkers, coworker satisfaction, organizational citizenship behaviors, etc.) (Chiaburu & Harrison, 2008). Within these streams, there have been a variety of approaches to studying peer relationships. As noted by Chen and colleagues (2013), three common approaches can be identified: the averaged approach, the social network approach, and the relational approach. An averaged approach "lumps" all peers together as a single unit. For example, a measure that adopts the averaged approach may ask employees to respond to a series of items with "my coworkers" as the referent (Wang, Liu, Zhan, & Shi, 2010).

The second approach to studying peer social exchange is to adopt a social network perspective. Social network approaches examine the structure of peer relationships and the effects of ties among peers in relation to the larger social structure of coworkers (Bowler & Brass, 2006). To collect social network data, a researcher would need to ask all employees in a work unit or team about their connections (i.e., ties) with all other actors in the network. From there, structural measures can be computed such as centrality, density, distance, structural holes, etc.

The third approach to studying peer exchange is the relational approach, which is focused on the unique relationships between coworkers (Mas & Moretti, 2006). Unlike the averaged approach, the relational approach does not assume that an individual has

similar relationships with all peers and, instead, assumes that relationships are likely to vary across peers for a single individual.

One area of research that explicitly adopts the relational approach to peer social exchange relationships is the study of coworker exchange (CWX) (Sherony & Green, 2002) or coworker-employee exchange relationships (CEX: Chen et al., 2013). CWX is defined as exchanges among coworkers in the same workgroup (i.e., peers who report to the same leader) (Sherony & Green, 2002) whereas CEX is defined as "the quality of an exchange relationship between two employees (a coworker and an employee) that is built on work roles and aims at achieving common goals" (Chen et al., 2013, p. 1619). The construct of CWX/CEX (hereafter referred to as CWX) is closely related to other social exchange-based relationships such as team member exchange (TMX) and workgroup exchange (WGX). TMX and WGX, however, are averaged approaches that are focused on an individual's relationship with their peer group as a whole

Relatively little empirical research has examined CWX. However, results highlight the importance of relational peer social exchanges in the workplace. For example, in the seminal study by Sherony and Green (2002), the authors use a dispersion model of CWX (Chan, 1998) to demonstrate that variability in CWX across a focal employee's coworkers is negatively related to the focal employee's organizational commitment. More recent empirical findings come from Omilion-Hodges and Baker (2013), who found that an employee's perceptions of CWX were positively related to their reported willingness to share resources with a hypothetical colleague. Additionally, Chen and colleagues (2013) found that positive CWX relationships are negatively related to feelings of role ambiguity. The authors hypothesized that coworkers function as

information sharers/role senders who can reduce role ambiguity when the dyadic partners have high CWX (Chen et al., 2013). Specifically, when coworkers have a high-quality relationship (i.e., high CWX), the relational partner is more likely to understand the problems of their coworker and can help resolve issues and reduce uncertainties (Chen et al., 2013; Sherony & Green, 2002).

Interpersonal Perceptions

Interpersonal perceptions may be a function of group, perceiver (i.e., the person doing the ratings), target (i.e., the person being rated), and relationship effects (Christensen & Kashy, 2012; Kenny, 1994b; Kenny et al., 2001; Livi & Kenny, 2009; Livi et al., 2008; Snijders & Kenny, 1999). For example, an employee's conflict with another employee may have something to do with the group-level climate (e.g., everyone in the workgroup fights, so conflict is a regular occurrence). This conflict may also might be attributable to the qualities of the employee (e.g., the person may be low in agreeableness, which means that he fights with everyone he works with) or the qualities of the partner (e.g., she may ask a lot of other people, so everyone is upset with her). Finally, the conflict may be primarily driven by the unique relationship between the two people (e.g., differences between the two people may make them less likely to get along).

As noted by Livi and colleagues (2008), theories of human behavior in organizations often assume a level of analysis: individual, dyad, or group. Most multilevel approaches in the organizational sciences, however, do not consider all possible levels of analysis simultaneously and, at most, examine two levels of analysis. SRM, however, allows for all levels (group, person, and dyad) to be modeled simultaneously (Livi et al., 2008).

SRM data collection involves round-robin ratings of others in a group (i.e., each member of a group rates all other members of the group). The subsequent analysis produces five variables: group, perceiver, target, relationship, and error (Livi et al., 2008). Overall group, perceiver, target, relationship, and error *variance* are computed for the entire sample whereas perceiver, target, and relationship *effects* are specific to individuals and dyads.

Perceiver and target effects in SRM are individual-level variables because they refer to specific people (Kenny, 1994b). For example, imagine a study in which a researcher studied interpersonal perceptions of friendliness among a group of individuals (Bob, Andy, Haley, and Sabrina). Bob's perceiver effect captures his tendency to see all of his group members as friendly. Andy's target effect captures the degree to which all of the group members think Andy is a friendly person. In contrast to perceiver and target effects, relationship effects are dependent on the relational partners and reflect the unique dyadic aspect of perceptions among two dyadic partners (Christensen & Kashy, 2012). Relationship effects capture the unique rating of one person by another, after taking into account perceiver effects, target effects, and error. Finally, group effects reside at the group level of analysis and reflect the average level of a perception in a group (Christensen & Kashy, 2012).

In addition to perceiver, target, and relationship *effects*, SRM analyses estimate the amount of *variance* in an entire sample that are due to the perceiver, target, dyadic, and group effects. The focus of many SRM studies is not on who has a larger or smaller perceiver or target effects, per se, but instead on the extent to which individuals *differ* in their perceiver or target effects (Kenny, Kashy, & Cook, 2006). For example, perceiver

variance captures the variation among perceivers in their average ratings of a target (Christensen & Kashy, 2012), which also can be used as a measure of assimilation (i.e., the tendency of perceivers to rate all targets similarly) (Christensen & Kashy, 2012; LeDoux et al., 2012). Target variance, also considered a measure of consensus, captures the degree to which individuals (i.e., targets) are seen similarly among perceivers (Christensen & Kashy, 2012; LeDoux et al., 2012). Dyadic variance captures the degree to which dyadic scores differ depending on the two people in the dyad, after partialing out the variance of each dyadic partner that is attributable to the perceiver and target effects of each person (Christensen & Kashy, 2012). Therefore, dyadic variance can be considered a measure of unique relations (LeDoux et al., 2012).

Sources of Variance in Reciprocity Perceptions

Perceiver variance in reciprocity perceptions. When judging peers as reciprocators, people may have overarching perceptual tendencies (i.e., a perceiver effect). Drawing from research on close relationships, social cognitive approaches to relationships acknowledge two broad classes of relationship-relevant knowledge structures (Fletcher & Thomas, 1996). These two levels include the general level and the specific, relational level. The general level includes "individuals' theories and beliefs about close relationships in general and includes implicit theories, ideal standards, and global attachment working models… these general relationship theories predate any given relationship and are likely to be causally related to judgments and decisions made in on-going relationships" (Thomas, Martin, Epitropaki, Guillaume, & Lee, 2013, p. S65). This general level of knowledge regarding relationships is something that is specific to each individual and can be the result of past experiences and relationships with

others (e.g., attachment theories) as well as dispositions and attitudes (Fletcher & Thomas, 1996). In support of the idea that perceptions of colleagues may be influenced by perceiver effects, Greguras and colleagues (2001) found significant perceiver effects in coworker evaluations of peer cooperation, effort, ideas, quality, reliability, and overall performance. Therefore, individuals may also have a general tendency to perceive reciprocity in a certain way across their coworkers (i.e., significant perceiver variance).

Target variance in reciprocity perceptions. In addition to perceiver variance, prior research on peer colleagues has demonstrated that certain people also tend to elicit certain types ratings from their peers (i.e., significant target variance). For example, Greguras and colleagues found significant target variance in coworker perceptions of cooperation, reliability, ideas, and overall performance (2001). Thus, given that peer ratings of these constructs demonstrate significant target variance, it is possible that other perception-based ratings of peers may also demonstrate significant target variance.

Theoretically, support for this notion can be found in much of the extant work on the stable, dispositional antecedents of interpersonal behavior. Specifically, trait theory (Buss, 1989; McCrae & John, 1992) describes the manner in which stable traits predict behavioral consistency in people. Additionally, the behavioral concordance model (Moskowitz & Coté, 1995) focuses on the congruence between underlying traits and observed behavior, and describes how the behavior of individuals matches their underlying individual characteristics. These theoretical approaches suggest that people tend act in certain ways based on their individual differences. These individual differences and trait-congruent behaviors may then, in turn, create a level of perceptual consistency among peers (i.e., significant target variance).

Relational variance in reciprocity perceptions. Drawing on the relational approach to peer exchange relationships (Chen et al., 2013), reciprocity perceptions among colleagues are also expected to be, in part, due to the particular dyadic relationship between peers. For example, empirical research suggests that reciprocation differs depending on the exchange partner (McNeely & Meglino, 1994). Therefore, despite an individual's general tendency to perceive reciprocity in a consistent manner across peers, and the general tendency of certain colleagues to evoke certain reciprocity perceptions from others, I expect that perceptions of generalized reciprocity, balanced reciprocity, and negative reciprocity are also dependent on the unique relationship between peers (i.e., significant relationship variance). Additionally, given the dyadic and relationship-specific nature of reciprocity, I anticipate that relationship variance will explain the largest proportion of variance in reciprocity perceptions. Thus, I propose the following:

> Hypothesis 1: Relationship variance, as compared to perceiver and target variance, accounts for the largest proportion of variance in perceptions of a) generalized reciprocity, b) balanced reciprocity, and c) negative reciprocity.

Drivers of Perceiver, Target, and Relationship Effects for Reciprocity Perceptions

Exchange ideology. Scholars have suggested that reciprocity can be the function of moral norms and individual differences (Cropanzano & Mitchell, 2005). Specifically, people may vary regarding the extent to which they expect and favor reciprocity in their exchanges (Clark & Mills, 1979; Murstein et al., 1977). This individual difference is referred to as exchange ideology (Eisenberger et al., 1986) or personal norms of reciprocity (Gallucci & Perugini, 2003; Perugini & Gallucci, 2001; Perugini et al., 2003). People who are high in exchange ideology tend to keep track of obligations (i.e., engage

in score keeping) whereas those who are low in exchange ideology do not keep track of obligations and are less likely to care if something is not reciprocated (Cropanzano & Mitchell, 2005). Studies in perceived organizational support have demonstrated that individuals with high exchange ideology are more likely to reciprocate good deeds than those who are low in exchange ideology (Eisenberger et al., 2001; Eisenberger et al., 1986; Orpen, 1994; Witt, 1991). Additionally, those with a strong exchange ideology are more likely to perceive that they are unfairly being taken advantage of, even in fair exchanges (Molm, Peterson, & Takahashi, 2003). Because of the tendency of those high in exchange ideology to see others as debtors to them and to perceive unfair treatment in exchanges (Coyle-Shapiro & Neuman, 2004), I do not expect that these individuals will tend to perceive their peers as high in generalized or balanced reciprocity. Instead, and because those high in exchange ideology are likely to believe that they are receiving less than what they are owed, I expect that they will have a general tendency to perceive negative reciprocity among their peers and will be less likely to perceive generalized or balanced reciprocity. Therefore, I suggest the following regarding perceiver effects:

> Hypothesis 2: Exchange ideology is a) positively related to negative reciprocity perceiver effects and b) negatively related to generalized and balanced reciprocity perceiver effects.

Additionally, I expect that score-keeping behavior and obligation tracking are likely to have an effect on the way in which peers perceive those who are high in exchange ideology. Because those high in exchange ideology expect immediate and direct reciprocity in their interactions and desire this in their relationships (Redman & Snape, 2005), I anticipate that those individuals who are high in exchange ideology are

likely to evoke negative reciprocity or balanced reciprocity perceptions from others. This is because negative and balanced reciprocity are marked by high immediacy and high equivalence (Sahlins, 1972). Therefore, I suggest the following regarding target effects:

Hypothesis 3: Exchange ideology is positively related to a) negative reciprocity and b) balanced reciprocity target effects.

Conscientiousness. In addition to exchange ideology, other individual differences, such as personality, may be important when examining reciprocity perceptions among peers. Conscientiousness, in particular, has been linked with interpersonal behavior such as helping coworkers (Kamdar & Van Dyne, 2007), which can be considered a type of generalized reciprocity. It remains unknown, however, how conscientiousness might impact general perceptual tendencies when evaluating exchange relationships (not self-reported exchange behaviors). Therefore, I examine conscientiousness as a relevant individual difference variable and suggest that those who are high in conscientiousness are likely to evoke specific reciprocity perceptions from their colleagues (i.e., target effects).

Individuals who are high in conscientiousness are responsible, dependable, careful, and organized (Mount & Barrick, 1995). Prior empirical research has demonstrated a positive relationship between conscientiousness and task performance (Gellatly, 1996) in addition to interpersonal exchange behaviors such as citizenship (Hattrup, O'Connell, & Wingate, 1998; LePine & Van Dyne, 2001; Van Scotter & Motowidlo, 1996) and helping behaviors (Kamdar & Van Dyne, 2007). Conscientiousness has also been linked to higher levels of altruism (Konovsky & Organ, 1996). Individuals who are higher in conscientiousness are also more likely to engage in

helping behaviors, cooperation, and volunteer for extra work, particularly when it comes to helping group members in a team or other coworkers (Kamdar & Van Dyne, 2007; LePine & Van Dyne, 2001; Motowidlo & Van Scotter, 1994; Van Scotter & Motowidlo, 1996). Therefore, I anticipate that conscientious individuals will evoke perceptions from their peers that they are interested in the benefit of their exchange partners and that they do not expect immediacy or equivalency in returns. In line with this reasoning, prior empirical research on social support has demonstrated that conscientious people tend to be perceived as more supportive (Lakey, Ross, Butler, & Bentley, 1996). Therefore, I suggest the following regarding target effects:

Hypothesis 4: Conscientiousness is positively related to generalized reciprocity target effects.

Gender. In addition to the aforementioned dispositional differences, I also anticipate that demographic differences among peers may also play an important role in general tendencies to perceive and evoke specific types of reciprocity among colleagues. Gender role theory suggests that females are often associated with traits such as altruism and helping (Gilligan, 1988; Held, 1990; Ridgeway, 1991). Thus, scholars of organizational citizenship behavior have suggested that altruism (i.e., generalized reciprocity) may be expected from females and those in "feminine" occupations (Kidder & Parks, 1993). Empirical research, however, has failed to find a significant difference in self-reported altruistic citizenship behaviors between men and women (Kidder, 2002), with meta-analytical evidence that men may engage in more helping behaviors than women (Eagly & Crowley, 1986). More recent research on coworker reciprocity

however, has highlighted the importance of gender in reciprocity perceptions (not behaviors) among coworkers (Flynn, 2005), Specifically, and as noted by Flynn (2006):

> … favors performed by women were not valued as highly as favors performed by men. Instead, employees who received favors from female coworkers assumed that these women were altruistic by nature and therefore felt less obligated to offer reciprocation. Moreover, help from women was requested more frequently because it was less painful and awkward for coworkers to impose on female colleagues whom they assumed were more willing to offer assistance. This led to an asymmetric pattern of exchange in which women were continually sought out for help, but such help did not elicit full reciprocation. In this case, female employees may have been cooperating more frequently, but this increased incidence of cooperation might also lead them to develop feelings of frustration and enmity (Flynn, 2005, p. 135).

Due to the exchange asymmetries that are likely to occur with female colleagues, I suggest that females may evoke perceptions of generalized reciprocity from their peers (i.e., significant generalized reciprocity target effects) while simultaneously perceiving negative reciprocity from their peers (i.e., significant negative reciprocity perceiver effects) due to the imbalance of exchanged resources. Therefore, I suggest the following regarding target effects and perceiver effects:

> Hypothesis 5: Gender is related to generalized reciprocity target effects such that females are more likely than males to have higher a) generalized reciprocity target effects and b) negative reciprocity perceiver effects.

All hypothesized relationships at the individual level are represented in Figure 1.

Perceived similarity. Thus far, I have proposed a series of antecedents of perceiver and target effects in peer reciprocity perceptions. The final source of variance underlying interpersonal perceptions in the social relations modeling framework, is the relationship effect. Relationship effects capture the unique relationship between the partners (LeDoux et al., 2012), after accounting for the perceiver and target effects of each person (Christensen & Kashy, 2012). In regard to reciprocity perceptions,

relationship effects reflect the extent to which person A perceives that person B engages in generalized, balanced, or negative reciprocity after controlling for person A's general tendency to perceive generalized, balanced, or negative reciprocity and also controlling for person B's general tendency to evoke perceptions of generalized, balanced, or negative reciprocity from others. Thus, the relationship effect is a unique measure of reciprocity perceptions that is specific to each dyad and combination of perceiver and target. To understand one of the possible antecedents of these relationship effects, I examine the role of perceived similarity as a predictor of reciprocity relationship effects among peers. I draw from social identity theory (Tajfel, 1978; Tajfel & Turner, 1979), the similarity-attraction paradigm (Byrne, 1971) and the attraction-selection-attrition (ASA) model (Schneider, 1987) to inform my predictions.

According to social identity theory, SIT (Tajfel, 1978; Tajfel & Turner, 1979), people categorize themselves and similar others in "in-groups" and dissimilar others into "out-groups" based on their outwardly observable characteristics. To maintain and enhance their own identity and self-esteem, people tend to favor others who have similar characteristics and belong to their same in-group (Hogg & Terry, 2000; Tajfel & Turner, 1979; Turner, 1985). In support of this idea, prior research has demonstrated that people perceive those in the out-group as less cooperative, honest, and trustworthy than members of their own in-group (Turner, 1982).

In addition to outwardly observable characteristics, peers may be similar to each other on deep-level characteristics (i.e., personality and other unobservable characteristics). To explain the effects of deep-level similarity among peers, I turn to the similarity-attraction paradigm (Byrne, 1971) and the attraction-selection-attrition (ASA)

model (Schneider, 1987). Specifically, the ASA model and similarity-attraction paradigm suggest that people are drawn to others who are similar to them in terms of psychological characteristics. This is because deep-level similarity is suggested to facilitate communication and interaction between individuals while also reinforcing and verifying one's own beliefs, attitudes, personality, etc. In contrast, dissimilar group members may find it more difficult to communicate and interact with their peers and may feel less attached to their colleagues.

Because certain types of reciprocity involve more risk and require more trust between relational partners (i.e., generalized reciprocity relies on loose, implicit expectations of repayment at some unspecified point in the future), I anticipate that perceived similarity between peers will result in different perceptions of the target's reciprocity. Specifically, I expect that peers will perceive generalized reciprocity from similar others because of their assumed cooperative and trustworthy nature (Turner, 1982). If a peer is similar and, in turn, trusted, it is more likely that person will be perceived a generalized reciprocator. In line with this reasoning, prior research has demonstrated that people are perceived as being more supportive if they are similar to others (Lakey et al., 1996). I also suggest that similar others will be less likely to be perceived as engaging in balanced or negative reciprocity due to their trusted, in-group status. Therefore, I suggest the following in regard to relationship effects:

> Hypothesis 6*:* Perceived similarity is a) positively related to relationship-specific perceptions of generalized reciprocity and negatively related to relationship-specific perceptions of a b) balanced and c) negative reciprocity.

These hypothesized relationships at the dyad level are presented in Figure 2.

Dyadic Agreement in Reciprocity Perceptions

Up until this point, I have examined the drivers of the different sources of variance in interpersonal perceptions (i.e., perceiver, target, and relationship effects). One of the unique features of SRM data collection and analyses, however, is the ability to examine agreement/similarity in perceptions among dyadic partners (Kenny, 1994b). In the following section, I examine the effects of similar perceptions between dyad members regarding reciprocity. Specifically, I address the overarching research question: How might similarity/agreement in reciprocity perceptions among dyad members influence affective relational perceptions?

Recent work in leader-member exchange has drawn on a relational approach to cognition, shared reality theory, to help explain the effects of similar and dissimilar relationship perceptions between exchange partners (Gooty & Yammarino, 2013). Shared reality theory postulates two fundamental tenets. First, the "establishment and maintenance of social relationships requires shared reality" (Hardin & Conley, 2001, p. 9). This suggests that relationships are created and maintained to the extent that a shared reality is achieved between relationship partners and that relationships dissolve to the extent that a shared reality is not achieved (Hardin & Conley, 2001). The second tenet of shared reality theory is that "the establishment and maintenance of individual experience requires shared reality" (Hardin & Conley, 2001, p. 9). Therefore, and according to Hardin and Conley, cognitions are created and sustained to the degree that they are recognized, corroborated, and shared with others (2001). Shared reality, therefore, is defined as "interpersonally achieved perceptions of common experience" (Hardin & Conley, 2001, p. 10). As noted by Hardin and Conley, the experience of shared reality is

not always pleasant and that it is possible for two relational partners to share an unpleasant experience. The shared reality, however, is required to cement the dyadic social relationship, whether the relationship is positive or negative.

In support of the underlying logic of shared reality theory, research on romantic partner relationships has demonstrated that consistency in relationship perceptions among partners is essential for rewarding relationships. Specifically, when romantic partners view their relationships differently, this may lead to feelings of uncertainty, with partners questioning the closeness of the relationship (Connolly & McIsaac, 2008). This could contribute to worry regarding the state of the relationship and perceptions that one relational partner may abandon or reject the other partner (Connolly & McIsaac, 2008). Therefore, dissimilar relationship perceptions can result in negative affective outcomes (Knobloch, Solomon, & Cruz, 2001), whereas similar perceptions may result in less uncertainty.

Drawing on these scholarly approaches I, therefore, suggest a somewhat counter-intuitive hypothesis. Specifically, I suggest that regardless of the type of perceived reciprocity, if peers have similar perceptions of each other's reciprocity, this will result in higher levels of desired relationship continuance. For example, even if two colleagues perceive negative reciprocity in one another, the congruence in their perceptions should result in less uncertainty between them. Therefore, two peers who both engage in negative reciprocity with each other could simultaneously be using each other for their own self-interest, are aware of this, and are content with that relationship. In contrast, I anticipate that the underlying uncertainty that accompanies incongruent reciprocity

perceptions will likely result in a desire to dissolve the dyadic relationship due to the lack of a shared reality. Thus, I suggest the following:

> Hypothesis 7: Agreement in peer perceptions of a) generalized reciprocity, b) balanced reciprocity, and c) negative reciprocity is positively related to desired relationship continuance.

To test these hypotheses, two separate studies were conducted. In Study 1, I re-worded and evaluated the factor structure of a measure of generalized, balanced, and negative reciprocity perceptions that was first developed by Sparrowe in the context of LMX relationships (1998). In Study 2, I used the measure from Study 1 in a round-robin design to test the hypotheses.

SUMMARY OF HYPOTHESES

Hypothesis 1: Relationship variance, as compared to perceiver and target variance, accounts for the largest proportion of variance in perceptions of a) generalized reciprocity, b) balanced reciprocity, and c) negative reciprocity.

Hypothesis 2: Exchange ideology is a) positively related to negative reciprocity perceiver effects and b) negatively related to generalized and balanced reciprocity perceiver effects.

Hypothesis 3: Exchange ideology is positively related to a) negative reciprocity and b) balanced reciprocity target effects.

Hypothesis 4: Conscientiousness is positively related to generalized reciprocity target effects.

Hypothesis 5: Gender is related to generalized reciprocity target effects such that females are more likely than males to have higher a) generalized reciprocity target effects and b) negative reciprocity perceiver effects.

Hypothesis 6: Perceived similarity is a) positively related to relationship-specific perceptions of generalized reciprocity and negatively related to relationship-specific perceptions of a b) balanced and c) negative reciprocity.

Hypothesis 7: Agreement in peer perceptions of a) generalized reciprocity, b) balanced reciprocity, and c) negative reciprocity is positively related to desired relationship continuance.

STUDY 1: METHOD

Sample and Data Collection

Individuals who were are a) at least 18 years old and b) worked with at least one other peer colleague (i.e., not a supervisor or a subordinate) met the minimum qualifications for the sample. Because the purpose of this study was to understand the factor structure of Sparrowe's (1998) reciprocity measure with modified item referents (i.e., referents changed from "supervisor" to "person"), a cross-sectional sample of working adults who worked with a peer fit the inclusion criteria. This was the sample for Study 1.

To recruit participants, I used a convenience sample with a snowball procedure (Martins, Eddleston, & Veiga, 2002; Tepper, 1995). The first step in the data collection involved email solicitation of my personal networks to find as many qualified participants as possible who were willing to complete an online survey. Second, respondents from my personal network were also asked to email the survey to others who may qualify. To track the response rate, individuals in my network were asked to either a) cc or bcc me on any emails that they sent to others or b) report to me the total number of people that they emailed. A total of 546 emails were sent out using this procedure. An incentive was offered to those who completed the survey and participants were entered into a drawing to win one of three Target gift cards (one $100 gift card and two $50 gift cards). Of those 546 people who were originally solicited, 264 people completed the survey (48% response rate).

Of the 264 participants, 42% were male and 58% were female. The ages of the participants ranged from 19-68 years old, with an average age of 34 years old.

Approximately 13% were 19-25 years old, 56% were 26-35 years old, 13% were 36-45 years old, 9% were 46-55 years old, and 9% were 56-68 years old. Approximately 55% of the respondents reported having no subordinates, 28% reported that they managed one level of subordinates, and 18% indicated that they managed two or more levels of subordinates. Respondents worked in a variety of different industries with the largest number of participants working in education (14%), healthcare (11%), finance and banking (7%), retail (6%), and information technology (5%).

Measures

Participants were asked to think of a workplace colleague when responding to the survey items. The respondents were instructed to think of a peer, not a supervisor or subordinate. Participants were asked to type the initials of this colleague at the beginning of the survey and to think of this same colleague when responding to all survey items. The items are presented in Appendix C.

Reciprocity. A modified version of Sparrowe's (1998) measure of generalized, balanced, and negative reciprocity was used. The referent for these items was changed from "supervisor" to "person". Sample items include "This person would help me out even if there were nothing in it for him/her" (generalized reciprocity), "If this person does something extra for me, he/she expects me to do something of equal value for him/her in return" (balanced reciprocity), and "This person does not keep his/her end of the bargain" (negative reciprocity). Participants responded on a 7-point scale (*1 = strongly disagree, 7 = strongly agree).*

Perceived similarity. A modified two-item measure developed by Sprecher and colleagues (2013) was used to assess perceived similarity. The items are as follows:

"How much do you think you have in common with this person?" and "How similar do you think you and this person are?" Both items were rated on a 5-point scale, with slightly different response options for the first item (*1= nothing or almost nothing, 5 = a great deal)* and the second item (*1= not at all, 5 = a great deal).*

Desired relationship continuance. Each participant also rated the extent to which he or she would want to work with their peer colleague in the future. These perceptions were assessed on a seven-point scale (*1= strongly disagree, 7= strongly agree)* using three items developed by Ohland et al. (2012). These items included "I would gladly work with this individual in the future", "If I were selecting members for a future work team, I would pick this person", "I would avoid working with this person in the future" (reverse scored).

STUDY 1: RESULTS

I conducted a series of confirmatory factor analyses (CFA) to evaluate the factor structure of the reciprocity items. Analyses were conducted using Mplus 6.11 software (Muthen & Muthen, 1998-2012) with maximum likelihood estimation. I tested a one-factor model (all types of reciprocity loading on the same latent factor), a two-factor model (balanced and negative reciprocity loading on one factor and generalized reciprocity on a separate factor), and a three-factor model (generalized, balanced, and negative reciprocity loading on separate factors). These models are illustrated in Figures 3-6.

For each model, I examined the chi-square values and commonly used indices of fit, including the comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA). Adequate fit is demonstrated when the CFI and TLI indices exceed .90 while RMSEA is less than .08 (Hu & Bentler, 1999). The fit indices for the CFA analyses are presented in Table 1.

All three models had high and statistically significant factor loadings (>.51, p <.01). See Tables 2-4 for the standardized factor loadings. Based on the fit statistics, however, the three-factor model provided the best fit to the data when compared to the one-factor and two-factor models. The CFI (.99) and TLI (.98) for the three-factor model were above the recommended cutoffs of .90 and the RMSEA (.05) was below the recommended cutoff of .08. All items in the three-factor model loaded on their predicted factors, with all of the standardized loading large and significant (.51-.93, p <.01). The correlations between the latent factors, however, were quite high (see Table 5). Specifically, the latent factor correlation between generalized and negative reciprocity

was -.87, the correlation between generalized and negative reciprocity was -.90, and the correlation between balanced and negative reciprocity was .86. Therefore, although the fit statistics indicate that the three-factor model is the best fitting model for the data, there is evidence that there is a substantial amount of multicollinearity among the three factors. Additionally, the average variance extracted (AVE) for each of the factors was smaller than the shared variance between the latent factors (AVE generalized = .63, AVE balanced = .61, AVE negative = .64, shared variance between latent factors ranged from .74-.81), which does not provide evidence of discriminant validity.

Due to this multicollinearity, I also tested a model which includes a general factor in addition to multiple unique factors (Reise, 2012). This model is illustrated in Figure 6. In a general and unique factors model (GUFM), each indicator is allowed to simultaneously load onto two distinct latent variables: a general factor that reflects the common variance among all items and one, and only one, unique factor that reflects additional common variance among a specific group of items (Reise, 2012). In a GUFM model, the general and unique factors are assumed to be orthogonal and are, thus, uncorrelated (Reise, 2012).Thus, a GUFM model is not a higher-order (or second order) model but is more similar to models that have been used in prior research to test for common method variance (e.g., the general factor is a method factor and the unique factors capture remaining variance). One of the applications of a GUFM model, and its purpose in this study, is to evaluate the usefulness of creating subscales. In this research, the general factor represents an overarching, broad construct (not a method) and each unique factor represents a specific type of reciprocity.

The fit statistics for the GUFM model are also presented in Table 1. When

compared to the three factor model, the fit indices remained the same (CFI = .99, TLI = .98, RMSEA = .05) and the change in the chi-square statistic was non-significant ($\Delta\chi^2$ (8) = 15.16, n.s.). The factor loadings, however, are particularly informative to examine in a GUFM model (see Table 6). All of the standardized factor loadings on the general factor were strong and significant (.52-.85, p <.01). Additionally, all but three of the indicators also significantly loaded on the specified grouping factor while simultaneously loading on the general factor. Due to the significant loadings on the general and the unique factors, this provides some support for the creation of subscales.

Overall, the results from Study 1 do not paint a clear picture of the factor structure for the re-worded version of Sparrowe's (1998) reciprocity measure. The findings from the CFA analyses indicate that there is shared variance that is common to all items; however, support can also be found for the creation of subscales. Due to these results, the three reciprocity types were kept as separate subscales and also combined into an overall reciprocity composite (with balanced and negative reciprocity reverse-coded when combined with generalized reciprocity).

The descriptive statistics and intercorrelations for the three types of reciprocity and the reciprocity composite are presented in Tables 7 and 8. The alpha coefficients for all scales ranged from .83-.94. Aside from the high intercorrelations between the three reciprocity types, the correlation between desired relationship continuance (DRC) and reciprocity was unexpectedly high (r = .81, p <.01). Due to this high correlation, I conducted an additional series of CFA analyses with the reciprocity and DRC items. I tested a one-factor model (all reciprocity items and DRC items loading on the same latent

factor) and a two-factor model (reciprocity items loading on one factor and DRC on a separate factor). The fit indices for these CFA analyses are presented in Table 9.

Based on the fit statistics, the two-factor model provided the better fit to the data when compared to the one-factor model. The CFI (.95) and TLI (.95) for the two-factor model were above the recommended cutoffs of .90 and the RMSEA (.08) was at the recommended cutoff of .08. The standardized factor loadings for all models are presented in Tables 10-12. All items in the two-factor model loaded on their predicted factors, with all of the standardized loadings large and significant (.51-.96, $p < .01$). The latent factor correlation, however, was high (.86). Therefore, although the fit statistics indicate that the two-factor model is the best fitting model for the data, there is evidence that there is a substantial amount of multicollinearity among the two factors.

Due to the high latent factor correlation, I again tested a GUFM model with one general factor and separate unique factors (one for reciprocity, one for DRC). The fit indices for the GUFM model were improved from the two-factor model (CFI = .98, TLI = .97, RMSEA = .06) and the change in the chi-square statistic was significant ($\Delta\chi^2$ (13) = 89.09, $p < .01$). All of the DRC items had relatively high loadings on the DRC unique factor (.36-.49, $p < .01$) while also simultaneously loading on the general factor (.80-.86, $p < .01$). These results suggest that although there is variance common to the reciprocity items and the DRC items, the separate factors explain additional covariance.

STUDY 2: METHOD

Sample and Data Collection

Individuals who were a) at least 18 years old and b) worked with at least 3 peers (who, in turn, interact with each other) met the minimum qualifications for Study 2. Undergraduate project teams fit the inclusion criteria and were used as the sample for Study 2. Although student teams have been criticized in past research (Salas, Burke, & Fowlkes, 2006; Wildman et al., 2012), the use of a student sample for this study was appropriate because of the focus on interpersonal perceptions and individual characteristics that are not assumed to be dependent on a particular type of organizational context (Greenberg, 1987).

Seven (7) instructors who taught undergraduate course sections at two public universities in the Southeastern United States agreed to offer extra credit to their students in exchange for their participation in the study. These students completed semester-long group projects as part of their course grades. The projects included research projects, community service engagements, designing new products, and business simulations. A description of each project is presented in Appendix E. All projects required students to work together in groups for at least six weeks and the outcomes of the projects impacted students' final grades in the course. The weighting of the group projects ranged from 21-40% of the students' final grades.

The opportunity to participate in the research was advertised to a total of 501 undergraduate students who were nested within 107 different groups across 16 different course sections. Responses from participants were collected at two points in the semester via online surveys. For the first survey, 435 students (87% response rate) responded to

measures of individual differences: exchange ideology, personality and gender. Participants also listed identifying information including their name, email address, and the names of their group members. The first survey was emailed to students approximately 6-9 weeks after groups were formed. The average group tenure at Survey 1 was 7.45 weeks.

Two weeks after the completion of Survey 1, all 435 students who participated in Survey 1 were emailed a link to Survey 2. Of those participants, 396 students from 107 groups participated in Survey 2. Therefore, 80% of the sample completed both Survey 1 and Survey 2. The average group tenure at the time of Survey 2 was approximately 9.45 weeks (7.85 week minimum, 12 week maximum). Survey 2 was a round-robin rating survey that was customized for each group (i.e., the names of each group's members were pre-populated into the survey). Participants were instructed to provide ratings for each of their teammates regarding reciprocity, perceived similarity, and desired relationship continuance. They were also asked to provide their name and email address so that their responses could be matched from Survey 1.

Of the 396 participants who completed both surveys, 48% were female. In regard to University representation, 66% of the participants were students from University A and 34% of the participants were students from University B. The participants ranged in age from 19-54 years old with an average age of 23 years old. Approximately 87% of the participants were between the ages of 19-25, 10% were between the ages of 26-35, 3% were between the ages of 36-45, and 1% of the participants were older than 46. In terms of ethnicity, 66% were Caucasian, 20% African American, 8% Hispanic/Latino, 5% Asian, 1% Indian, 1% Middle Eastern, and 3% identified as "other".

Measures

The measures for Study 2 are identical to Study 1 with the addition of exchange ideology and personality. All items are presented in Appendix C and a copy of Survey 2 is included in Appendix G.

Exchange ideology. Participants responded to Eisenberger and colleagues' (1986) five-item measure of exchange ideology. A sample item is "An employee who is treated badly by the organization should lower his or her work effort". Although the item referents are at the organizational level, exchange ideology captures the extent to which people believe in the norm of reciprocity (i.e., that they should help those who have helped them) (Eisenberger et al., 1986). Participants responded to each item on a 5-point, Likert-type scale (*1= strongly disagree, 5 = strongly agree*).

Personality. Although conscientiousness was the only personality variable with a hypothesized relationship, all Big Five personality traits were assessed using Saucier's (1994) mini-markers. This measure is a 40-item adjective checklist with eight adjectives for each of the Big Five traits. For example, extraversion was measured using the following adjectives: talkative, extroverted, bold, energetic, shy (R), quiet (R), bashful (R), and withdrawn (R). Participants rated how well each of the items described them on a 7-point scale (*1 = very inaccurate, 7= very accurate).*

STUDY 2: RESULTS

Factor Structure of Reciprocity Items

The descriptive statistics and intercorrelations for the reciprocity items are presented in Table 13. Similar to Study 1, I conducted a series of CFA analyses to examine the factor structure of the reciprocity items. These analyses were conducted using Mplus 6.11 software (Muthen & Muthen, 1998-2012) with maximum likelihood estimation. It should be noted, however, that the CFA analyses for the reciprocity items in Study 2 were conducted using the round-robin peer ratings with multiple ratings per rater (N = 1,557 ratings from 396 individuals). Although these ratings were non-independent (i.e., ratings were simultaneously nested within raters, targets, dyads, and groups), the complex structure of the data did not lend itself to any of the currently developed procedures for multilevel (i.e., two-level) CFA (Chou, Bentler, & Pentz, 2000; Liang & Bentler, 2004; Muthén, 1994). For example, data with only one level of nesting would be appropriate for existing two-level CFA procedures (e.g., employees nested within teams, subordinates nested within leaders), whereas the data in the current research is simultaneously nested within multiple levels (i.e., perceivers, targets, relationships, and groups.

I tested a one-factor model (all types of reciprocity loading on the same latent factor), a two-factor model (balanced and negative reciprocity loading on one factor and generalized reciprocity on a separate factor), a three-factor model (generalized, balanced, and negative reciprocity loading on separate factors), and a GUFM model with one general factor and three unique factors (one unique factor for each type of reciprocity). The fit indices for the various CFA models are presented in Table 14. The standardized

factor loadings for each model are presented in Tables 15-18 and the latent factor correlations for the two-factor and the three factor model are presented in Tables 19 & 20.

All of the models had relatively high (>.40, p <.01) and statistically significant standardized factor loadings for all items on their specified factors. Based on the fit statistics, the GUFM model and the three-factor model provided the best fit to the data when compared to the one-factor and two-factor models. For the GUFM model the CFI (.97) and TLI (.95) were above the recommended cutoffs of .90 and the RMSEA (.07) was below the recommended cutoff of .08 (Vandenberg & Lance, 2000). All items in the GUFM model, with the exception of one, significantly loaded on both the general factor and its' specified unique factor.

For the three-factor model, the fit indices were in-line with recommended cutoff values (CFI = .96, TLI = .95, RMSEA = .07). In order to compare the magnitude of the latent factor correlations for the three-factor model in Study 2 with the latent factor correlations for the three-factor model in Study 1, I conducted a multi-group analysis of the equality of covariance matrices (Diefendorff, Silverman, & Greguras, 2005; Vandenberg & Lance, 2000). This is a fully constrained model that assesses the overall measurement equivalence across different groups/samples. The fit indices for this model were in-line with the recommended cut-offs by Vandenberg and Lance (2000) (CFI = .96, TLI = .96, RMSEA = .07, χ^2 (104) = 566.43, p < .01). This provides evidence that the ratings for the three-factor model are conceptually and psychometrically equivalent across the two samples (Diefendorff et al., 2005).

For Study 2, the latent factor correlations for the three-factor model were smaller in magnitude than what was found in Study 1, but were still relatively high. For example, the latent factor correlation between generalized and balanced reciprocity was -.54, -.66 between generalized and negative reciprocity, and .71 between balanced and negative reciprocity. For Study 2, however, the average variance extracted (AVE) for each of the factors in the three factor model was larger than the shared variance between the latent factors (AVE generalized = .61, AVE balanced = .51, AVE negative = .58, shared variance between latent factors ranged from .29-.50), which is different from Study 1 and provides some evidence of discriminant validity.

Together, these CFA results for Study 2 indicate that although there is shared variance across the three types of reciprocity, the use of subscales does account for additional variability that is unique to each specific type of reciprocity. These findings, combined with the results from Study 1, provide support for Sahlin's "continuum" of reciprocity (1972). Specifically, although generalized, balanced, and negative reciprocity are theorized to be distinct, they are also conceptualized to exist on a single continuum. Therefore, for all subsequent analyses, I examined the three types of reciprocity as separate scales and also as one combined "reciprocity composite" scale.

The descriptive statistics and intercorrelations for the round-robin scales are presented in Tables 21 & 22. All scales had alpha coefficients ranging from .80 to .92. The correlations between DRC and generalized reciprocity (r= .73, p<.01) and DRC and negative reciprocity (r= -.70, p <.01) were strong and significant. The correlation between DRC and the reciprocity composite was even larger in magnitude (r=.74, p<.01).

These correlations mirrored the intercorrelations from Study 1. Due to these high correlations, I conducted an additional CFA with the reciprocity and DRC items.

I tested a one-factor model (all reciprocity items and DRC items loading on the same latent factor), a two-factor model (reciprocity items loading on one factor and DRC on a separate factor), and a GUFM model. The fit indices for these CFA analyses are presented in Table 23 and the standardized factor loading s are presented in Tables 24-26. None of the models fit the data particularly well but the GUFM model provided the best fit (CFI = .91, TLI= .87, RMSEA = .12) when compared with the one-factor and the two-factor models. The latent factor correlation for the two-factor model was .86, which also suggests that there is a large amount of shared variance between the reciprocity and DRC items. All of the DRC items had significant loadings on the DRC unique factor (.31-.48, $p < .01$) in addition to the general factor (.68-.85, $p < .01$). These results suggest that although there is variance common to the reciprocity items and the DRC items, the separate factors explain additional covariance. Therefore, the DRC items were kept as a separate scale in all subsequent analyses.

Hypothesis 1

To test Hypothesis 1, SRM analyses were conducted in R using the TripleR software package (Schönbrodt, Back, & Schmukle, 2012). SRM accounts for the nested structure of the data with responses from individuals, who are, in turn, nested in dyads within a group. SRM has some restrictions, however. First, a minimum of 4 participants with complete round-robin ratings are needed per group (Christensen & Kashy, 2012). Therefore, only participants who completed both Survey 1 and Survey 2 were included in the SRM sample if they were also a member of a group with at least three other people

who completed both Survey 1 and Survey 2. Based on this requirement, the final sample for SRM and all subsequent analyses was 278 individuals nested within 520 dyads in 61 groups (average group size = 4.56 people). The demographic composition of this reduced sample was similar to the larger sample.

Another restriction of SRM analyses using the TripleR package is that each latent variable can each only have two indicators (Schönbrodt et al., 2012). Because of the restriction on indicators, I used item parcels for the reciprocity types and DRC. All other measures were comprised of only two indicators and did not need to be parceled. To create the item parcels, I used the method suggested by Hall and colleagues (Hall, Snell, & Foust, 1999). Specifically, I conducted an exploratory factor analysis in SPSS (principal axis factoring with an oblique rotation) using all items from each scale while constraining the number of factors to two. The items with the highest loadings on the same factor were combined into the same parcel (Hall et al., 1999, p. 252). The descriptive statistics and intercorrelations for the parcels are presented in Tables 27 & 28.

Using these parcels in TripleR, the first step of the SRM analysis was to assess the unique sources of variance in each of the round-robin ratings. I used the TripleR script provided by (Schönbrodt et al., 2012) to estimate the amount, and significance, of perceiver, target, and relationship variance. The statistical significance of the variance components is determined with a between-groups t-test.

The variance partitioning results are presented in Tables 29-31 for all round-robin variables. A graphical representation of the relative variance components for the three types of reciprocity are displayed in Figure 7. The results of the SRM analysis indicate that a significant proportion of the variability in each of the round-robin variables could

be attributed to individual-level effects. Specifically, perceiver effects accounted for a large proportion of the variance in peer ratings for each of the variables (22% for generalized reciprocity, 34% for balanced reciprocity, 26% for negative reciprocity, 22% for the reciprocity composite, 28% for perceived similarity, and 16% for DRC). These results suggest, for example, that approximately one quarter of the variance in peer ratings of negative reciprocity (26%) is attributable to the person who is providing the rating. Target effects, in contrast to perceiver effects, were much smaller in magnitude across the round-robin variables (7% for generalized reciprocity, 0% for balanced reciprocity, 7% for negative reciprocity, 3% for perceived similarity, 18% for DRC, and 5% for the reciprocity composite). This suggests that there was a lack of consensus among group members regarding their perceptions of their peers (with the exception of DRC).

In regard to Hypothesis 1, there were sizeable and significant relationship effects. The proportion of variance in team members' ratings of their peers' reciprocity, similarity, and DRC that could be attributed to their unique relationships ranged from 20% to 30%. This suggests that these perceptions are not solely the result of perceptual tendencies and target effects. In fact, relationship effects accounted for the largest proportion of variance in ratings of generalized reciprocity which supports Hypothesis 1a. In contrast, perceiver effects were larger than relationship effects for balanced reciprocity and negative reciprocity. Thus, Hypotheses 1b and 1c were not supported.

Hypotheses 2-5

Hypotheses 2-5 propose a variety of individual-level predictors of participants' perceiver and target effects. To test these hypotheses, each person's perceiver and target

effects were exported from TripleR and into SPSS as individual-level data. Perceiver and target effects are individual-level effects that represent the tendency for a person to rate their dyadic partners similarly (perceiver effect) or the tendency to evoke consistent rating from dyadic partners (target effect). Computationally, perceiver and target effects for round-robin data are calculated by using the following equations (Kenny et al., 2006, p. 197):

Perceiver effect:

$$a_i = \frac{(n-1)^2}{n(n-2)}M_{i.} + \frac{(n-1)}{n(n-2)}M_{.i} - \frac{(n-1)}{(n-2)}M_{..}$$

Target effect:

$$b_i = \frac{(n-1)^2}{n(n-2)}M_{.i} + \frac{(n-1)}{n(n-2)}M_{i.} - \frac{(n-1)}{(n-2)}M_{..}$$

The mean scores for perceiver *i* are represented by $M_{i.}$, the mean scores for target *i* are represented by $M_{.i}$, the mean of all ratings is represented by $M_{..}$, and the group size is represented by *n*. Sample data and perceiver and target calculations are presented in Table 32. The perceiver and target effects both sum to zero within each group.

Descriptive statistics and correlations for the perceiver effects, target effects, and individual traits for the participants in this study are presented in Tables 33 & 34. The alpha coefficient for exchange ideology was unexpectedly low for an established measure ($\alpha = .59$). An examination of the corrected item-total correlations did not reveal any specific problematic items for this scale and the deletion of any item would lower the alpha coefficient. Thus, all items were retained.

In regard to the perceiver and target effects, there was a fair amount of variability in the sample for perceiver (SD = .65-.85) and target effects (SD = .44-.84). To test Hypotheses 2-5, I examined the partial correlations between individual traits and perceiver and target effects while controlling for group membership (Kenny et al., 2006). This is because the perceiver and target effects are corrected for group membership. The partial correlations are displayed in Tables 35 & 36. The relationship between exchange ideology and negative reciprocity perceiver effects was negative and non-significant ($r_{(ei)(neg\text{-}perceive).group}$ = -.08, n.s.). The relationships between exchange ideology and generalized reciprocity perceiver effects was positive and non-significant ($r_{(ei)(gen\text{-}perceive).group}$ = .02, n.s.) as was the relationship between exchange ideology and balanced reciprocity perceiver effects ($r_{(ei)(bal\text{-}perceive).group}$ = .02, n.s.). Therefore, Hypothesis 2a, 2b, and 2c were not supported. Exchange ideology was also not significantly related to negative reciprocity target effects ($r_{(ei)(neg\text{-}target).group}$ = .04, n.s.) or balanced reciprocity target effects ($r_{(ei)(bal\text{-}target).group}$ = .08, n.s.). Thus, Hypothesis 3a and 3b were not supported.

Neither conscientiousness nor gender were significantly related to generalized reciprocity target effects ($r_{(conscientiousness)(gen\text{-}target).group}$ = .04, n.s., $r_{(gender)(gen\text{-}target).group}$ = .00, n.s.). Gender was also not significantly related to negative reciprocity perceiver effects ($r_{(gender)(neg\text{-}perceive).group}$ = -.05, n.s.). Therefore, Hypotheses 4, 5a, and 5b were also not supported. Additionally, and in regard to the reciprocity composite, none of the individual traits were significantly related to either perceiver or target effects for this variable. These combined results indicate that although a large proportion of variance in

peer ratings of reciprocity is attributable to perceiver effects, none of the individual traits hypothesized in this study were significantly related to peers' perceptual tendencies.

Hypothesis 6

Hypothesis 6 proposes that perceived similarity with a peer is positively related to relationship-specific perceptions of the peers' generalized reciprocity and negatively related to relationship-specific perceptions of the peers' balanced and negative reciprocity. To examine the relationship between two relational variables (i.e., the effect of perceived similarity on perceived reciprocity style) the analyses of these relational variables must be conducted with a dyadic data technique such as the actor-partner interdependence model (APIM) (Kenny et al., 2006, p. 210). That is because these variables are relational and are nested within each dyad.

In the first step, I obtained each person's relationship effects with each of their peers for perceived similarity, generalized reciprocity, balanced reciprocity, negative reciprocity, and the reciprocity composite. The effects were computed through SRM analysis in TripleR with the results exported to SPSS. The estimate of the relationship effect is given by the following equation (Kenny et al., 2006, p. 198):

$$g_{ij} = \mathrm{X}_{ij} - a_i - b_j - M..$$

This equation represents the rating (X_{ij}) minus the perceiver (a_i) and target effects (b_j) minus the grand mean ($M..$). Relationship effects are unique to each combination of perceiver and target, which resulted in two relationship effects for each dyad, for each variable. These two relationship effects are the actor relationship effect (hereafter referred to as the actor effect) and the partner relationship effect (hereafter referred to as the partner effect).

As an illustrative example of the actor and partner effects, take the scenario of a dyad comprised of Jerome and Paul. When examining the relationship effects in this dyad, each person is simultaneously an "actor" and a "partner" depending on who is being rated by whom. The actor is the referent of the ratings and the partner is the person who is completing the ratings. For example, when Jerome is considered the "actor" in this dyad, Paul is considered the "partner". In this situation, the "actor effect" for perceived similarity refers to the extent to which Jerome is similar to Paul (as rated by Paul). The "partner effect" for perceived similarity refers to the extent to which Paul is similar to Jerome (as rated by Jerome). The dyad members who are associated with the actor and partner effects are reversed, however, when Paul is the referent for the ratings (the actor) and Jerome is the person who is completing the ratings (the partner). The labels for the actor and partner effects are illustrated in Figure 8.

To test Hypothesis 6, I used Kenny and colleagues' multilevel APIM approach for indistinguishable dyad members using SPSS (2006). The relationship between perceived similarity and reciprocity perceptions proposed in Hypothesis 6 is an example of what Kenny and colleagues (2006) call an actor-oriented model because the focus of the analysis is on an actor's outcome (perceived reciprocity style as perceived by their partner) as a function of the actor's characteristic (perceived similarity as perceived by their partner). Although partner effects are not of interest (i.e., the ways in which a partner's characteristics influence the actor's outcome or vice versa), I estimated partner effects in line with the recommendations of Kenny and colleagues (2006) and also tested for interactive effects between actor and partner effects as an exploratory analysis.

After obtaining the actor and partner effects from TripleR, the next step was to create a pairwise data set with ten scores for each dyad: a) perceived similarity, generalized reciprocity, balanced reciprocity, negative reciprocity, and reciprocity composite actor effects of *i* toward j and b) perceived similarity, generalized reciprocity, balanced reciprocity, negative reciprocity, and reciprocity composite *j* toward i. The actor and partner effects comprise the Level-1 data. The dyad identification number is the only Level-2 variable. An example of the structure of the data is presented in Table 37.

Descriptive statistics and correlations among actor and partner effects are presented in Tables 38 & 39. The mean values for actor and partner effects were 0.00 because the actor and partner effects sum to zero within each group. There was a fair amount of variability in the sample across actor and partner effects (SD = .45-.76).

To estimate the APIM effects, separate analyses were run for each reciprocity type. Actor effects for each reciprocity type were set as the outcome variables (e.g., ACT_GEN, ACT_BAL, ACT_NEG) with the actor and partner effects for perceived similarity (ACT_SIM and PART_SIM) as the predictors. Four separate APIM models were run, one for each reciprocity style and one for the reciprocity composite variable.

The underlying equations for the multilevel APIM analyses are as follows, using generalized reciprocity as an example:

Level 1:

$$\text{ACT\_GEN} = \beta_0 + \beta_1(\text{ACT\_SIM}) + \beta_2(\text{PART\_SIM}) + r$$

Level-2:

$$\beta_0 = \gamma_{00} + u_0$$

$$\beta_1 = \gamma_{10}$$

$$\beta_2 = \gamma_{20}$$

In the Level-2 equations, β_0 represents the dyadic intercept for the outcome variable and β_1 and β_2 are the slopes of the actor and partner effects. The dyadic intercept is function of both the fixed (γ_{00}) and random component (u_0).

The results of the APIM analyses for the main effects are presented in Tables 40 & 41. There was a positive and significant main effect for perceived similarity actor effects predicting generalized reciprocity actor effects (b = .57, p<.01) and negative and significant main effects for perceived similarity actor effects predicting balanced reciprocity actor effects (b = -.22, p<.01) and negative reciprocity actor effects (b = -.26, p<.01). These results are further illustrated in Figures 9-11. These findings indicate that when a peer perceives another peer to be similar to them, they are more likely to perceive generalized reciprocity when rating that specific person and less likely to perceive balanced or negative reciprocity when rating that person. Thus, Hypotheses 6a, 6b, and 6c are supported. Overall, actor and partner effects for perceived similarity accounted for 28% of the variance in generalized reciprocity perceptions (pseudo R^2 = .28), 5% of the variance in balanced reciprocity perceptions (pseudo R^2 = .05), and 6% of the variance in negative reciprocity perceptions (pseudo R^2 = .06).

In regard to the reciprocity composite, the findings mirror the results for generalized reciprocity. Specifically, there was a positive and significant main effect for perceived similarity predicting reciprocity (b = .40, p<.01). These relationships are illustrated in Figure 12. Therefore, peers are more likely to perceive reciprocity in a peer whom they also believe is similar to them. Actor and partner effects for perceived

similarity accounted for 23% of the variance in the reciprocity composite (pseudo R^2 = .23).

Although not hypothesized, the influence of partner effects is also interesting to examine. The presence of significant partner effects, as noted by Kenny and colleagues, suggest that "something relational has occurred, because a person's response depends on some characteristic of his or her partner" (Kenny et al., 2006, p. 147). Our results indicate positive and significant partner effects for perceived similarity predicting both generalized reciprocity (b = .08, p<.05) and the reciprocity composite (b = .05, p <.05). This suggests that the extent to which peers perceive generalized reciprocity or reciprocity, more broadly, in a peer is dependent not only on the extent to which the rater perceives themselves to be similar to the person who they are rating, but also the extent to which the peer perceives themselves to be similar to the rater. For example, the extent to which Jerome perceives generalized reciprocity in Paul depends not only on the extent to which Jerome perceives Paul to be similar to him but also on the extent to which Paul perceives himself to be similar to Jerome.

As an exploratory analysis, I also examined the possible interactions between actor and partner effects for perceived similarity predicting the various types of reciprocity perceptions. To do this, I added a multiplicative term (actor*partner) to the APIM analysis while controlling for the main effects. These results are presented in Tables 42 & 43. The results indicate that there are no significant actor-partner interactions for perceived similarity predicting reciprocity.

Hypothesis 7

Hypothesis 7 proposes that agreement between dyad members (actor and partner) will be positively related to the extent to which the members of a dyad want to continue working together in the future. To test this hypothesis, I conducted an additional series of APIM analyses as well as polynomial regressions with response surface analyses. As a first step, I examined the main effects of actor and partner effects for each type of reciprocity predicting DRC actor effects. I also examined any interactive effects of actor effects and partner effects. Although I did not hypothesize any main effects or interactions of actor and partner effects for reciprocity on DRC, this step was a preliminary and somewhat exploratory step in understanding the relationship between reciprocity perceptions and DRC.

The results of these APIM analyses are presented in Tables 44 & 45. The results indicate that there are significant main effects for the generalized reciprocity actor effects (.59, $p<.01$), negative reciprocity actor effects (-.55, $p<.01$), and reciprocity composite actor effects (1.20, $p<.01$) predicting DRC actor effects. Only generalized reciprocity partner effects were a significant predictor of DRC actor effects (.08, $p<.05$). This suggests, that the extent to which the partner wants to continue working with the actor is primarily influenced by the partner's own reciprocity perceptions of the actor and is not also influenced by the actor's reciprocity perceptions of the partner (except in the case of generalized reciprocity). There were no significant interactions between actor and partner effects.

Although the results of the APIM analyses indicate that only actor main effects predict DRC actor effects (with the exception of generalized reciprocity partner effects), I conducted the polynomial regressions with response surface analyses for all types of

reciprocity to fully test the extent to which agreement between actor and partner effects predict DRC (Hypothesis 7). As the first step of the polynomial regression, and as recommended by Shanock and colleagues (2010), I determined the extent to which discrepant relationship effects existed for each type of reciprocity between actors and partners. To do this, I standardized the actor and partner effects within each dyad and compared the standardized actor effect to the standardized partner effect for each type of reciprocity. Actor or partner effects that were half a standard deviation above or below the other effect were considered to have discrepant values (Shanock et al., 2010). Across each type of reciprocity, approximately 66% of the actor and partner effects had discrepant values.

The results of the polynomial regression analyses are presented in Tables 46-49. In all analyses, the actor effect and the partner effect for each type of reciprocity were specified as the predictor variables. The actor effect for DRC was the outcome variable for all analyses. Therefore, these polynomial regression analyses examined the extent to which agreement in the relationship effects for each type of reciprocity related to the actor's relationship effect for DRC (i.e., how does agreement in the dyadic, relationship-specific ratings of reciprocity between actors and partners relate to the extent to which the actor is rated as a desirable future teammate?). The polynomial regression is represented by the following equation:

$$Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 + e$$

In the above equation, *Z* represents the dependent variable (i.e.,, DRC actor effect), *X* is the actor effect for perceived similarity, and Y is the partner effect for perceived similarity.

Across all analyses, the R^2 was significantly different from zero. Thus, I evaluated the four surface test values in each analysis: a_1, a_2, a_3, and a_4. In these analyses, a_1 represents the slope of the line of perfect agreement (actor effect= partner effect) as related to DRC. The curvature of the line of perfect agreement is assessed by a_2. The degree of discrepancy between the actor effect, partner effect, and DRC is assessed by calculating by the curvature of the line of incongruence (a_4). Finally, the direction of the discrepancy (higher actor effect than partner effect or vice versa) is assessed by examining the slope of the line of incongruence (a_3). These four surface test values were calculated using the following formulas:

$$a_1 = (b_1 + b_2)$$

$$a_2 = (b_3 + b_4 + b_5)$$

$$a_3 = (b_1 - b_2)$$

$$a_4 = (b_3 - b_4 + b_5)$$

The coefficients listed in the above formulas represent the following: b_1 is the unstandardized beta coefficient for the actor effect, b_2 is the unstandardized beta coefficient for the partner effect, b_3 is the unstandardized beta coefficient for the actor effect squared, b_4 is the unstandardized beta coefficient for the cross-product of the actor and partner effect, and b_5 is the unstandardized beta coefficient for the partner effect squared.

In regard to generalized reciprocity (H7a), $a_1$was positive and significant (.87, $p<.01$), whereas a_2 was not significant (.02, n.s.). This suggests that partners are more likely to want to continue working with an actor when both people perceive similarly high levels of generalized reciprocity and that DRC increases as those generalized

reciprocity perceptions increase. Therefore, Hypothesis 7a is supported. In Figure 13, the highest level of DRC is when both actor effects and partner effects are high. DRC, however, appears to remain relatively high even when the partner effect is low. This is further illustrated by the significant and positive value for a_3 (.79, p <.01) which indicates that DRC is high when the direction of the discrepancy is such that the actor effect is higher than the partner effect (rather than vice versa). Thus, DRC still remains high when a high actor effect is combined with a low partner effect. Finally, a_4 was positive but non-significant (.04, n.s.). This suggests that DRC does not increase or decrease more sharply as the degree of discrepancy increases.

For balanced reciprocity, $a_1$was negative and significant (-.57, p<.01), and a_2 was not significant (-.02, n.s.). This indicates that when dyad members are in agreement regarding their balanced reciprocity perceptions, desired relationship continuance decreases as balanced reciprocity ratings increases. Therefore, partners are less likely to want to continue working with an actor when both people are perceived to be high on balanced reciprocity. Thus, H7b is not supported. The test for the degree of discrepancy (a_4) was significant and positive as related to DRC (.18, p<.05). This indicates positive curvature along the line of incongruence. Finally, the significant negative value for a_3 (-.57, p<.01) indicates that DRC is higher when the discrepancy is such that the partner effect is higher than the actor effect. Figure 14 illustrates these results. The highest point on the graph for DRC is when the actor effect is low and the partner effect is high.

In regard to Hypothesis 7c (negative reciprocity), $a_1$was negative and significant (-.79, p<.01), whereas a_2 was not significant (.07, n.s.). This suggests that when dyad members are in agreement regarding negative reciprocity, desired relationship

continuance decreases as negative reciprocity ratings increase. Therefore, Hypothesis 7c is not supported. In Figure 15, the highest level of DRC is when both actor effects and partner effects are low. DRC, however, appears to remain relatively high even when the partner effect is high. This is further illustrated by the significant and negative value for a_3 (-.87, p<.01) which indicates that DRC is high when the direction of the discrepancy is such that the partner effect is higher than the actor effect (rather than vice versa). Therefore, DRC still remains high when a low actor effect is combined with a high partner effect. Finally, a_4 was positive but non-significant (.04, n.s.). This suggests that DRC does not increase or decrease more sharply as the degree of discrepancy increases.

I also tested the effects of actor-partner agreement for the reciprocity composite variable. The results for the reciprocity composite mirror the results for generalized reciprocity in that the value for $a_1$was positive and significant (1.24, p<.01), whereas a_2 was not significant (.09, n.s.). This suggests that DRC increases as agreement on the actor and partner effects for the reciprocity composite increase. Therefore, agreement is positively related to DRC. In Figure 16, the highest level of DRC is when both actor effects and partner effects are high. DRC, however, appears to remain relatively high even when the partner effect is low. This is further illustrated by the significant and positive value for a_3 (1.14, p <.01) which indicates that DRC is high when the direction of the discrepancy is such that the actor effect is higher than the partner effect (rather than vice versa). Thus, DRC still remains high when a high actor effect is combined with a low partner effect. Finally, a_4 was positive but non-significant (.10, n.s.).

Post-Hoc Analyses

Based on the lack of support for Hypotheses 2-5, I conducted a series of post-hoc analyses to better understand the relationships between individual traits and peer ratings of reciprocity. Hypotheses 2-5 proposed that an individual's exchange ideology, personality, and gender influence their perceptual tendencies across all of their peer ratings (i.e., perceiver effects) or their tendency to be rated similarly by all of their peers (i.e., target effects). These hypotheses were not supported. As demonstrated by the results of the variance partitioning, however, a substantial amount of variance in peer ratings of reciprocity is attributable to the relationship between the perceiver and the target, at the dyad level. Thus, I tested the extent to which individual traits predicted relationship-specific effects for different types of reciprocity using an APIM analysis. The results of these analyses are presented in Tables 50-52. For these analyses, the sample size was reduced to 518 dyads due to missing data at the individual level. The findings indicate that exchange ideology, conscientiousness, and gender do not predict relationship-specific effects for any of the reciprocity types, much like the results for individual-level perceiver and target effects. Therefore, these three traits are not significantly related to perceiver, target, or relationship effects for the various types of reciprocity.

Although I did not find support for these three traits as predictors of perceiver, target, or relationship effects, it is possible that other traits may influence these effects. Therefore, as an additional post-hoc analysis, I examined other personality traits (openness, extraversion, agreeableness, and neuroticism) as predictors of perceiver, target, and relationship effects. These personality traits were measured as part of the Big 5 measure in Study 2, but their effects were not originally hypothesized. The descriptive statistics and intercorrelations for these personality variables are presented in Table 53.

To examine the relationships between openness, extraversion, agreeableness, and neuroticism on perceiver and target effects for each reciprocity type, I computed the partial correlations between these four personality traits and perceiver and target effects while controlling for group membership (Kenny et al., 2006). The partial correlations are displayed in Tables 54 & 55. Agreeableness and neuroticism were significantly related to perceiver effects for the various types of reciprocity. There were no significant relationships between any of these additional personality traits and target effects.

Agreeableness was positively and significantly related to generalized reciprocity perceiver effects ($r_{(agree)(gen\text{-}perceive).group}$ = .18, p <.01) and negatively and significantly related to balanced reciprocity perceiver effects ($r_{(agree)(bal\text{-}perceive).group}$ = -.24, p <.01) and negative reciprocity perceiver effects ($r_{(agree)(neg\text{-}perceive).group}$ = -.22, p <.01). Neuroticism was negatively and significantly related to perceiver effects for generalized reciprocity ($r_{(neuro)(gen\text{-}perceive).group}$ = -.15, p <.05) and positively and significantly related to perceiver effects for balanced reciprocity ($r_{(neuro)(bal\text{-}perceive).group}$ = .18, p <.01). These results indicate that individuals who are high on agreeableness are more likely to perceive generalized reciprocity among their peers, regardless of who they are rating. Those who are high on agreeableness are also less likely to perceive balanced and negative reciprocity among their peers. Individuals who are high on neuroticism display a different pattern of results. These individuals are less likely to rate their peers as high on generalized reciprocity and are more likely to rate their peers as high on balanced reciprocity.

In regard to the reciprocity composite, the results mirrored the findings for generalized reciprocity. The magnitude of the partial correlations, however, was larger

for the partial correlations with the reciprocity composite. Agreeableness was positively and significantly related to perceiver effects for the reciprocity composite ($r_{(agree)(recip\text{-}perceive).group}$ = .18, p <.01) and neuroticism was negatively and significantly related to the reciprocity composite ($r_{(neuro)(recip\text{-}perceive).group}$ = -.17, p <.01).

These findings indicate that certain individual traits are indeed related to perceiver effects for the different types of reciprocity measured in this study. I also examined whether agreeableness and neuroticism were also related to relationship-specific ratings within a dyad. Therefore, I conducted an APIM analysis in which I modeled the effects of actor and partner agreeableness and neuroticism on actor and partner ratings of reciprocity. The results of the APIM analyses are presented in Tables 56 & 57. There were no significant main effects for actors' or partners' agreeableness or neuroticism predicting actor effects for any type of reciprocity. These results indicate that although agreeableness and neuroticism are related to perceiver effects at the individual level, neither agreeableness nor neuroticism influence relationship-specific ratings of reciprocity among peers.

Summary of Results

In summation, the results of the confirmatory factor analyses suggest that generalized, balanced, and negative reciprocity are distinct yet closely related constructs. The results of a social relations analysis indicated that the variance in peer ratings of reciprocity is predominately attributable to the person who is doing the rating (i.e., the perceiver) and/or the unique relationship between the rater and the person being rated (i.e., the relationship). The amount of variance attributable to targets was quite small in magnitude for the three types of reciprocity and, in the case of balanced reciprocity, non-

significant. The results also suggested that exchange ideology, conscientiousness, and gender were not significantly related to perceiver or target effects for reciprocity perceptions although agreeableness and neuroticism were significantly related to perceiver effects. Agreeableness was positively related to generalized reciprocity perceiver effects and negatively related to both balanced reciprocity perceiver effects and negative reciprocity perceiver effects. Neuroticism was negatively related to generalized reciprocity perceiver effects and positively related to balanced reciprocity perceiver effects. In regard to relationship effects, perceived similarity was significantly and positively related to generalized reciprocity relationship effects and significantly and negatively related to relationship effects for both balanced reciprocity and negative reciprocity. The results also indicated that the extent to which an individual wants to continue working with a specific peer is significantly influenced by agreement in reciprocity perceptions between the two peers. Specifically, when peers are in agreement regarding generalized reciprocity perceptions, desired relationship continuance increases as generalized reciprocity perceptions increase.

DISCUSSION

This study contributes to research on social exchange and the study of reciprocity in a variety of ways. First, I directly examined reciprocity perceptions in peer exchange relationships. As previously discussed, much of the extant organizational research in social exchange assumes reciprocity and/or does not directly examine it. Additionally, this research is the first, at least to my knowledge, to examine Sahlins' reciprocity continuum in the context of peer relationships. Prior studies have focused on generalized, balanced, and negative reciprocity in leader-subordinate relationships (Sparrowe, 1998; Sparrowe & Liden, 1997) and employee-organization relationships (Wu et al., 2006), but not dyadic peer interactions.

Second, I modified and evaluated the factor structure of a measure of generalized, balanced, and negative reciprocity in the context of peer relationships. Prior research on leader-member exchange demonstrated a clear three-factor structure for the reciprocity measure that was used in this study (Sparrowe, 1998). The pattern of results in the current research, however, was less clear. Although the referent of the items was changed from "supervisor" to "person", there were also analytical differences between this study and the initial work by Sparrrowe (1998) that may help to explain these differing results. Specifically, Sparrowe used an exploratory factor analysis with varimax (i.e., orthogonal) rotation to evaluate the items in a sample of working adults (1998). Because varimax rotation simplifies the factors by maximizing the variance of the loadings within factors (Tabachnick & Fidell, 2013), it is possible that Sparrowe's pattern of results were influenced by this rotation method.

In contrast to the three-factor structure that was found in prior research (Sparrowe, 1998), I found support for the conceptualization of a "continuum" of reciprocity which is in line with the underlying theoretical model that was originally set forth by Sahlins (1972). This finding is important because reciprocity is a foundational component of social exchange (Wu et al., 2006), and the conceptualization of reciprocity as a continuum helps to shed light on one dimension of social exchange relationships. For example, based on the results of the current research, it does not seem likely that peers engage in (or perceive others to engage in) both negative and generalized reciprocity simultaneously but, instead, one or the other.

Third, I examined the extent to which the variance in reciprocity perceptions was attributable the underlying components of the social relations model. Thus, the third contribution of this research is unpacking the sources of variance in reciprocity perceptions at the individual, dyadic, and group levels-of-analysis. Although reciprocity is theorized to be both relational and also an individual difference (Cropanzano & Mitchell, 2005), it was previously unknown to what extent reciprocity perceptions are attributable to each of these sources of variance. The results of the variance partitioning suggest that the variability in peer ratings of reciprocity is predominately attributable to the person who is doing the rating (i.e., the perceiver) and/or the unique relationship between the rater and the person being rated (i.e., the relationship). In this particular sample, peer ratings of reciprocity depended less on the person who was being rated (i.e., target), outside of their dyadic relationship with each of their peers. In other words, there was a lack of support for the idea that certain individuals are rated consistently by their peers as displaying generalized, balanced, or negative reciprocity. Instead, reciprocity

ratings differed among perceivers and among the dyadic combinations of perceivers and targets.

This finding has implications for both theory and methods in social exchange research. By integrating the study of interpersonal perceptions with social exchange theory, the results of the variance decomposition support the conceptualization of reciprocity as both a relational phenomenon and an individual difference (Cropanzano & Mitchell, 2005). Although the results of this research provides support for the notion that reciprocity is relationship-specific, the results challenge the prevailing conceptualization of reciprocity as an individual characteristic. Specifically, prior research has suggested that reciprocity *behaviors* and reciprocity *preferences* are individual differences (Eisenberger, Lynch, Aselage, & Rohdieck, 2004; Gallucci & Perugini, 2003; Perugini & Gallucci, 2001; Perugini et al., 2003). Based on the results of the current study, however, the individual differences in reciprocity appear to be in the way in which exchange partners *perceive* reciprocity and less to do with the way in which exchange partners *elicit* certain perceptions/ratings from others. Thus, the current research suggests that reciprocity behaviors may not be strong individual characteristics (due to the lack of substantial target effects) and suggests that reciprocity perceptions can be conceptualized as meaningful individual characteristic (due to the large perceiver effects).

In addition to the theoretical contribution, the results of the variance partitioning also have important methodological and analytical implications for social exchange research. To date, very few studies utilize SRM to understand the sources of variance in interpersonal ratings (Kenny et al., 2006). Without using a variance partitioning procedure like SRM, it's not clear what is really being measured in many of the studies

that rely on ratings of social exchange relationships. For example, in the context of peer relationships, are dyadic coworker exchange (CWX) ratings predominately capturing perceptual tendencies, something about the target, or relationship effects? And in the context of leader-subordinate relationships, are the LMX ratings of one subordinate by their supervisor relationship-specific? Or is this LMX rating primarily driven by perceiver or target effects? In the absence of a social relations analysis, the extent to which ratings in social exchange research are driven by each of the four underlying sources of variance is unknown. Thus, SRM offers scholars the opportunity to refine social exchange research through more precise measurement and analysis.

The fourth contribution of this research was in the examination of a variety of individual traits as correlates of perceiver and target effects for various types of reciprocity. Although none of the hypothesized traits (exchange ideology, conscientiousness, or gender) were significantly related to perceiver or target effects for reciprocity perceptions, I did find significant relationships between both agreeableness and neuroticism with perceiver effects for generalized and balanced reciprocity and also a significant relationship between agreeableness and perceiver effects for negative reciprocity. These post-hoc results suggest that certain individual traits are indeed related to perceptual tendencies when evaluating peers' reciprocity.

In regard to agreeableness, the pattern of results is consistent with the conceptualization of this personality trait. The results suggest that individuals who are high on agreeableness also demonstrate perceptual tendencies to view their peers as generalized reciprocators and were less inclined to perceive their peers as balanced or negative reciprocators. This may be because those who are high in agreeableness are

good natured, cooperative, caring, flexible, courteous, tolerant, and trusting (Mount & Barrick, 1995). Certain types of reciprocity require more trust between relational partners than others (i.e., generalized reciprocity relies on loose, implicit expectations of repayment at some unspecified point in the future). Thus, individuals who are flexible, good-natured, and trusting may be more apt to see others as generalized reciprocators and less likely to perceive them as balanced or negative reciprocators due to the level of trust that they have in their peers. It has been suggested that people who are high on agreeableness are "…sympathetic to others and eager to help them, and believe that others will be helpful in return" (Porter et al., 2003, p. 15). Thus, the results of this study provide some empirical support for idea that those who are high in agreeableness are indeed more likely to perceive that others will help them or do something for them, but without expecting anything in return.

The significant pattern of results regarding neuroticism and perceiver effects is also interesting to examine. In this study, individuals who were high in neuroticism were more likely to have a perceptual tendency to perceive their peers as balanced reciprocators and were less likely to perceive their peers as generalized reciprocators. This may be because those who are high in neuroticism tend to perceive situations negatively (Costa & McCrae, 1992), worry, and feel nervous and insecure (Schultz & Schultz, 1994). As previously mentioned, in order to perceive others as generalized reciprocators, there is a certain amount of trust and ambiguity that accompanies those beliefs. If an individual is high in neuroticism, it is likely that they will be more worried and nervous in their interactions and, therefore, less likely to believe that others will engage in generalized reciprocity.

Although agreeableness and neuroticism were significantly related to various perceiver effects, none of the measured traits had significant relationships with target effects. This lack of findings can likely be explained by the results of the variance partitioning. Specifically, target variance accounted for a very small percentage of the overall variance in peer ratings of reciprocity (0-7%). Thus, there was an overall lack of variability in the extent to which individuals differed in their target effects. The small target variances in this study, however, are not necessarily a cause for concern. Like other variance components, the magnitude of target variance depends on what is being measured. Prior research by Kenny and colleagues has found relative target variances ranging from 2% (ratings of behaviors) to 15% (ratings of traits) (Kenny, 1994a; Kenny et al., 2001). The small target variance for reciprocity in the current research is in line with prior studies of behaviors (Kenny et al., 2001), although this does limit the ability to examine the correlates of relatively small target effects (e.g., gender or personality).

In addition to the lack of significant target variance, there was also a lack of significant findings for the relationships between gender and exchange ideology with perceiver effects. In regard to gender, our results suggest that gender is not significantly related to perceiver effects for negative reciprocity. In other words, women are not more likely than men to consistently perceive negative reciprocity among their peers, as hypothesized. Although this finding is counter to my initial theorizing, prior research has demonstrated that gender and age are non-significant predictors of certain types of reciprocity evaluations, including the perception that one receives less support, on average, than they provide to others (Antonucci, Fuhrer, & Jackson, 1990). Thus, the lack of gender effects is consistent with this prior research. Other sociodemographic variables

such as education (Antonucci et al., 1990), however, have been linked to reciprocity perceptions and would be a fruitful area for future research on peers.

The lack of findings for exchange ideology and perceiver effects for reciprocity was unexpected. The low reliability for the exchange ideology measure, however, may have contributed to the lack of significant results for this trait in this particular sample. The alpha coefficient for exchange ideology in Study 2 was .59 which is below the recommended reliability standard of .70-.80 (Nunnally, 1978). Using measures with low reliability can lower the magnitude of an expected observed correlation and also the power to detect it (Lance, Butts, & Michels, 2006). Additionally, and in regard to the wording of the exchange ideology items, the referents for the items may have influenced the observed relationships in this study. Although exchange ideology captures the extent to which people believe in the norm of reciprocity as a stable individual trait (i.e., that they should help those who have helped them) (Eisenberger et al., 1986), the referents for the measure used in this research referred to employee-organization relationships. In line with recent research on contextualized personality (Heller, Watson, Komar, Min, & Perunovic, 2007), however, it might be possible that individuals have situation-specific exchange ideology beliefs that differ depending on the context, even though exchange ideology is conceptualized as a stable trait. If this is the case, it may not be as surprising that exchange ideology beliefs regarding employee-organization relationships were not significantly related to perceptual tendencies when rating reciprocity among peers in the context of undergraduate project teams. Although this is a possibility, the situation-specific nature of exchange ideology beliefs has yet to be studied.

As a fifth contribution, I examined the role of perceived similarity in predicting reciprocity perceptions at the relationship-level, while controlling for people's perceptual tendencies and group-level factors. Thus, this research aligns hypotheses, design, and data analysis to understand reciprocity perceptions at the dyadic level-of-analysis. In doing so, I found a positive relationship between perceived similarity and generalized reciprocity perceptions within peer dyads, above and beyond any type of perceptual tendency or group effects. I also found a negative relationship between perceived similarity and both balanced reciprocity and negative reciprocity. The actor and partner effects for perceived similarity, however, explained a much larger proportion of variance in generalized reciprocity perceptions (pseudo $R^2 = .28$) than balanced reciprocity perceptions (pseudo $R^2 = .05$) or negative reciprocity perceptions (pseudo $R^2 = .06$). This suggests that when one person perceives a peer to be similar to them, they are also more likely to perceive that particular peer as a generalized reciprocator and perceived similarity accounts for over one quarter of the variance in their relationship-specific perceptions of that individual as a generalized reciprocator.

These findings have important implications for peer exchange research in the organizational sciences. The results from the current research suggest that one of the foundational elements of social exchange, reciprocity, is influenced by similarity perceptions among peer exchange partners. These findings complement prior studies on LMX that have demonstrated a positive relationship between perceived similarity and LMX ratings (Liden, Wayne, & Stilwell, 1993; Phillips & Bedeian, 1994). Although the importance of perceived similarity has been highlighted in LMX relationships, perceived similarity has not been commonly examined in peer exchanges. In fact, the limited

research that does exist on perceived similarity in peer exchanges has demonstrated a non-significant relationship between perceived similarity and team-member exchange (TMX) (Dose, 1999). Thus, the current research adds to what is known about perceived similarity and peer exchanges by illustrating the perceived similarity does indeed matter in peer exchange relationships, particularly in regard to reciprocity.

Sixth, and finally, I offered a novel contribution to the exchange literature by examining the role of reciprocity perceptions as a dyad-level antecedent to desired relationship continuance. The desire or intent to continue a relationship with an exchange partner has been examined in different types of relationships across various disciplines including organizational behavior, strategic management, and marketing. This includes research on mentoring relationships (Burk & Eby, 2010), employee-organization relationships (Tsui & Barry, 1986), buyer-seller relationships (Bendapudi & Berry, 1997; Colwell & Hogarth-Scott, 2004; Hewett, Money, & Sharma, 2002; Jones, Mothersbaugh, & Beatty, 2002), and firm-firm relationships (Malhotra & Lumineau, 2011). This study is the first, at least to my knowledge, to examine DRC in the context of peer social exchange relationships.

The results indicate that the degree to which one peer wants to work with another particular peer in the future is significantly related to agreement in reciprocity perceptions among peers but, even then, the results suggest that the partner' perceptions are not particularly impactful in predicting the extent to which the perceiver wants to continue working with the partner in the future. Upon further reflection, this finding might be attributed to a mismatch between what was examined in the current research and the definition of shared reality as set forth by shared reality theory (Hardin & Conley, 2001).

Specifically, "…shared reality is defined as interpersonally achieved perceptions of common experience" (Hardin & Conley, 2001, p. 10). In this research, however, peers did not rate a common experience (i.e., a shared referent) but instead rated one another (i.e., two different referents). A more precise test of this shared reality theory would have been to ask peers to rate a common referent. To do this, each dyad member could provide self-ratings of reciprocity in reference to each of their peers in addition to rating each of their peers' reciprocity. For example, take the group of Andy, Bob, Sabrina, and Hayley. In line with what was measured in the current research, Andy would rate each of his peers' reciprocity toward him (e.g., "Sabrina would give me something without expecting anything in return"). In order to capture a shared referent, however, Sabrina would also be asked to provide self-ratings of reciprocity in regard to each of her peers (e.g., "I would give Andy something without expecting anything in return"). Thus, for each dyad there would be matched ratings with the same referent (i.e., the same person's reciprocity) which would more accurately represent a shared reality.

Implications for Practice

Understanding to what extent reciprocity perceptions are influenced by individual and relationship-specific sources of variance may allow for more effective matching of employees to teams and groups in the workplace. For example, the strong perceiver effects for generalized reciprocity suggest that organizations might be able to identify individuals who tend to perceive generalized reciprocity in their relationships with others and then strategically place these individuals in certain groups or teams. In addition to identifying these individuals through an assessment of their perceptual tendencies, the research presented here also provides managers some indication as to who will tend to

have particular perceptions – with implications for employee selection and team composition. Specifically, individual traits such as agreeableness and neuroticism are related to perceptual tendencies in regard to reciprocity. This finding is of practical importance for managers because it may be possible to construct workgroups based on these individual differences in an attempt to mitigate the number of perceived negative reciprocators or perceived generalized reciprocators in a single department/area.

Additionally, perceived similarity also influences reciprocity perceptions within specific relationships. This is of practical importance in the workplace because it may be possible to enhance similarity perceptions though increased contact, communication, and shared activities in an effort to influence coworkers' perceptions of each other as reciprocators. By influencing perceptions of similarity managers may be able to, in turn, influence the extent to which coworkers are perceived as generalized reciprocators.

The current research also has practical implications for the way in which reciprocity is conceptualized by managers in the workplace. A recent *New York Times* and *Wall Street Journal* bestselling book by Adam Grant, *Give and Take* (2013), has been "praised by leaders (Zappos CEO Tony Hsieh, Huffington Post founder Arianna Huffington, Finland's prime minister Alex Stubb)…bestselling authors (Susan Cain, Malcolm Gladwell, Dan Pink), and senior executives from organizations like Google, McKinsey, Merck, NASA, and Nike "("Give and Take: About the Book," 2015). In this popular management book, Grant suggests that individuals have a particular reciprocity "style" when interacting with others. These three styles include: giving, matching, and taking (2013). Although Grant acknowledges that it is possible for individuals to engage in different types of reciprocity in different situations, he also asserts that"…at work, the

vast majority of people develop a primary reciprocity style, which captures how they approach most of the people most of the time" (Grant, 2013, p. 6). The results from the current research, however, challenge this assumption. Specifically, the SRM results indicate that a very small amount of the variance in ratings of reciprocity is attributable to targets. Thus, there is a lack of support for the assumption that individuals do have a consistent reciprocity style that they uniformly use with others. In contrast, however, there is support for the notion of a reciprocity *perceptual* style based on the magnitude of the perceiver effects in this study. Therefore, although people may not engage in a certain type of reciprocity on a consistent basis, they may be more apt to perceive certain types of reciprocity on a consistent basis, regardless of who they are rating.

Limitations

This research is not without limitations. First, the sample for Study 1 was a convenience sample that relied on a snowball procedure to recruit additional participants. The sample for Study 2 was also a convenience sample of undergraduate students from two Universities. Both samples included a large proportion of young people. Although the focus of this research was reciprocity perceptions, the "Millennial Generation" has been described as entitled, self-involved, and with inflated expectations (Westerman, Bergman, Bergman, & Daly, 2011). It is possible that feelings of entitlement and inflated expectations might influence reciprocity perceptions. Thus, the sampling procedure used in this research may affect the extent to which the results can be generalized to a wider (and older) population.

Second, and in a related vein, the sample for Study 2 consisted of student project groups, which have been criticized in past research (Salas et al., 2006; Wildman et al.,

2012). Despite these critiques, the groups used for this research were task-focused groups who worked together toward a meaningful outcome (e.g., all projects had a graded component that impacted students' final course grades, all at least 20% of final grades). Student team members worked together for a set period of time to make decisions and solve problems which closely maps on to the definition of "ad hoc project teams" provided by Devine and colleagues (1999). Ad hoc project teams are the second most commonly used type of teams used in organizations, second only to ongoing project teams (Devine et al., 1999). Thus, although student project teams were used for this research, the structure and function of the teams mirror those that are commonly used in organizations.

Third, this research focused on peer relationships at only one point in time. In addition, the student project teams in Study 2 had a relatively short tenure compared to other research on peer relationships. Prior research on coworker exchange relationships, for example, has used dyads with an average tenure of 20-32 weeks (Tse, Lam, Lawrence, & Huang, 2013). In Study 2 the students worked together for an average of 9.45 weeks when they were asked to provide peer ratings. Thus, it may be possible that some aspects of relationship perceptions (e.g., target effects, partner effects in APIM) take more time to unfold in peer relationships.

Fourth, and in regard to analytical limitations, SRM relies on the assumption that interpersonal perceptions are a dyadic phenomenon (Kenny et al., 2006). Specifically, it is assumed that people do not influence the perceptions in other dyads besides the ones to which they belong (Kenny et al., 2006). When teammates interact for extended periods of time, however, this may not be the case. For example, teammate A and teammate B may

discuss teammate C. These conversations could influence both A and B's perception of C which could, in turn, lead to correlated relationship effects and biased perceiver and target effects (Kenny et al., 2006). Despite this concern, in natural settings it is difficult (if not impossible) to control for these "extradyadic effects".

An additional limitation was the use of a single-level CFA to examine the factor structure of the reciprocity measure in Study 2 although the data were simultaneously nested within perceivers, targets, dyads, and groups. Using a single-level CFA with nested data is problematic because the assumption of independence is violated which could lead to incorrect standard errors and inaccurate statistical inferences (Muthen & Satorra, 1995). In addition, a single-level CFA does not take into account that the factor structure may not be the same at each level of analysis, which results in an assumption that the relationship between variables observed at one level holds for another level. Thus, although the use of a single-level CFA was not ideal, the round-robin data was simultaneously nested within perceivers, targets, dyads, and groups and did not lend itself to any established multilevel (i.e., two-level) CFA techniques.

Future Research

Despite these limitations, this study raises a number of possibilities for future research. First, it may be interesting to explore boundary conditions that moderate the effects of reciprocity perceptions among peers. In particular, a key condition may be the degree of task interdependence among peers in a project team. While the results of the APIM analyses suggest that actor effects for generalized reciprocity and negative reciprocity predict the extent to which one person wants to continue working with another, this relationship may also be influenced by the extent to which the two peers are bound by their shared goals and high degree of task interdependence in a project team

(Van Der Vegt & Van De Vliert, 2002; Van Der Vegt, Van De Vliert, & Oosterhof, 2003). Peers in less interdependent situations (e.g., coworkers who do not work together on a team but are part of a larger organizational network) may display a different pattern of relationships. To examine such boundary conditions, subsequent studies could examine the moderating effects of interpersonal or dyadic task interdependence on the relationship between reciprocity and DRC.

In addition to examining the moderating role of interdependence, it would also be useful to explore the mediating role of trust in the relationship between personality and reciprocity perceptions and also in the relationship between perceived similarity and reciprocity perceptions. The underlying logic for both of these relationships implies a causal chain from personality/similarity → trust → reciprocity perceptions. Although trust was not directly measured in this research, this would be interesting to explore in future research especially because trust is another foundational component of social exchange relationships (Aryee, Budhwar, & Chen, 2002; Cropanzano & Mitchell, 2005).

Additionally, and in regard to perceived similarity, it would be interesting to examine potential antecedents of perceiver effects and relationship effects for perceived similarity. Specifically, the results of the SRM suggest that a sizeable proportion of variance in similarity perceptions can be attributed to a person's tendency to see peers in the same way (28% of the variance) while it is also relationship-specific (43% of the variance). Given that perceiver effects represent stable perceptual tendencies and even stereotypes, it would be interesting to determine what makes an individual more likely to perceive all of his or her peers as generally similar or dissimilar to them. Additionally, and because of the large amount of relationship variance, it would also be useful to

understand what characteristics at the dyadic level influence similarity perceptions (e.g., deep level similarity vs. surface level similarity with a particular peer).

In terms of methods and analyses, this research has important implications for future research. Specifically, the presence of large target effects and consensus among raters is an underlying assumption in many studies of social exchange relationships that utilize peer/other ratings. This assumption, however, is rarely empirically tested through variance partitioning. Instead, one method that is commonly used is to first determine if there is sufficient agreement within the group regarding the ratings of a specific target (Chen, 2005; Erdogan, Liden, & Kraimer, 2006; Geller & Bamberger, 2009; Mayo, Kakarika, Pastor, & Brutus, 2012). If there is sufficient agreement among raters, then the ratings are averaged together and assigned to the target of the ratings. This process, however, essentially ignores the variance that is due to perceivers and relationships and assumes large target effects. If there is a lack of sufficient agreement, it's often unknown *why* there is a lack of consensus in ratings. Without variance decomposition, it is unclear if there may be significant perceiver or relationship effects in the absence of significant target effects.

Although some interpersonal ratings may exhibit high target effects, the findings from this research demonstrate that reciprocity perceptions do not exhibit large target effects and it is possible that other interpersonal ratings, particularly in social exchange research, demonstrate a similar pattern. Therefore, for certain other-rated variables, it might not make sense (conceptually or empirically) to expect a high level of agreement among group members regarding their ratings. Each group member has unique experiences with each of their exchange partners that are likely to influence their

perceptions and their ratings. Additionally, perceivers can have certain tendencies to perceive and rate their exchange partners in a certain manner. Thus, and in regard to future research, scholars should first demonstrate (both conceptually and empirically) that interpersonal ratings exhibit large target effects prior to assuming and calculating agreement and averaging dyadic ratings for targets.

REFERENCES

Antonucci, T., Fuhrer, R., & Jackson, J. (1990). Social support and reciprocity: A cross-ethnic and cross-national perspective. *Journal of Social and Personal Relationships, 7*, 519-530.

Aryee, S., Budhwar, P. S., & Chen, Z. X. (2002). Trust as a mediator of the relationship between organizational justice and work outcomes: test of a social exchange model. *Journal of Organizational Behavior, 23*(3), 267-285.

Bendapudi, N., & Berry, L. L. (1997). Customers' motivations for maintaining relationships with service providers. *Journal of Retailing, 73*(1), 15-37.

Berg, J., & Wiebe, F. (1993). Resource exchange in the workplace: Exchange of economic and interpersonal resources. *Resource theory: Explorations and applications*, 97-122.

Bergman, J. Z., Small, E. E., Bergman, S. M., & Rentsch, J. R. (2010). Asymmetry in perceptions of trustworthiness: It's not you; it's me. *Negotiation and Conflict Management Research, 3*(4), 379-399.

Blau, P. M. (1964). *Exchange and power in social life*: Transaction Publishers.

Bowler, W. M., & Brass, D. J. (2006). Relational correlates of interpersonal citizenship behavior: A social network perspective. *Journal of Applied Psychology, 91*(1), 70.

Burk, H. G., & Eby, L. T. (2010). What keeps people in mentoring relationships when bad things happen? A field study from the protégé's perspective. *Journal of Vocational Behavior, 77*(3), 437-446.

Buss, A. H. (1989). Personality as traits. *American Psychologist, 44*(11), 1378.

Byrne, D. E. (1971). *The attraction paradigm* (Vol. 11): Academic Pr.

Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology, 83*(2), 234.

Chen, G. (2005). Newcomer Adaptation in Teams: Multilevel Antecedents and Outcomes. *The Academy of Management Journal, 48*(1), 101-116.

Chen, Z., Takeuchi, R., & Shum, C. (2013). A social information processing perspective of coworker influence on a focal employee. *Organization Science, 24*(6), 1618-1639.

Chiaburu, D. S., & Harrison, D. A. (2008). Do peers make the place? Conceptual synthesis and meta-analysis of coworker effects on perceptions, attitudes, OCBs, and performance. *Journal of Applied Psychology, 93*(5), 1082.

Chou, C.-P., Bentler, P. M., & Pentz, M. A. (2000). A two-stage approach to multilevel structural equation models: Application to longitudinal data. In T. D. Little, K. U. Schnabel & J. Baumert (Eds.), *Modeling longitudinal and multilevel data: Practical issues, applied approaches, and specific examples* (pp. 33-50). Mahwah, NJ: Lawrence Erlbaum Associates.

Christensen, P. N., & Kashy, D. A. (2012). Using the social relations model to understand interpersonal perception and behavior. In H. Cooper (Ed.) *APA Handbook of research methods in psychology, Vol. 3: Data analysis and research publication* (pp. 425-437). Washington, DC: American Psychological Association.

Clark, M. S., & Mills, J. (1979). Interpersonal attraction in exchange and communal relationships. *Journal of Personality and Social Psychology, 37*(1), 12.

Colwell, S. R., & Hogarth-Scott, S. (2004). The effect of cognitive trust on hostage relationships. *Journal of Services Marketing, 18*(5), 384-394.

Connolly, J., & McIsaac, C. (2008). Adolescent romantic relationships: Beginnings, endings, and psychosocial challenges. *International Society for the Study of Behavioral Development Newsletter, 32*, 1-5.

Costa, P. T., & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and Individual Differences, 13*(6), 653-665.

Coyle-Shapiro, J. A., & Conway, N. (2004). *The employment relationship through the lens of social exchange*: Oxford University Press.

Coyle-Shapiro, J. A., & Conway, N. (2005). Exchange relationships: Examining psychological contracts and perceived organizational support. *Journal of Applied Psychology, 90*(4), 774.

Coyle-Shapiro, J. A., & Neuman, J. H. (2004). The psychological contract and individual differences: The role of exchange and creditor ideologies. *Journal of Vocational Behavior, 64*(1), 150-164.

Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management, 31*(6), 874-900.

Devine, D. J., Clayton, L. D., Phillips, J. L., Dunford, B. B., & Melner, S. B. (1999). Teams in organizations: Prevalence, characteristics, and effectiveness. *Small Group Research, 30*, 678-711.

Diefendorff, J. M., Silverman, S. B., & Greguras, G. J. (2005). Measurement equivalence and multisource ratings for non-managerial positions: Recommendations for research and practice. *Journal of Business and Psychology, 19*(3), 399-425.

Dose, J. J. (1999). The relationship between work values similarity and team–member and leader–member exchange relationships. *Group Dynamics: Theory, Research, and Practice, 3*(1), 20-32.

Dutton, J. E., & Ragins, B. R. E. (2007). Exploring positive relationships at work: Building a theoretical and research foundation.

Eagly, A. H., & Crowley, M. (1986). Gender and helping behavior: A meta-analytic review of the social psychological literature. *Psychological Bulletin, 100*(3), 283.

Eisenberger, R., Armeli, S., Rexwinkel, B., Lynch, P. D., & Rhoades, L. (2001). Reciprocation of perceived organizational support. *Journal of Applied Psychology, 86*(1), 42.

Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*(3), 500-507.

Eisenberger, R., Lynch, P., Aselage, J., & Rohdieck, S. (2004). Who takes the most revenge? Individual differences in negative reciprocity norm endorsement. *Personality and Social Psychology Bulletin, 30*(6), 787-799.

Emerson, R. M. (1976). Social exchange theory. *Annual Review of Sociology*, 335-362.

Erdogan, B., Liden, R. C., & Kraimer, M. L. (2006). Justice and Leader-Member Exchange: The Moderating Role of Organizational Culture. *The Academy of Management Journal, 49*(2), 395-406.

Fletcher, G. J., & Thomas, G. (1996). Lay theories in close relationships: Their structure and function. In G. J. Fletcher & J. Fitness (Eds.), *Knowledge structures in close relationships: A social psychological approach* (pp. 3-24). Mahway, NJ: Erlbaum.

Flynn, F. J. (2003). How much should I give and how often? The effects of generosity and frequency of favor exchange on social status and productivity. *Academy of Management Journal, 46*(5), 539-553.

Flynn, F. J. (2005). *Thanks for nothing: The influence of sex and agreeableness on evaluations of help in organizations.* Columbia University.

Flynn, F. J. (2006). How much is it worth to you? Subjective evaluations of help in organizations. *Research in Organizational Behavior, 27*, 133-174.

Foa, E. B., & Foa, U. G. (1976). Resource theory of social exchange. In J. W. Thibaut, J. T. Spence & R. C. Carson (Eds.), *Contemporary topics in social psychology* (pp. 99-134). Morristown, NJ: General Learning Press.

Foa, E. B., & Foa, U. G. (1980). Resource theory: Interpersonal behavior as exchange. In K.J. Gergen, M.S. Greenberg, & R.H. Willis (Eds.), *Social Exchange* (pp. 77-94). New York: Springer.

Gallucci, M., & Perugini, M. (2003). Information seeking and reciprocity: A transformational analysis. *European Journal of Social Psychology, 33*(4), 473-495.

Gellatly, I. R. (1996). Conscientiousness and task performance: Test of cognitive process model. *Journal of Applied Psychology, 81*(5), 474.

Geller, D., & Bamberger, P. (2009). Bringing avoidance and anxiety to the job: Attachment style and instrumental helping behavior among co-workers. *Human Relations, 62*(12), 1803-1827.

Gilligan, C. (1988). *Mapping the moral domain: A contribution of women's thinking to psychological theory and education* (Vol. 2): Harvard University Press.

Give and Take: About the Book. (2015). Retrieved April 1, 2015, 2015, from http://www.giveandtake.com/#!about-the-book/c1aev

Gooty, J., & Yammarino, F. J. (2013). The leader–member exchange relationship A multisource, cross-level investigation. *Journal of Management*.

Gorgievski-Duijvesteijn, M., Halbesleben, J. R., & Bakker, A. B. (2011). Introduction: Expanding the boundaries of psychological resource theories. *Journal of Occupational and Organizational Psychology*, 1-13.

Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 161-178.

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly, 6*(2), 219-247.

Grant, A. M. (2013). *Give and take: A revolutionary approach to success*: Hachette UK.

Grant, A. M., Parker, S., & Collins, C. (2009). Getting credit for proactive behavior: Supervisor reactions depend on what you value and how you feel. *Personnel Psychology, 62*(1), 31-55.

Grant, A. M., & Parker, S. K. (2009). Redesigning work design theories: The rise of relational and proactive perspectives. *The Academy of Management Annals, 3*(1), 317-375.

Greenberg, J. (1987). The college sophomore as guinea pig: Setting the record straight. *Academy of Management Review, 12*(1), 157-159.

Greguras, G. J., Robie, C., & Ph. Born, M. (2001). Applying the social relations model to self and peer evaluations. *Journal of Management Development, 20*(6), 508-525.

Hall, R. J., Snell, A. F., & Foust, M. S. (1999). Item parceling strategies in SEM: Investigating the subtle effects of unmodeled secondary constructs. *Organizational Research Methods, 2*(3), 233-256.

Hardin, C. D., & Conley, T. D. (2001). A relational approach to cognition: Shared experience and relationship affirmation in social cognition. In G.B. Moskowitz (Ed.), *Cognitive social psychology: The Princeton symposium on the legacy and future of social cognition* (pp. 3-17). Mahwah, NJ: Lawrence Erlbaum.

Hattrup, K., O'Connell, M. S., & Wingate, P. H. (1998). Prediction of mulitdimensional criteria: Distinguishing task and contextual performance. *Human Performance, 11*(4), 305-319.

Held, V. (1990). Mothering versus contract. In J. Mansbridge (Ed.), *Beyond self-interest*, (pp. 287-304). Chicago: University of Chicago Press.

Heller, D., Watson, D., Komar, J., Min, J. A., & Perunovic, W. Q. E. (2007). Contextualized personality: Traditional and new assessment procedures. *Journal of Personality, 75*(6), 1229-1254.

Hewett, K., Money, R. B., & Sharma, S. (2002). An exploration of the moderating role of buyer corporate culture in industrial buyer-seller relationships. *Journal of the Academy of Marketing Science, 30*(3), 229-239.

Hogg, M. A., & Terry, D. I. (2000). Social identity and self-categorization processes in organizational contexts. *Academy of Management Review, 25*(1), 121-140.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.

Jones, M. A., Mothersbaugh, D. L., & Beatty, S. E. (2002). Why customers stay: measuring the underlying dimensions of services switching costs and managing their differential strategic outcomes. *Journal of Business Research, 55*(6), 441-450.

Kamdar, D., & Van Dyne, L. (2007). The joint effects of personality and workplace social exchange relationships in predicting task performance and citizenship performance. *Journal of Applied Psychology, 92*(5), 1286.

Kenny, D. A. (1994a). *Interpersonal perception: A social relations analysis*. New York: Guilford Press.

Kenny, D. A. (1994b). Using the social relations model to understand relationships *Theoretical frameworks for personal relationships* (pp. 111-127).

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic Data Analysis*: Guilford Press.

Kenny, D. A., Mohr, C. D., & Levesque, M. J. (2001). A social relations variance partitioning of dyadic behavior. *Psychological Bulletin, 127*(1), 128-141.

Kidder, D. L. (2002). The influence of gender on the performance of organizational citizenship behaviors. *Journal of Management, 28*(5), 629-648.

Kidder, D. L., & Parks, J. M. (1993). *The good soldier: Who is s(he)?* Paper presented at the Academy of Management Proceedings.

Kim, E., & Glomb, T. M. (2010). Get smarty pants: Cognitive ability, personality, and victimization. *Journal of Applied Psychology, 95*(5), 889.

Klein, K. J., Dansereau, F., & Hall, R. J. (1994). Levels issues in theory development, data collection, and analysis. *Academy of Management Review, 19*(2), 195-229.

Knobloch, L. K., Solomon, D. H., & Cruz, M. G. (2001). The role of relationship development and attachment in the experience of romantic jealousy. *Personal Relationships, 8*(2), 205-224.

Konovsky, M. A., & Organ, D. W. (1996). Dispositional and contextual determinants of organizational citizenship behavior. *Journal of Organizational Behavior, 17(3),* 253-266.

Kozlowski, S. W., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K.J. Klein & S.W.J. Kozlowski (Eds.), *Multilevel theory, research and methods in organizations: Foundations, extensions, and new directions* (pp. 3-90). San Francisco, CA: Jossey-Bass.

Krasikova, D. V., & LeBreton, J. M. (2012). Just the two of us: misalignment of theory and methods in examining dyadic phenomena. *Journal of Applied Psychology, 97*(4), 739.

Lakey, B., Ross, L. T., Butler, C., & Bentley, K. (1996). Making social support judgments: The role of similarity and conscientiousness. *Journal of Social and Clinical Psychology, 15*(3), 283-304.

Lance, C. E., Butts, M. M., & Michels, L. C. (2006). The sources of four commonly reported cutoff criteria what did they really say? *Organizational Research Methods, 9*(2), 202-220.

LeDoux, J. A., Gorman, C. A., & Woehr, D. J. (2012). The impact of interpersonal perceptions on team processes A social relations analysis. *Small Group Research, 43*(3), 356-382.

LePine, J. A., & Van Dyne, L. (2001). Voice and cooperative behavior as contrasting forms of contextual performance: evidence of differential relationships with big five personality characteristics and cognitive ability. *Journal of Applied Psychology, 86*(2), 326.

Liang, J., & Bentler, P. M. (2004). An EM algorithm for fitting two-level structural equation models. *Psychometrika, 69*(1), 101-122.

Liden, R. C., Sparrowe, R. T., & Wayne, S. J. (1997). Leader-member exchange theory: The past and potential for the future. *Research in Personnel and Human Resources Management, 15*, 47-120.

Liden, R. C., Wayne, S. J., & Stilwell, D. (1993). A longitudinal study on the early development of leader-member exchanges. *Journal of Applied Psychology, 78*(4), 662.

Livi, S., & Kenny, D. A. (2009). Thoughts on studying leadership in natural contexts. *Research in Multi Level Issues, 8*, 215-224.

Livi, S., Kenny, D. A., Albright, L., & Pierro, A. (2008). A social relations analysis of leadership. *The Leadership Quarterly, 19*(2), 235-248.

Malhotra, D., & Lumineau, F. (2011). Trust and collaboration in the aftermath of conflict: The effects of contract structure. *Academy of Management Journal, 54*(5), 981-998.

Martins, L. L., Eddleston, K. A., & Veiga, J. F. (2002). Moderators of the relationship between work-family conflict and career satisfaction. *The Academy of Management Journal, 45*(2), 399-409.

Mas, A., & Moretti, E. (2006). Peers at work: National Bureau of Economic Research.

Mayo, M., Kakarika, M., Pastor, J.-C., & Brutus, S. (2012). Aligning or inflating your leadership self-image? A longitudinal study of responses to peer feedback in MBA teams. *Academy of Management Learning & Education, 11(4*), 631-652.

McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality, 60*(2), 175-215.

McNeely, B. L., & Meglino, B. M. (1994). The role of dispositional and situational antecedents in prosocial organizational behavior: An examination of the intended beneficiaries of prosocial behavior. *Journal of Applied Psychology, 79*(6), 836.

Molm, L. D. (2001). Theories of social exchange and exchange networks. In B. Smart & G. Ritzer (Eds.), *Handbook of Social Theory* (pp. 260-272). Los Angeles: Sage.

Molm, L. D. (2003). Theoretical comparisons of forms of exchange. *Sociological Theory, 21*(1), 1-17.

Molm, L. D. (2012). The social sxchange framework *Contemporary Social Psychological Theories* (pp. 24-45). Stanford, CA: Stanford University Press.

Molm, L. D., Peterson, G., & Takahashi, N. (2003). In the eye of the beholder: Procedural justice in social exchange. *American Sociological Review*, 128-152.

Moskowitz, D. S., & Coté, S. (1995). Do interpersonal traits predict affect? A comparison of three models. *Journal of personality and Social Psychology, 69*(5), 915.

Motowidlo, S. J., & Van Scotter, J. R. (1994). Evidence that task performance should be distinguished from contextual performance. *Journal of Applied Psychology, 79*(4), 475.

Mount, M. K., & Barrick, M. R. (1995). The Big Five personality dimensions: Implications for research and practice in human resources management. *Research in Personnel and Human Resources Management, 13*(3), 153-200.

Murstein, B. I., Cerreto, M., & Mac Donald, M. G. (1977). A theory and investigation of the effect of exchange-orientation on marriage and friendship. *Journal of Marriage and the Family*, 543-548.

Muthén, B. O. (1994). Multilevel covariance structure analysis. *Sociological Methods & Research, 22*(3), 376-398.

Muthén, B. O., & Satorra, A. (1995). Complex sample data in structural equation modeling. *Sociological Methodology, 25*, 267-316.

Muthén, L. K., & Muthén, B. O. (1998-2012). *MPlus User's Guide* (Seventh ed.). Los Angeles, CA: Muthen & Muthen.

Nunnally, J. (1978). Psychometric theory. New York: McGraw-Hill.

Ohland, M. W., Loughry, M. L., Woehr, D. J., Finelli, C. J., Bullard, L. G., Felder, R. M., . . . Schmucker, D. G. (2012). The comprehensive assessment of team member effectiveness: Development of a behaviorally anchored rating scale for self- and peer evaluation. *Academy of Management Learning and Education, 11*(4), 609-630.

Omilion-Hodges, L. M., & Baker, C. R. (2013). Contextualizing LMX within the workgroup: The effects of LMX and justice on relationship quality and resource sharing among peers. *The Leadership Quarterly, 24*(6), 935-951.

Orpen, C. (1994). The effects of exchange ideology on the relationship between perceived organizational support and job performance. *Journal of Social Psychology, 134*, 407-408.

Perugini, M., & Gallucci, M. (2001). Individual differences and social norms: The distinction between reciprocators and prosocials. *European Journal of Personality, 15*(S1), S19-S35.

Perugini, M., Gallucci, M., Presaghi, F., & Ercolani, A. P. (2003). The personal norm of reciprocity. *European Journal of Personality, 17*(4), 251-283.

Phillips, A. S., & Bedeian, A. G. (1994). Leader-follower exchange quality: The role of personal and interpersonal attributes. *Academy of Management Journal, 37*(4), 990-1001.

Porter, C. O., Hollenbeck, J. R., Ilgen, D. R., Ellis, A. P., West, B. J., & Moon, H. (2003). Backing up behaviors in teams: the role of personality and legitimacy of need. *Journal of Applied Psychology, 88*(3), 391.

Redman, T., & Snape, E. (2005). Exchange ideology and member-union relationships: an evaluation of moderation effects. *Journal of Applied Psychology, 90*(4), 765.

Reise, S. P. (2012). The rediscovery of bifactor measurement models. *Multivariate Behavioral Research, 47*(5), 667-696.

Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: A review of the literature. *Journal of Applied Psychology, 87*(4), 698.

Ridgeway, C. (1991). The social construction of status value: Gender and other nominal characteristics. *Social Forces, 70*(2), 367-386.

Rousseau, D. M. (1985). Issues of level in organizational research: Multi-level and cross-level perspectives. *Research in organizational behavior, 7*(1), 1-37.

Rousseau, D. M. (1995). *Psychological contracts in organizations: Understanding written and unwritten agreements*. Thousand Oaks, CA: Sage Publications.

Rousseau, D. M. (1998). LMX meets the psychological contract: Looking inside the black box of leader-member exchange. *Monographs In Organizational Behavior And Industrial Relations, 24,* 149-154.

Sahlins, M. D. (1972). *Stone age economics*. Hawthorne, NY: Aldine De Gruyter.

Salas, E., Burke, C. S., & Fowlkes, J. E. (2006). Measuring team performance "in the wild": Challenges and tips. In W. Bennett, C. E. Lance & D. J. Woehr (Eds.), *Performance measurement: current perspectives and future challenges.* (pp. 245-272). New York: Psychology Press.

Saucier, G. (1994). Mini-markers: A brief version of Goldberg's unipolar Big-Five markers. *Journal of Personality Assessment, 63*(3), 506-516.

Schneider, B. (1987). The people make the place. *Personnel Psychology, 40*(3), 437-453.

Schönbrodt, F. D., Back, M. D., & Schmukle, S. C. (2012). TripleR: An R package for social relations analyses based on round-robin designs. *Behavior Research Methods, 44*(2), 455-470.

Schultz, D., & Schultz, S. E. (1994). *Theories of personality*. Pacific Grove, CA: Brooks/Cole Publishing Co.

Seers, A. (1989). Team-member exchange quality: A new construct for role-making research. *Organizational Behavior and Human Decision Processes, 43*(1), 118-135.

Seers, A., Petty, M., & Cashman, J. F. (1995). Team-member exchange under team and traditional management a naturally occurring quasi-experiment. *Group & Organization Management, 20*(1), 18-38.

Settoon, R. P., Bennett, N., & Liden, R. C. (1996). Social exchange in organizations: Perceived organizational support, leader–member exchange, and employee reciprocity. *Journal of Applied Psychology, 81*(3), 219.

Shanock, L. R., Baran, B. E., Gentry, W. A., Pattison, S. C., & Heggestad, E. D. (2010). Polynomial regression with response surface analysis: A powerful approach for examining moderation and overcoming limitations of difference scores. *Journal of Business and Psychology, 25*(4), 543-554.

Sherony, K. M., & Green, S. G. (2002). Coworker exchange: relationships between coworkers, leader-member exchange, and work attitudes. *Journal of Applied Psychology, 87*(3), 542.

Snijders, T. A., & Kenny, D. A. (1999). The social relations model for family data: A multilevel approach. *Personal Relationships, 6*(4), 471-486.

Sparrowe, R. T. (1998). *Leader-member exchange, social networks, and differentiation.* University of Illinois at Chicago.

Sparrowe, R. T., & Liden, R. C. (1997). Process and structure in leader-member exchange. *Academy of Management Review, 22*(2), 522-552.

Sprecher, S., Treger, S., & Wondra, J. D. (2013). Effects of self-disclosure role on liking, closeness, and other impressions in get-acquainted interactions. *Journal of Social and Personal Relationships, 30*(4), 497-514.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics*. Boston: Pearson.

Tajfel, H. (1978). *Differentiation between social groups: Studies in the social psychology of intergroup relations*: Academic Press.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The social psychology of intergroup relations, 33*(47), 74.

Tepper, B. J. (1995). Upward maintenance tactics in supervisory mentoring and nonmentoring relationships. *The Academy of Management Journal, 38*(4), 1191-1205. doi: 10.2307/256626

Thomas, G., Martin, R., Epitropaki, O., Guillaume, Y., & Lee, A. (2013). Social cognition in leader–follower relationships: Applying insights from relationship science to understanding relationship-based approaches to leadership. *Journal of Organizational Behavior, 34*(S1), S63-S81.

Tse, H. H. M., Lam, C. K., Lawrence, S. A., & Huang, X. (2013). When my supervisor dislikes you more than me: The effect of dissimilarity in leader–member exchange on coworkers' interpersonal emotion and perceived help. *Journal of Applied Psychology, 98*(6), 974-988. doi: 10.1037/a0033862

Tsui, A. S., & Barry, B. (1986). Intepersonal affect and rating errors. *Academy of Management Journal, 29*(3), 586-599.

Turner, J. C. (1982). Towards a cognitive redefinition of the social group. *Social Identity and Intergroup Relations*, 15-40.

Turner, J. C. (1985). Social categorization and the self-concept: A social cognitive theory of group behavior. *Advances in Group Processes, 2*, 77-122.

Uhl-Bien, M., & Maslyn, J. M. (2003). Reciprocity in manager-subordinate relationships: Components, configurations, and outcomes. *Journal of Management, 29*(4), 511-532.

Van Der Vegt, G. S., & Van De Vliert, E. (2002). Intragroup interdependence and effectiveness: Review and proposed directions for theory and practice. *Journal of Managerial Psychology, 17*(1), 50-67.

Van Der Vegt, G. S., Van De Vliert, E., & Oosterhof, A. (2003). Informational dissimilarity and organizational citizenship behavior: The role of intrateam interdependence and team identification. *Academy of Management Journal, 46*(6), 715-727.

Van Scotter, J. R., & Motowidlo, S. J. (1996). Interpersonal facilitation and job dedication as separate facets of contextual performance. *Journal of Applied Psychology, 81*(5), 525.

Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods, 3*(1), 4-70.

Wang, M., Liu, S., Zhan, Y., & Shi, J. (2010). Daily work–family conflict and alcohol use: Testing the cross-level moderation effects of peer drinking norms and social support. *Journal of Applied Psychology, 95*(2), 377.

Wayne, S. J., Shore, L. M., & Liden, R. C. (1997). Perceived organizational support and leader-member exchange: A social exchange perspective. *Academy of Management Journal, 40*(1), 82-111.

Westerman, J. W., Bergman, J. Z., Bergman, S. M., & Daly, J. P. (2011). Are universities creating millennial narcissistic employees? An empirical examination of narcissism in business students and its implications. *Journal of Management Education*, 1-28.

Wildman, J. L., Thayer, A. L., Rosen, M. A., Salas, E., Mathieu, J. E., & Rayne, S. R. (2012). Task types and team-level attributes: Synthesis of team classification literature. *Human Resource Development Review, 11*(1), 97-129.

Wilson, K. S., Sin, H.-P., & Conlon, D. E. (2010). What about the leader in leader-member exchange? The impact of resource exchanges and substitutability on the leader. *Academy of Management Review, 35*(3), 358-372.

Witt, L. A. (1991). Exchange Ideology as a Moderator of Job Attitudes-Organizational Citizenship Behaviors Relationships1. *Journal of Applied Social Psychology, 21*(18), 1490-1501.

Wu, J. B., Hom, P. W., Tetrick, L. E., Shore, L. M., Jia, L., Li, C., & Song, L. J. (2006). The norm of reciprocity: Scale development and validation in the Chinese context. *Management and Organization Review, 2*(3), 377-402.

APPENDIX A: TABLES

Table 1: Study 1 - Confirmatory factor analyses model fit indices for reciprocity items

Model	CFI	TLI	χ^2	*df*	RMSEA	$\Delta\chi^2$
1. One factor	.94	.93	150.74**	44	.10	--
2. Two factor, correlated	.96	.96	111.91**	43	.08	38.83**
3. Three factor, correlated	.99	.98	66.70**	41	.05	45.21**
4. GUFM model	.99	.98	51.54*	33	.05	15.16

N = 264. **p <.01, *p<.05. The two factor model combines balanced reciprocity and negative as one factor. The three factor model specifies generalized, balanced, and negative reciprocity as separate factors. The GUFM model specifies one general factor and three separate unique factors, one for each type of reciprocity.

Table 2: Study 1 – Standardized factor loadings –Model 1

	Estimate	S.E.
Gen1	.76**	.03
Gen2	.86**	.02
Gen3	.89**	.02
Gen4	.51**	.05
Bal1	-.69**	.04
Bal2	-.81**	.02
Bal3	-.72**	.03
Bal4	-.70**	.03
Neg1	-.69**	.03
Neg2	-.84**	.02
Neg3	-.71**	.03

N = 264. **p <.01, *p<.05.

Table 3: Study 1 – Standardized factor loadings – Model 2

	Estimate	S.E.
Generalized		
Gen1	.79**	.03
Gen2	.87**	.02
Gen3	.93**	.01
Gen4	.51**	.05
Balanced/Negative		
Bal1	.67**	.04
Bal2	.83**	.02
Bal3	.74**	.03
Bal4	.72**	.03
Neg1	.70**	.03
Neg2	.85**	.02
Neg3	.72**	.03

N = 264. **p <.01, *p<.05.

Table 4: Study 1 – Standardized factor loadings –Model 3

	Estimate	S.E.
Generalized		
Gen1	.79**	.03
Gen2	.87**	.02
Gen3	.93**	.01
Gen4	.51**	.05
Balanced		
Bal1	.70**	.04
Bal2	.86**	.02
Bal3	.78**	.03
Bal4	.77**	.03
Negative		
Neg1	.73**	.03
Neg2	.90**	.02
Neg3	.75**	.03

N = 264. **p <.01, *p<.05.

Table 5: Study 1 – Latent factor correlations – Model 3

	Generalized	Balanced
Generalized	--	
Balanced	-.87	--
Negative	-.90	.86

Table 6: Study 1 – Standardized factor loadings – Model 4

	Estimate	S.E.
General Factor		
Gen1	-.73**	.04
Gen2	-.85**	.03
Gen3	-.89**	.03
Gen4	-.52**	.05
Bal1	.67**	.04
Bal2	.79**	.03
Bal3	.71**	.04
Bal4	.68**	.04
Neg1	.68**	.04
Neg2	.84**	.03
Neg3	.70**	.04
Generalized		
Gen1	.40**	.14
Gen2	.18	.10
Gen3	.23	.13
Gen4	-.07	.16
Balanced		
Bal1	.19*	.08
Bal2	.29**	.07
Bal3	.36**	.09
Bal4	.44**	.10
Negative		
Neg1	.23*	.11
Neg2	.40**	.15
Neg3	.20*	.10

N = 264. **p <.01, *p<0.05.

Table 7 (1 of 2): Study 1 – Descriptive statistics and intercorrelations – Reciprocity types

Variable	M	SD	1	2	3	4	5
1. Age	34.83	11.05	--				
2. Gender	1.58	.50	-.03	--			
3. Job level	1.63	.77	.01	-.03	--		
4. Generalized reciprocity	5.46	1.24	.10	-.03	.03	(.84)	
5. Balanced reciprocity	2.76	1.32	-.16**	-.09	.06	-.77**	(.86)
6. Negative reciprocity	2.15	1.32	-.02	.01	-.01	-.78**	.74**
7. DRC	5.60	1.64	.08	-.10	.02	.77**	-.69**
8. Perceived similarity	2.74	.96	.02	-.11	.01	-.45**	.42**

Note. $N = 264$. **p <.01, *p<0.05. Items for balanced reciprocity and negative reciprocity were reverse-coded for the reciprocity composite. Gender coded as 1 = male, 2 = female. Job level coded as 1 = no subordinate, 2 = 1 level of subordinates, 3= two or more levels of subordinates. DRC = desired relationship continuance. Reliability coefficients are presented on the diagonal.

Table 7 (continued, 2 of 2): Study 1 – Descriptive statistics and intercorrelations-Reciprocity types

Variable	M	SD	6	7	8
1. Age	34.83	11.05			
2. Gender	1.58	.50			
3. Job level	1.63	.77			
4. Generalized reciprocity	5.46	1.24			
5. Balanced reciprocity	2.76	1.32			
6. Negative reciprocity	2.15	1.32	(.83)		
7. DRC	5.60	1.64	-.78**	(.94)	
8. Perceived similarity	2.74	.96	.45**	-.54**	(.84)

Note. $N = 264$. **p <.01, *p<0.05. Items for balanced reciprocity and negative reciprocity were reverse-coded for the reciprocity composite. Gender coded as 1 = male, 2 = female. Job level coded as 1 = no subordinate, 2 = 1 level of subordinates, 3= two or more levels of subordinates. DRC = desired relationship continuance. Reliability coefficients are presented on the diagonal.

Table 8: Study 1 – Descriptive statistics and intercorrelations – Reciprocity composite

Variable	M	SD	1	2	3	4	5	6
1. Age	34.83	11.05	--					
2. Gender	1.58	.50	-.03	--				
3. Job level	1.63	.77	.01	-.03	--			
4. Reciprocity (composite)	5.49	1.19	.11	.02	-.01	(.93)		
5. DRC	5.60	1.64	.08	-.10	.02	.81**	(.94)	
6. Perceived similarity	2.74	.96	.02	-.11	.01	-.48**	-.54**	(.84)

Note. $N = 264$. **p <.01, *p<0.05. Items for balanced reciprocity and negative reciprocity were reverse-coded for the reciprocity composite. Gender coded as 1 = male, 2 = female. Job level coded as 1 = no subordinate, 2 = 1 level of subordinates, 3= two or more levels of subordinates. DRC = desired relationship continuance. Reliability coefficients are presented on the diagonal.

Table 9: Study 1 – Confirmatory factor analyses model fit indices for reciprocity and desired relationship continuance items

Model	CFI	TLI	χ^2	*df*	RMSEA	$\Delta\chi^2$
1. One factor	.88	.86	433.69**	77	.13	--
2. Two factor, correlated	.95	.95	212.80**	76	.08	220.89**
3. GUFM model	.98	.97	123.71**	63	.06	89.09**

N = 264. **p <.01, *p<0.05.

Table 10: Study 1 – Standardized factor loadings – Reciprocity & DRC – Model 1

	Estimate	S.E.
Gen1	.75**	.03
Gen2	.84**	.02
Gen3	.87**	.02
Gen4	.50**	.05
Bal1	.66**	.04
Bal2	.79**	.03
Bal3	.69**	.03
Bal4	.65**	.04
Neg1	.72**	.03
Neg2	.84**	.02
Neg3	.70**	.03
DRC1	.89**	.02
DRC2	.85**	.02
DRC3	.85**	.02

N = 264. **p <.01, *p<0.05. Balanced reciprocity and negative reciprocity items were reverse-coded.

Table 11: Study 1 – Standardized factor loadings – Reciprocity & DRC – Model 2

	Estimate	S.E.
Reciprocity		
Gen1	.76**	.03
Gen2	.86**	.02
Gen3	.89**	.02
Gen4	.51**	.05
Bal1	.68**	.04
Bal2	.80**	.02
Bal3	.71**	.03
Bal4	.69**	.03
Neg1	.71**	.03
Neg2	.85**	.02
Neg3	.71**	.03
Desired Relationship Continuance		
DRC1	.96**	.01
DRC2	.93**	.01
DRC3	.88**	.01

N = 264. **p <.01, *p<0.05. Balanced reciprocity and negative reciprocity items were reverse-coded.

Table 12: Study 1 – Standardized factor loadings – Reciprocity & DRC – Model 3

	Estimate	S.E.
General Factor		
Gen1	.77**	.03
Gen2	.86**	.02
Gen3	.89**	.02
Gen4	.47**	.05
Bal1	.63**	.04
Bal2	.75**	.03
Bal3	.65**	.04
Bal4	.59**	.05
Neg1	.72**	.03
Neg2	.85**	.02
Neg3	.70**	.04
DRC1	.86**	.02
DRC2	.80**	.03
DRC3	.80**	.03
Reciprocity		
Gen1	.02	.07
Gen2	.10	.06
Gen3	.12	.06
Gen4	.23**	.07
Bal1	.30**	.07
Bal2	.36**	.06
Bal3	.43**	.07
Bal4	.61**	.08
Neg1	.03	.06
Neg2	.09	.06
Neg3	.14*	.07
Desired Relationship Continuance		
DRC1	.43**	.04
DRC2	.49**	.04
DRC3	.36**	.04

N = 264. **p <.01, *p<0.05. Balanced reciprocity and negative reciprocity items were reverse-coded.

Table 13 (1 of 3): Study 2- Descriptive statistics and intercorrelations for round-robin variables – Items

Variable	M	SD	1	2	3	4	5	6
1. Gen1	5.38	1.41	--					
2. Gen2	5.07	1.40	.73**	--				
3. Gen3	5.06	1.35	.75**	.78**	--			
4. Gen4	4.40	1.31	.32**	.36**	.41**	--		
5. Bal1	3.31	1.54	-.41**	-.44**	-.44**	-.26**	--	
6. Bal2	2.87	1.47	-.28**	-.31**	-.31**	-.18**	.54**	--
7. Bal3	3.09	1.37	-.31**	-.32**	-.34**	-.29**	.55**	.56**
8. Bal4	3.27	1.43	-.24**	-.26**	-.28**	-.22**	.46**	.40**
9. Neg1	2.36	1.43	-.49**	-.42**	-.44**	-.12**	.39**	.33**
10. Neg2	2.34	1.38	-.55**	-.50**	-.52**	-.19**	.47**	.46**
11. Neg3	1.99	1.26	-.35**	-.32**	-.32**	-.09**	.36**	.40**
12. PerSim1	2.87	1.02	.53**	.46**	.51**	.24**	-.20**	-.15**
13. PerSim2	2.68	1.07	.50**	.45**	.48**	.24**	-.19**	-.14**
14. DRC1	5.44	1.55	.77**	.67**	.70**	.29**	-.36**	-.26**
15. DRC2	5.25	1.65	.74**	.65**	.70**	.29**	-.36**	-.26**
16. DRC3	5.56	1.59	.58**	.50**	.54**	.14**	-.41**	-.34**

Note. *N* = 1,557 ratings, 396 individuals. **p <.01, *p<.05. All variables measured on a 1-7 scale with the exception for similarity which is measured on a 1-5 scale. Gen = generalized reciprocity, Bal = balanced reciprocity, Neg = negative reciprocity, PerSim = perceived similarity, DRC= desired relationship continuance.

Table 13 (2 of 3): Study 2- Descriptive statistics and intercorrelations for round-robin variables – Items

Variable	M	SD	7	8	9	10	11	12
1. Gen1	5.38	1.41						
2. Gen2	5.07	1.40						
3. Gen3	5.06	1.35						
4. Gen4	4.40	1.31						
5. Bal1	3.31	1.54						
6. Bal2	2.87	1.47						
7. Bal3	3.09	1.37	--					
8. Bal4	3.27	1.43	.53**	--				
9. Neg1	2.36	1.43	.33**	.26**	--			
10. Neg2	2.34	1.38	.48**	.40**	.61**	--		
11. Neg3	1.99	1.26	.40**	.29**	.48**	.62**	--	
12. PerSim1	2.87	1.02	-.17**	-.09**	-.29**	-.32**	-.22**	--
13. PerSim2	2.68	1.07	-.14**	-.08**	-.26**	-.28**	-.18**	.86**
14. DRC1	5.44	1.55	-.28**	-.22**	-.60**	-.58**	-.39**	.56**
15. DRC2	5.25	1.65	-.28**	-.22**	-.59**	-.57**	-.37**	.58**
16. DRC3	5.56	1.59	-.37**	-.29**	-.64**	-.65**	-.52**	.41**

Note. *N* = 1,557 ratings, 396 individuals. **p <.01, *p<.05. All variables measured on a 1-7 scale with the exception for similarity which is measured on a 1-5 scale. Gen = generalized reciprocity, Bal = balanced reciprocity, Neg = negative reciprocity, PerSim = perceived similarity, DRC= desired relationship continuance.

Table 13 (3 of 3): Study 2- Descriptive statistics and intercorrelations for round-robin variables – Items

Variable	M	SD	13	14	15	16
1. Gen1	5.38	1.41				
2. Gen2	5.07	1.40				
3. Gen3	5.06	1.35				
4. Gen4	4.40	1.31				
5. Bal1	3.31	1.54				
6. Bal2	2.87	1.47				
7. Bal3	3.09	1.37				
8. Bal4	3.27	1.43				
9. Neg1	2.36	1.43				
10. Neg2	2.34	1.38				
11. Neg3	1.99	1.26				
12. PerSim1	2.87	1.02				
13. PerSim2	2.68	1.07	--			
14. DRC1	5.44	1.55	.53**	--		
15. DRC2	5.25	1.65	.55**	.91**	--	
16. DRC3	5.56	1.59	.39**	.71**	.72**	--

Note. *N* = 1,557 ratings, 396 individuals. **p <.01, *p<.05. All variables measured on a 1-7 scale with the exception for similarity which is measured on a 1-5 scale. Gen = generalized reciprocity, Bal = balanced reciprocity, Neg = negative reciprocity, PerSim = perceived similarity, DRC= desired relationship continuance.

Table 14: Study 2 – Confirmatory factor analyses model fit indices for reciprocity items

Model	CFI	TLI	χ^2	*df*	RMSEA	$\Delta\chi^2$
1. One factor	.73	.66	2289.01**	44	.18	--
2. Two factor, correlated	.90	.87	901.78**	43	.11	1387.23**
3. Three factor, correlated	.96	.95	352.24**	41	.07	549.54**
4. GUFM model	.97	.95	293.68**	33	.07	58.56**

N = 1,557. **p <.01, *p<0.05. The two factor model combines balanced reciprocity and negative as one factor. The three factor model specifies generalized, balanced, and negative reciprocity as separate factors. The GUFM model specifies one general factor and three separate unique factors, one for each type of reciprocity.

Table 15: Study 2 – Standardized factor loadings –Model 1

	Estimate	S.E.
Gen1	.79**	.01
Gen2	.79**	.01
Gen3	.81**	.01
Gen4	.40**	.02
Bal1	-.63**	.02
Bal2	-.52**	.02
Bal3	-.55**	.02
Bal4	-.45**	.02
Neg1	-.62**	.02
Neg2	-.74**	.01
Neg3	-.54**	.02

N = 1,557. **p <.01, *p<0.05.

Table 16: Study 2- Standardized factor loadings – Model 2

	Estimate	S.E.
Generalized		
Gen1	.84**	.01
Gen2	.87**	.01
Gen3	.90**	.01
Gen4	.43**	.02
Balanced/Negative		
Bal1	.69**	.02
Bal2	.65**	.02
Bal3	.68**	.02
Bal4	.56**	.02
Neg1	.64**	.02
Neg2	.80**	.01
Neg3	.65**	.02

N = 1,557. **p <.01, *p<0.05.

Table 17: Study 2 – Standardized factor loadings –Model 3

	Estimate	S.E.
Generalized		
Gen1	.84**	.01
Gen2	.87**	.01
Gen3	.90**	.01
Gen4	.42**	.02
Balanced		
Bal1	.74**	.02
Bal2	.71**	.02
Bal3	.77**	.01
Bal4	.63**	.02
Negative		
Neg1	.69**	.02
Neg2	.90**	.01
Neg3	.68**	.02

N = 1,557. **p <.01, *p<0.05.

Table 18: Study 2 – Standardized factor loadings –Model 4

	Estimate	S.E.
General Factor		
Gen1	-.65**	.02
Gen2	-.61**	.02
Gen3	-.63**	.02
Gen4	-.25**	.03
Bal1	.59**	.02
Bal2	.53**	.02
Bal3	.54**	.02
Bal4	.44**	.02
Neg1	.69**	.02
Neg2	.84**	.02
Neg3	.60**	.03
Generalized		
Gen1	.52**	.02
Gen2	.62**	.02
Gen3	.64**	.02
Gen4	.35**	.03
Balanced		
Bal1	.42**	.03
Bal2	.46**	.03
Bal3	.59**	.03
Bal4	.47**	.03
Negative		
Neg1	.13	.07
Neg2	.23*	.10
Neg3	.52**	.16

N = 1,557. **p <.01, *p<0.05.

Table 19: Study 2 – Latent factor correlations – Model 2

	Generalized	Balanced/Negative
Generalized	--	
Balanced/Negative	-.66	--

Table 20: Study 2 – Latent factor correlations – Model 3

	Generalized	Balanced	Negative
Generalized			
Balanced	-.54		
Negative	-.66	.71	

Table 21: Study 2- Descriptive statistics and intercorrelations for round-robin variables – Scales (Reciprocity types)

Variable	M	SD	1	2	3	4	5
1. Generalized reciprocity	4.98	1.12	(.84)				
2. Balanced reciprocity	3.13	1.15	-.47**	(.80)			
3. Negative reciprocity	2.23	1.14	-.53**	.57**	(.80)		
4. Perceived similarity	2.78	1.01	.54**	-.19**	-.32**	(.92)	
5. Desired relationship continuance	5.41	1.47	.73**	-.42**	-.70**	.57**	(.82)

Note. *N* = 1,557 ratings, 396 individuals. **p <.01, *p<.05. All variables measured on a 1-7 scale with the exception for similarity which is measured on a 1-5 scale. Reliability coefficients are presented on the diagonal.

Table 22: Study 2- Descriptive statistics and intercorrelations for round-robin variables – Scales (Reciprocity composite)

Variable	M	SD	1	2	3
1. Reciprocity (composite)	5.15	.94	(.88)		
2. Similarity	2.78	1.01	.41**	(.92)	
3. Desired relationship continuance	5.41	1.47	.74**	.57**	(.82)

Note. *N* = 1,557 ratings, 396 individuals. **p <.01, *p<.05. Items for balanced reciprocity and negative reciprocity were reverse-coded for the reciprocity composite. All variables measured on a 1-7 scale with the exception for similarity which is measured on a 1-5 scale. Reliability coefficients are presented on the diagonal.

Table 23: Study 2 – Confirmatory factor analyses model fit indices for reciprocity and DRC items

Model	CFI	TLI	χ^2	*df*	RMSEA	$\Delta\chi^2$
1. One factor	.73	.69	3936.77**	77	.18	--
2. Two factor, correlated	.79	.75	3125.30**	76	.16	811.47**
3. GUFM model	.91	.87	1401.11**	63	.12	1724.19**

N = 1,557. **p <.01, *p<0.05.

Table 24: Study 2 – Standardized factor loadings – Reciprocity & DRC – Model 1

	Estimate	S.E.
Gen1	.83**	.01
Gen2	.77**	.01
Gen3	.80**	.01
Gen4	.35**	.02
Bal1	.50**	.02
Bal2	.39**	.02
Bal3	.42**	.02
Bal4	.34**	.02
Neg1	.66**	.02
Neg2	.70**	.01
Neg3	.49**	.02
DRC1	.91**	.01
DRC2	.90**	.01
DRC3	.77**	.01

N = 1,557. **p <.01, *p<0.05. Balanced reciprocity and negative reciprocity items were reverse-coded.

Table 25: Study 2 – Standardized factor loadings – Reciprocity & DRC – Model 2

	Estimate	S.E.
Reciprocity		
Gen1	.84**	.01
Gen2	.81**	.01
Gen3	.84**	.01
Gen4	.39**	.02
Bal1	.57**	.02
Bal2	.45**	.02
Bal3	.48**	.02
Bal4	.39**	.02
Neg1	.63**	.02
Neg2	.72**	.01
Neg3	.51**	.02
Desired Relationship Continuance		
DRC1	.95**	.00
DRC2	.95**	.00
DRC3	.76**	.01

N = 1,557. **p <.01, *p<0.05. Balanced reciprocity and negative reciprocity items were reverse-coded.

Table 26: Study 2 – Standardized factor loadings – Reciprocity & DRC – Model 3

	Estimate	S.E.
General Factor		
Gen1	.88**	.01
Gen2	.83**	.01
Gen3	.86**	.01
Gen4	.38**	.02
Bal1	.49**	.02
Bal2	.35**	.03
Bal3	.38**	.03
Bal4	.30**	.03
Neg1	.60**	.02
Neg2	.66**	.02
Neg3	.44**	.02
DRC1	.85**	.01
DRC2	.83**	.01
DRC3	.68**	.02
Reciprocity		
Gen1	-.06*	.02
Gen2	-.01	.03
Gen3	-.00	.03
Gen4	.09*	.03
Bal1	.52**	.02
Bal2	.62**	.02
Bal3	.67**	.02
Bal4	.54**	.02
Neg1	.24**	.03
Neg2	.40**	.02
Neg3	.41**	.03
Desired Relationship Continuance		
DRC1	.43**	.02
DRC2	.48**	.02
DRC3	.31**	.02

N = 1,557. **p <.01, *p<0.05. Balanced reciprocity and negative reciprocity items were reverse-coded.

Table 27 (1 of 2): Study 2- Descriptive statistics and intercorrelations for round-robin variables – Parcels (Reciprocity types)

Variable	M	SD	1	2	3	4	5	6
1. GP 1	5.22	1.30	(.84)					
2. GP 2	4.73	1.11	.71**	(.58)				
3. BP 1	3.09	1.32	-.44**	-.41**	(.70)			
4. BP 2	3.18	1.23	-.34**	-.38**	.64**	(.69)		
5. NP 1	2.36	1.43	-.49**	-.33**	.42**	.34**	--	
6. NP 2	2.17	1.18	-.52**	-.38**	.54**	.50**	.60**	(.76)
7. PSP 1	2.87	1.02	.53**	.45**	-.20**	-.14**	-.29**	-.31**
8. PSP 2	2.68	1.07	.51**	.43**	-.19**	-.12**	-.26**	-.26**
9. DRCP 1	5.34	1.56	.78**	.61**	-.36**	-.29**	-.61**	-.55**
10. DRCP 2	5.56	1.59	.58**	.41**	-.43**	-.37**	-.64**	-.65**

Note. *N* = 1,557 ratings, 396 individuals. **p <.01, *p<.05. Items for balanced reciprocity and negative reciprocity were reverse-coded for the reciprocity composite. All scales measured on a 1-7 scale with the exception for similarity which is measured on a 1-5 scale. GP = generalized reciprocity parcel, BP = balanced reciprocity parcel, NP = negative reciprocity parcel, PSP = perceived similarity parcel, DRCP = desired relationship continuance parcel. Reliabilities are presented on the diagonal in parentheses. NP1, PSP1, PSP2, and DRC2 are comprised of only one item.

Table 27 (2 of 2): Study 2- Descriptive statistics and intercorrelations for round-robin variables - Parcels (Reciprocity types)

Variable	M	SD	7	8	9	10
1. GP 1	5.22	1.30				
2. GP 2	4.73	1.11				
3. BP 1	3.09	1.32				
4. BP 2	3.18	1.23				
5. NP 1	2.36	1.43				
6. NP 2	2.17	1.18				
7. PSP 1	2.87	1.02	--			
8. PSP 2	2.68	1.07	.86**	--		
9. DRCP 1	5.34	1.56	.58**	.56**	(.95)	
10. DRCP 2	5.56	1.59	.41**	.39**	.73**	--

Note. *N* = 1,557 ratings, 396 individuals. **p <.01, *p<.05. Items for balanced reciprocity and negative reciprocity were reverse-coded for the reciprocity composite. All scales measured on a 1-7 scale with the exception for similarity which is measured on a 1-5 scale. GP = generalized reciprocity parcel, BP = balanced reciprocity parcel, NP = negative reciprocity parcel, PSP= perceived similarity parcel, DRCP = desired relationship continuance parcel. Reliabilities are presented on the diagonal in parentheses. NP1, PSP1, PSP2, and DRC2 are comprised of only one item.

Table 28 : Study 2- Descriptive statistics and intercorrelations for round-robin variables – Parcels (Reciprocity composite)

Variable	M	SD	1	2	3	4	5	6
1. RCP 1	4.98	1.12	(.84)					
2. RCP 2	5.25	1.02	.56**	(.85)				
3. PSP 1	2.87	1.02	.53**	.28**	--			
4. PSP 2	2.68	1.07	.51**	.25**	.86**	--		
5. DRCP 1	5.34	1.56	.76**	.54**	.58**	.56**	(.95)	
6. DRCP 2	5.56	1.59	.54**	.63**	.41**	.39**	.73**	--

Note. *N* = 1,557 ratings, 396 individuals. **p <.01, *p<.05. Items for balanced reciprocity and negative reciprocity were reverse-coded for the reciprocity composite. All scales measured on a 1-7 scale with the exception for similarity which is measured on a 1-5 scale. RCP = Reciprocity composite parcel. Reliabilities are presented on the diagonal in parentheses. NP1, PSP1, PSP2, and DRC2 are comprised of only one item. Reliabilities are presented on the diagonal in parentheses. PSP1, PSP2, and DRC2 are comprised of only one item.

Table 29: Study 2- Variance decomposition from social relations model – Reciprocity types

	Generalized Reciprocity			*Balanced Reciprocity*			*Negative Reciprocity*		
	Estimate	SE	%	Estimate	SE	%	Estimate	SE	%
Variance Component									
Perceiver	.39**	.10	22%	.63**	.08	34%	.49**	.08	26%
Target	.13**	.04	7%	.00	.02	0%	.13**	.05	7%
Relationship	.53**	.09	30%	.36**	.06	20%	.40**	.07	21%
Group	.28	--	16%	.29	--	16%	.20	--	11%
Error	.41	--	24%	.56	--	30%	.65	--	34%
Covariances									
Perceiver-Target	-.04	.06	(-.16)	.00	.04	(.11)	.10*	.05	(.38)
Relationship	.17*	.08	(.31)	.03	.05	(.08)	.01	.04	(.03)

N= 61 groups, 278 individuals. Estimates are unstandardized. **p <.01, *p<.05. % = proportion of total variance attributable to that specific variance component, entries in this column for covariances are correlations (noted in parentheses).

Table 30: Study 2- Variance decomposition from social relations model – Reciprocity composite

	Reciprocity Composite		
	Estimate	SE	%
Variance Component			
Perceiver	.30**	.07	22%
Target	.07**	.03	5%
Relationship	.27**	.06	20%
Group	.23	--	17%
Error	.49	--	36%
Covariances			
Perceiver-Target	.02	.04	(.15)
Relationship	.05	.05	(.17)

N= 61 groups, 278 individuals. **p <.01, *p<.05. Estimates are unstandardized. **p <.01, *p<.05. % = proportion of total variance attributable to that specific variance component, entries in this column for covariances are correlations (noted in parentheses).

Table 31: Study 2- Variance decomposition from social relations model – Similarity and desired relationship continuance

	Perceived Similarity			*Desired Relationship Continuance*		
	Estimate	SE	%	Estimate	SE	%
Variance Component						
Perceiver	.32**	.06	28%	.43**	.09	16%
Target	.04*	.02	3%	.50**	.13	18%
Relationship	.50**	.06	43%	.93**	.12	34%
Group	.15	--	13%	.21	--	8%
Error	.15	--	13%	.70	--	25%
Covariances						
Perceiver-Target	.01	.03	(.06)	.07	.08	(.16)
Relationship	.26**	.06	(.52)	.16	.10	(.17)

N= 61 groups, 278 individuals. **p <.01, *p<.05. Estimates are unstandardized. **p <.01, *p<.05. % = proportion of total variance attributable to that specific variance component, entries in this column for covariances are correlations.

Table 32: Study 2- Example data and computation of perceiver and target effects

		Target				Perceiver Means	Perceiver Effects
		A	B	C	D		
Perceiver	A	-	8	5	10	7.67	2
	B	7	-	7	6	6.67	1
	C	8	7	-	5	6.67	0
	D	4	5	0	-	3.00	-3
	Target Means	6.33	6.67	4.00	7.00	(6.00)	
	Target Effects	1	1	-2	0		

Note. Sample data taken from Kenny, Kashy, & Cook (2006, p. 197). Grand mean in parentheses.

Table 33 (1 of 3): Study 2- Descriptive statistics and intercorrelations for perceiver and target effects- Reciprocity types

Variable	M	SD	1	2	3	4	5
Perceiver effects							
1. Generalized reciprocity	.00	.72	--				
2. Balanced reciprocity	.00	.83	-.52**	--			
3. Negative reciprocity	.00	.77	-.54**	.62**	--		
4. Perceived similarity	.00	.65	.49**	-.14*	-.29**	--	
5. DRC	.00	.85	.65**	-.48**	-.77**	.48**	--
Target effects							
6. Generalized reciprocity	.00	.54	.18**	-.06	-.18**	.28**	.16**
7. Balanced reciprocity	.00	.67	-.15*	.17**	.26**	-.19**	-.21**
8. Negative reciprocity	.00	.53	-.25**	.16**	.30**	-.26**	-.28**
9. Perceived similarity	.00	.44	.15*	-.15*	-.16**	.39**	.20**
10. DRC	.00	.84	.16**	-.10	-.19**	.26**	.26**
Traits							
11. Exchange ideology	4.20	.63	.01	.03	-.06	.02	.04
12. Conscientiousness	5.60	.84	.06	-.09	-.10	-.02	.02
13. Gender	.51	.51	-.10	-.05	-.05	-.14*	-.05

Note. *N* = 278 individuals. **p <.01, *p<.05. DRC = desired relationship continuance. Gender coded as 0= male, 1 = female. Alpha coefficients listed on the diagonal in parentheses.

Table 33 (continued, 2 of 3): Study 2- Descriptive statistics and intercorrelations for perceiver and target effects- Reciprocity types

Variable	M	SD	6	7	8	9	10
Perceiver effects							
1. Generalized reciprocity	.00	.72					
2. Balanced reciprocity	.00	.83					
3. Negative reciprocity	.00	.77					
4. Perceived similarity	.00	.65					
5. DRC	.00	.85					
Target effects							
6. Generalized reciprocity	.00	.54	--				
7. Balanced reciprocity	.00	.67	-.44**	--			
8. Negative reciprocity	.00	.53	-.69**	.44**	--		
9. Perceived similarity	.00	.44	.64**	-.30**	-.52**	--	
10. DRC	.00	.84	.80**	-.37**	-.81**	.70**	--
Traits							
11. Exchange ideology	4.20	.63	-.04	.06	.03	-.02	.00
12. Conscientiousness	5.60	.84	.03	-.02	-.07	.07	.03
13. Gender	.51	.51	.00	.05	.03	-.02	-.03

Note. *N* = 278 individuals for perceiver and target effects, 273 for traits. **p <.01, *p<.05. DRC = desired relationship continuance. Gender coded as 0= male, 1 = female. Alpha coefficients listed on the diagonal in parentheses.

Table 33 (continued, 3 of 3): Study 2- Descriptive statistics and intercorrelations for perceiver and target effects- Reciprocity types

Variable	M	SD	11	12	13
Perceiver effects					
1. Generalized reciprocity	.00	.72			
2. Balanced reciprocity	.00	.83			
3. Negative reciprocity	.00	.77			
4. Perceived similarity	.00	.65			
5. DRC	.00	.85			
Target effects					
6. Generalized reciprocity	.00	.54			
7. Balanced reciprocity	.00	.67			
8. Negative reciprocity	.00	.53			
9. Perceived similarity	.00	.44			
10. DRC	.00	.84			
Traits					
11. Exchange ideology	4.20	.63	(.59)		
12. Conscientiousness	5.60	.84	-.05	(.81)	
13. Gender	.51	.51	.01	.13*	--

Note. *N* = 278 individuals. **p <.01, *p<.05. DRC = desired relationship continuance. Gender coded as 0= male, 1 = female. Alpha coefficients listed on the diagonal in parentheses.

Table 34 (1 of 2): Study 2- Descriptive statistics and intercorrelations for perceiver and target effects- Reciprocity composite

Variable	M	SD	1	2	3	4	5
Perceiver effects							
1. Reciprocity (composite)	.00	.65	--				
2. Perceived similarity	.00	.65	.40**	--			
3. DRC	.00	.85	.74**	.48**	--		
Target effects							
4. Reciprocity (composite)	.00	.41	.24**	.29**	.23**	--	
5. Perceived similarity	.00	.44	.18**	.39**	.20**	.63**	--
6. DRC	.00	.84	.17**	.26**	.26**	.82**	.70**
Traits							
7. Exchange ideology	4.20	.63	.01	.02	.04	-.05	-.02
8. Conscientiousness	5.60	.84	.10	-.02	.02	.04	.07
9. Gender	.51	.51	-.02	-.14*	-.05	-.02	-.02

Note. *N* = 278 individuals. **p <.01, *p<.05. DRC = desired relationship continuance. Gender coded as 0= male, 1 = female. Alpha coefficients listed on the diagonal in parentheses.

Table 34 (continued, 2 of 2): Study 2- Descriptive statistics and intercorrelations for perceiver and target effects- Reciprocity composite

Variable	M	SD	6	7	8	9
Perceiver effects						
1. Reciprocity (composite)	.00	.65				
2. Perceived similarity	.00	.65				
3. DRC	.00	.85				
Target effects						
4. Reciprocity (composite)	.00	.41				
5. Perceived similarity	.00	.44				
6. DRC	.00	.84	--			
Traits						
7. Exchange ideology	4.20	.63	.00	(.59)		
8. Conscientiousness	5.60	.84	.03	-.05	(.81)	
9. Gender	.51	.51	-.03	.01	.13*	--

Note. N = 278 individuals. **p <.01, *p<.05. DRC = desired relationship continuance. Gender coded as 0= male, 1 = female. Alpha coefficients listed on the diagonal in parentheses.

Table 35: Study 2- Partial correlations while controlling for group membership – Reciprocity types

Variable	1	2	3	4	5	6	7	8
Perceiver effects								
1. Generalized reciprocity	--							
2. Balanced reciprocity	-.52**	--						
3. Negative reciprocity	-.53**	.61**	--					
Target effects								
4. Generalized reciprocity	.17**	-.06	-.17**	--				
5. Balanced reciprocity	-.16**	.17**	.26**	-.45**	--			
6. Negative reciprocity	-.25**	.15*	.29**	-.70**	.42**	--		
Traits								
7. Exchange ideology	.02	.02	-.08	-.04	.08	.04	--	
8. Conscientiousness	.07	-.10	-.11	.04	-.03	-.08	-.05	--
9. Gender	-.10	-.05	-.05	.00	.05	.03	.01	.13*

Note. *N* = 278 individuals. **p <.01, *p<.05. Gender coded as 0= male, 1 = female.

Table 36: Study 2- Partial correlations while controlling for group membership – Reciprocity composite

Variable	1	2	3	4
Perceiver effects				
1. Reciprocity (composite)	--			
Target effects				
2. Reciprocity (composite)	.23**	--		
Traits				
3. Exchange ideology	.02	-.06	--	
4. Conscientiousness	.11	.06	-.05	--
5. Gender	-.02	-.02	.01	.13*

Note. *N* = 278 individuals. **p <.01, *p<.05. Gender coded as 0= male, 1 = female.

Table 37: Study 2- Example pairwise data for actor-partner interdependence (APIM) analyses

Dyad	Person	Perceived Similarity-Actor	Perceived Similarity-Partner	Generalized Reciprocity-Actor	Generalized Reciprocity-Partner
1	1	.48	.60	-1.26	1.05
1	2	.60	.48	1.05	-1.26
2	1	-.33	-.33	1.46	-.29
2	2	-.33	-.33	-.29	1.46
3	1	-.15	-.27	-.20	.24
3	2	-.27	-.15	.24	-.20

Table 38 (1 of 2): Study 2- Descriptive statistics and intercorrelations for actor and partner effects- Reciprocity types

Variable	M	SD	1	2	3	4	5
Actor effects							
1. Generalized reciprocity	.00	.58	--				
2. Balanced reciprocity	.00	.54	-.37**	--			
3. Negative reciprocity	.00	.56	-.41**	.48**	--		
4. Perceived similarity	.00	.52	.53**	-.22**	-.54**	--	
5. DRC	.00	.76	.64**	-.41**	-.61**	.46**	--
Partner effects							
6. Generalized reciprocity	.00	.58	.12**	.01	.00	.23**	.10**
7. Balanced reciprocity	.00	.54	.01	-.02	-.03	-.10**	.01
8. Negative reciprocity	.00	.56	.00	-.03	-.14**	-.09**	.05
9. Perceived similarity	.00	.52	.23**	-.10**	-.09**	.32**	.21**
10. DRC	.00	.76	.10**	.01	.05	.21**	-.01

Note. *N* = 520 dyads, 278 individuals. **p <.01, *p<.05. DRC = desired relationship continuance.

Table 38 (continued, 2 of 2): Study 2- Descriptive statistics and intercorrelations for actor and partner effects- Reciprocity types

Variable	M	SD	6	7	8	9	10
Actor effects							
11. Generalized reciprocity	.00	.58					
12. Balanced reciprocity	.00	.54					
13. Negative reciprocity	.00	.56					
14. Perceived similarity	.00	.52					
15. DRC	.00	.76					
Partner effects							
16. Generalized reciprocity	.00	.58	--				
17. Balanced reciprocity	.00	.54	-.37**	--			
18. Negative reciprocity	.00	.56	-.41**	.48**	--		
19. Perceived similarity	.00	.52	.53**	-.22**	-.24**	--	
20. DRC	.00	.76	.64**	-.41	-.61**	.46**	--

Note. *N* = 520 dyads, 278 individuals. **p <.01, *p<.05. DRC = desired relationship continuance.

Table 39: Study 2- Descriptive statistics and intercorrelations for actor and partner effects- Reciprocity composite

Variable	M	SD	1	2	3	4	5	6
Actor effects								
1. Reciprocity (composite)	.00	.45	--					
2. Perceived similarity	.00	.52	.48**	--				
3. DRC	.00	.76	.70**	.46**	--			
Partner effects								
4. Reciprocity (composite)	.00	.45	.03	.21**	.04	--		
5. Perceived similarity	.00	.52	.21**	.32**	.21**	.48**	--	
6. DRC	.00	.76	.04	.21**	-.01	.70**	.46**	--

Note. *N* = 520 dyads, 278 individuals. **p <.01, *p<.05. DRC = desired relationship continuance.

Table 40: Study 2- Actor-partner interdependence model (APIM) of perceived similarity predicting reciprocity type actor effects

	Generalized Reciprocity		Balanced Reciprocity		Negative Reciprocity	
	b	SE	*b*	SE	*b*	SE
Intercept	.00	.01	.00	.02	.00	.02
Perceived Similarity – Actor	.57**	.03	-.22**	.03	-.26**	.04
Perceived Similarity – Partner	.08*	.03	-.04	.03	-.01	.04
Pseudo R^2	.28		.05		.06	
Restricted Log Likelihood	1466.17		1629.04		1679.41	

Note. N = 520 dyads. **p <.01, *p<.05. *b* = unstandardized beta coefficient.

Table 41: Study 2- Actor-partner interdependence model (APIM) of perceived similarity predicting reciprocity composite actor effects

	b	SE
Intercept	.00	.01
Perceived Similarity – Actor	.40**	.03
Perceived Similarity – Partner	.05*	.03
Pseudo R^2	.23	
Restricted Log Likelihood	1006.23	

Note. N = 520 dyads. **p <.01, *p<.05. *b* = unstandardized beta coefficient.

Table 42: Study 2- Actor-partner interdependence model (APIM) of perceived similarity predicting reciprocity type actor effects- Interactions

	Generalized Reciprocity		Balanced Reciprocity		Negative Reciprocity	
	b	SE	*b*	SE	*b*	SE
Intercept	.00	.02	.00	.02	.01	.02
Perceived Similarity – Actor	.56**	.03	-.22**	.03	-.25	.04
Perceived Similarity – Partner	.07*	.03	.04	.03	.00	.04
Perceived Similarity – Actor*Partner	.08	.05	-.01	.05	-.08	.05
Pseudo R^2	.28		.05		.06	
Restricted Log Likelihood	1468.00		1632.98		1681.39	

Note. N = 520 dyads. **p <.01, *p<.05. *b* = unstandardized beta coefficient.

Table 43: Study 2- Actor-partner interdependence model (APIM) predicting reciprocity composite actor effect – Interaction

	b	SE
Intercept	-.01	.01
Perceived Similarity – Actor	.40	.03
Perceived Similarity – Partner	.04	.03
Perceived Similarity – Actor*Partner	.06	.04
Pseudo R^2	.23	
Restricted Log Likelihood	1008.59	

Note. N = 520 dyads. **p <.01, *p<.05. *b* = unstandardized beta coefficient.

Table 44: Study 2 – Actor-partner interdependence model (APIM) predicting desired relationship continuance actor effect

	Model 1- Desired Relationship Continuance		Model 2- Desired Relationship Continuance	
	b	SE	*b*	SE
Intercept	.00	.01	.00	.01
Generalized Reciprocity – Actor	.59**	.03	.59**	.03
Generalized Reciprocity – Partner	.08*	.03	.08*	.03
Balanced Reciprocity- Actor	-.06	.03	-.06	.03
Balanced Reciprocity – Partner	.02	.03	.02	.03
Negative Reciprocity – Actor	-.55**	.04	-.55**	.03
Negative Reciprocity- Partner	.01	.03	.02	.03
Generalized Reciprocity – Actor*Partner			.00	.04
Balanced Reciprocity – Actor*Partner			-.07	.05
Negative Reciprocity – Actor*Partner			.04	.04
Pseudo R^2	.55		.55	
Restricted Log Likelihood	1566.46		1576.81	

Note. N = 520 dyads. **p <.01, *p<.05.

Table 45: Study 2 – Actor-partner interdependence model (APIM) predicting desired relationship continuance actor effect

	Model 1- Desired Relationship Continuance		Model 2- Desired Relationship Continuance	
	b	SE	*b*	SE
Intercept	.00	.02	.00	.02
Reciprocity Composite – Actor	1.20**	.04	1.19**	.04
Reciprocity Composite- Partner	.04	.04	.04	.04
Reciprocity Composite– Actor*Partner			.01	.07
Pseudo R^2	.49		.49	
Restricted Log Likelihood	1680.08		1683.52	

Note. N = 520 dyads. **p <.01, *p<.05.

Table 46: Study 2 – Actor-partner discrepancy on generalized reciprocity as predictor of desired relationship continuance

	Desired relationship continuance	
Variable	*b*	SE
Constant	-.01	.02
GR(actor)	.83**	.03
GR(partner)	.04	.03
GR(actor) x GR(partner)	-.01	.05
GR(actor) squared	.00	.03
GR(actor) squared	.03	.03
R^2	.41**	
Surface tests		
a_1	.87**	.04
a_2	.02	.06
a_3	.79**	.04
a_4	.04	.06

Note. N = 1,040 relationship effects. GR = generalized reciprocity. * p<. 05, ** p< .01

$a_1 = (b_1 + b_2)$, where b_1 is beta coefficient for GR (actor) and b_2 is beta coefficient for GR(partner). $A_2 = (b_3 + b_4 + b_5)$, where b_3 is beta coefficient for GR(actor) squared, b_4 is beta coefficient for the cross-product of GR(actor) and GR(partner), and b_5 is beta coefficient for GR(partner) squared. $A_3 = (b_1 – b_2)$. $A_4 = (b_3 – b_4 + b_5)$

b unstandardized regression coefficient, SE standard error.

Table 47: Study 2 – Actor-partner discrepancy on balanced reciprocity as predictor of desired relationship continuance

	Desired relationship continuance	
Variable	*b*	SE
Constant	-.03	.03
BR(actor)	-.57**	.04
BR(partner)	.00	.04
BR(actor) x BR(partner)	-.10	.07
BR(actor) squared	.02	.03
BR(partner) squared	.06	.03
R^2	.17**	
Surface tests		
a_1	-.57**	.06
a_2	-.02	.08
a_3	-.57**	.06
a_4	.18*	.08

Note. N = 1,040 relationship effects. BR = balanced reciprocity. * p<. 05, ** p< .01
$a_1 = (b_1 + b_2)$, where b_1 is beta coefficient for BR (actor) and b_2 is beta coefficient for BR(partner). $A_2 = (b_3 + b_4 + b_5)$, where b_3 is beta coefficient for BR(actor) squared, b_4 is beta coefficient for the cross-product of BR(actor) and BR(partner), and b_5 is beta coefficient for BR(partner) squared. $A_3 = (b_1 – b_2)$. $A_4 = (b_3 – b_4 + b_5)$
b unstandardized regression coefficient, SE standard error.

Table 48: Study 2 – Actor-partner discrepancy on negative reciprocity as predictor of desired relationship continuance

	Desired relationship continuance	
Variable	*b*	SE
Constant	-.01	.02
NR(actor)	-.83**	.03
NR(partner)	.04	.03
NR(actor) x NR(partner)	.02	.05
NR(actor) squared	.03	.03
NR(partner) squared	.02	.03
R^2	.37**	
Surface tests		
a_1	-.79**	.04
a_2	.07	.07
a_3	-.87**	.04
a_4	.03	.07

Note. N = 1,040 relationship effects. NR = negative reciprocity. * p<. 05, ** p< .01
$a_1 = (b_1 + b_2)$, where b_1 is beta coefficient for NR (actor) and b_2 is beta coefficient for NR(partner). $A_2 = (b_3 + b_4 + b_5)$, where b_3 is beta coefficient for NR(actor) squared, b_4 is beta coefficient for the cross-product of NR(actor) and NR(partner), and b_5 is beta coefficient for NR(partner) squared. $A_3 = (b_1 – b_2)$. $A_4 = (b_3 – b_4 + b_5)$
b unstandardized regression coefficient, SE standard error.

Table 49: Study 2 – Actor-partner discrepancy on reciprocity composite as predictor of desired relationship continuance

	Desired relationship continuance	
Variable	*b*	SE
Constant	-.02	.02
Reciprocity (actor)	1.19**	.04
Reciprocity (partner)	.05	.04
Reciprocity (actor) x Reciprocity (partner)	.00	.08
Reciprocity (actor) squared	.02	.04
Reciprocity (partner) squared	.07	.04
R^2	.50**	
Surface tests		
a_1	1.24**	.05
a_2	.09	.10
a_3	1.14**	.05
a_4	.10	.10

Note. N = 1,040 relationship effects. * p<. 05, ** p< .01
$a_1 = (b_1 + b_2)$, where b_1 is beta coefficient for Reciprocity(actor) and b_2 is beta coefficient for Reciprocity (partner). $A_2 = (b_3 + b_4 + b_5)$, where b_3 is beta coefficient for Reciprocity (actor) squared, b_4 is beta coefficient for the cross-product of Reciprocity (actor) and Reciprocity (partner), and b_5 is beta coefficient for Reciprocity (partner) squared. $A_3 = (b_1 – b_2)$. $A_4 = (b_3 – b_4 + b_5)$
b unstandardized regression coefficient, SE standard error.

Table 50: Study 2- Actor-partner interdependence model (APIM) of exchange ideology predicting reciprocity type and reciprocity composite actor effects

	Generalized Reciprocity		Balanced Reciprocity		Negative Reciprocity		Reciprocity Composite	
	b	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	.00	.18	-.02	.16	-.02	.15	.01	.14
Exchange ideology – Actor	.00	.03	.00	.03	.01	.03	.00	.02
Exchange ideology- Partner	.00	.03	.00	.03	.00	.03	.00	.02
Pseudo R^2	.00		.01		.02		.00	
Restricted Log Likelihood	1806.10		1663.81		1709.71		1282.46	

Note. N = 518 dyads. **p <.01, *p<.05.

Table 51: Study 2- Actor-partner interdependence model (APIM) of conscientiousness predicting reciprocity type and reciprocity composite actor effects

	Generalized Reciprocity		Balanced Reciprocity		Negative Reciprocity		Reciprocity Composite	
	b	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	.01	.18	.00	.16	.00	.15	.00	.13
Conscientiousness – Actor	.00	.02	.00	.02	.00	.02	.00	.02
Conscientiousness- Partner	.00	.02	.00	.02	.00	.02	.00	.02
Pseudo R^2	.00		.01		.02		.00	
Restricted Log Likelihood	1807.10		1664.83		1710.75		1283.47	

Note. N = 518 dyads. **p <.01, *p<.05.

Table 52: Study 2- Actor-partner interdependence model (APIM) of gender predicting reciprocity type and reciprocity composite actor effects

	Generalized Reciprocity		Balanced Reciprocity		Negative Reciprocity		Reciprocity Composite	
Intercept	.00	.03	.00	.03	.00	.03	.00	.03
Gender – Actor	.00	.04	.01	.03	.00	.03	-.01	.03
Gender- Partner	.00	.04	.00	.03	.01	.03	.00	.03
Pseudo R^2	.00		.01		.04		.00	
Restricted Log Likelihood	1755.99		1601.74		1635.85		1247.51	

Note. N = 518 dyads. **p <.01, *p<.05.

Table 53: Study 2- Descriptive statistics and intercorrelations for openness, extraversion, agreeableness, and neuroticism

Variable	M	SD	1	2	3	4
1. Openness	5.29	.76	(.72)			
2. Extraversion	4.60	1.08	.23**	(.84)		
3. Agreeableness	5.64	.84	.08	.03	(.81)	
4. Neuroticism	3.26	.96	.04	.06	-.38**	(.76)

Note. *N* = 278 individuals. All variables measured on a 1-7 scale.**p <.01, *p<.05.

Table 54: Study 2- Partial correlations while controlling for group membership – Openness, extraversion, agreeableness, and neuroticism (Reciprocity types)

Variable	1	2	3	4	5	6	7	8	9
Perceiver effects									
1. Generalized reciprocity	--								
2. Balanced reciprocity	-.52**	--							
3. Negative reciprocity	-.54**	.61**	--						
Target effects									
4. Generalized reciprocity	.18**	-.06	-.18**	--					
5. Balanced reciprocity	-.15**	.15*	.25**	-.46**	--				
6. Negative reciprocity	-.25**	.15*	.29**	-.70**	.42**	--			
Traits									
7. Openness	.01	.03	-.03	-.05	.00	.08	--		
8. Extraversion	.09	-.01	-.03	-.08	.06	.09	.23**	--	
9. Agreeableness	.18**	-.24**	-.22**	.04	-.01	.02	.07	.03	--
10. Neuroticism	-.15*	.18**	.09	.04	.01	-.07	.04	.06	-.38**

Note. *N* = 278 individuals. **p <.01, *p<.05.

Table 55: Study 2- Partial correlations while controlling for group membership – Openness, extraversion, agreeableness, and neuroticism (Reciprocity composite)

Variable	1	2	3	4	5
Perceiver effects					
1. Reciprocity (composite)	--				
Target effects					
2. Reciprocity (composite)	.23**	--			
Traits					
3. Openness	.00	-.05	--		
4. Extraversion	.06	-.09	.23**	--	
5. Agreeableness	.25**	.03	.07	.03	--
6. Neuroticism	-.17**	.04	.04	.06	-.38**

Note. N = 278 individuals. **p <.01, *p<.05.

Table 56: Study 2- Actor-partner interdependence model (APIM) of agreeableness predicting reciprocity type and reciprocity composite actor effects

	Generalized Reciprocity		Balanced Reciprocity		Negative Reciprocity		Reciprocity Composite	
	b	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	.01	.19	.00	.16	.01	.16	.00	.14
Agreeableness – Actor	.00	.02	.00	.02	.00	.02	.00	.02
Agreeableness- Partner	.00	.02	.00	.02	.00	.02	.00	.02
Pseudo R^2	.00		.01		.02		.00	
Restricted Log Likelihood	1807.12		1664.85		1710.76		1283.48	

Note. N = 518 dyads. **p <.01, *p<.05.

Table 57: Study 2- Actor-partner interdependence model (APIM) of neuroticism predicting reciprocity type and reciprocity composite actor effects

	Generalized Reciprocity		Balanced Reciprocity		Negative Reciprocity		Reciprocity Composite	
	b	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	-.01	.09	-.01	.08	-.01	.08	.00	.07
Neuroticism – Actor	.00	.02	.00	.02	.00	.02	.00	.01
Neuroticism- Partner	.00	.02	.00	.02	.00	.02	.00	.01
Pseudo R^2	.00		.01		.02		.00	
Restricted Log Likelihood	1807.71		1665.44		1711.35		1284.08	

Note. N = 518 dyads. **p <.01, *p<.05.

APPENDIX B: FIGURES

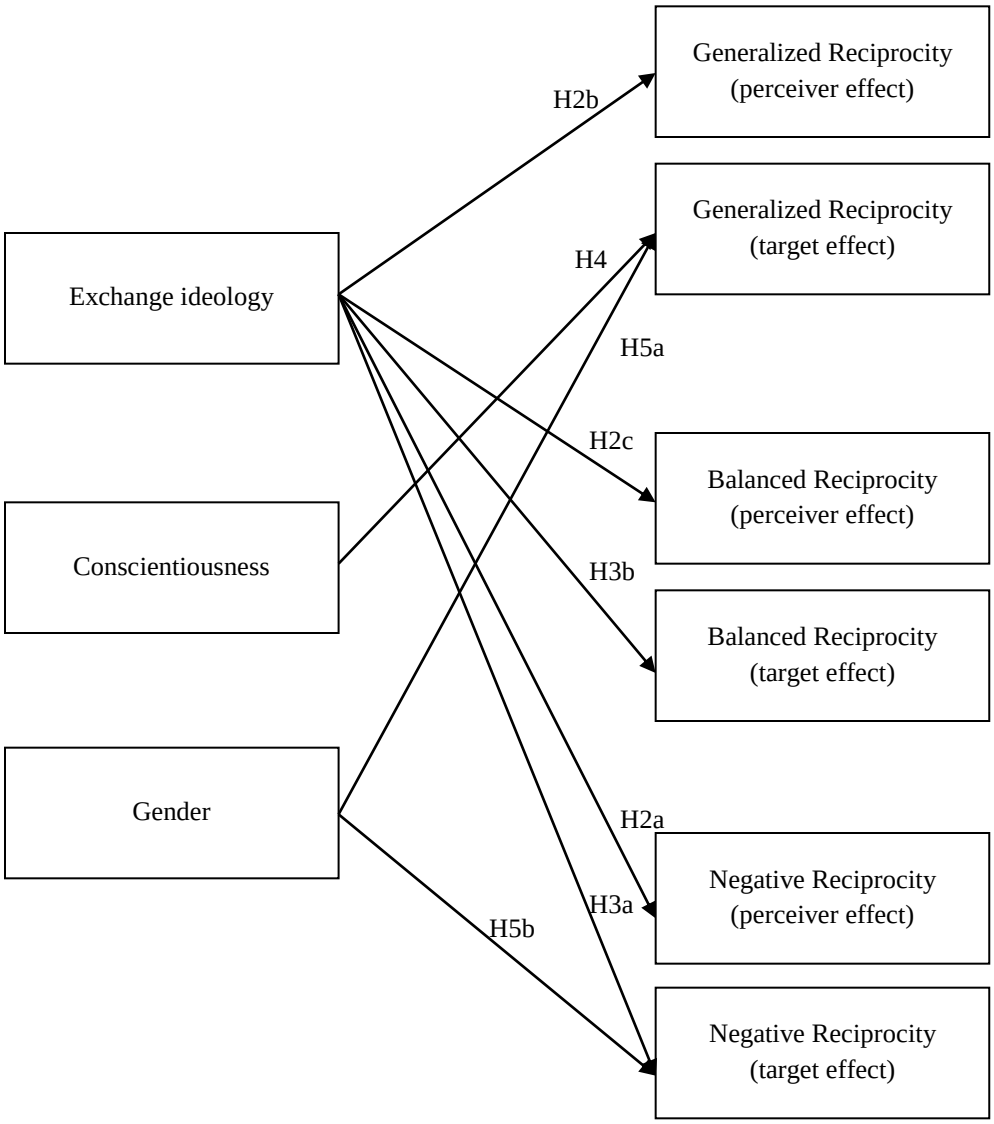

Figure 1: Hypothesized relationships at the individual level.

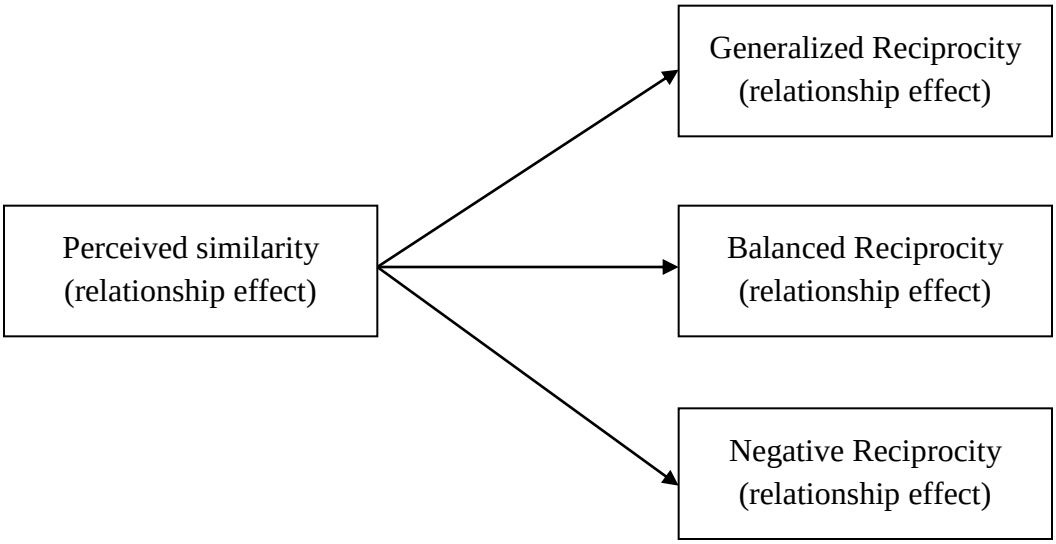

Figure 2: Hypothesized relationships at the dyad level.

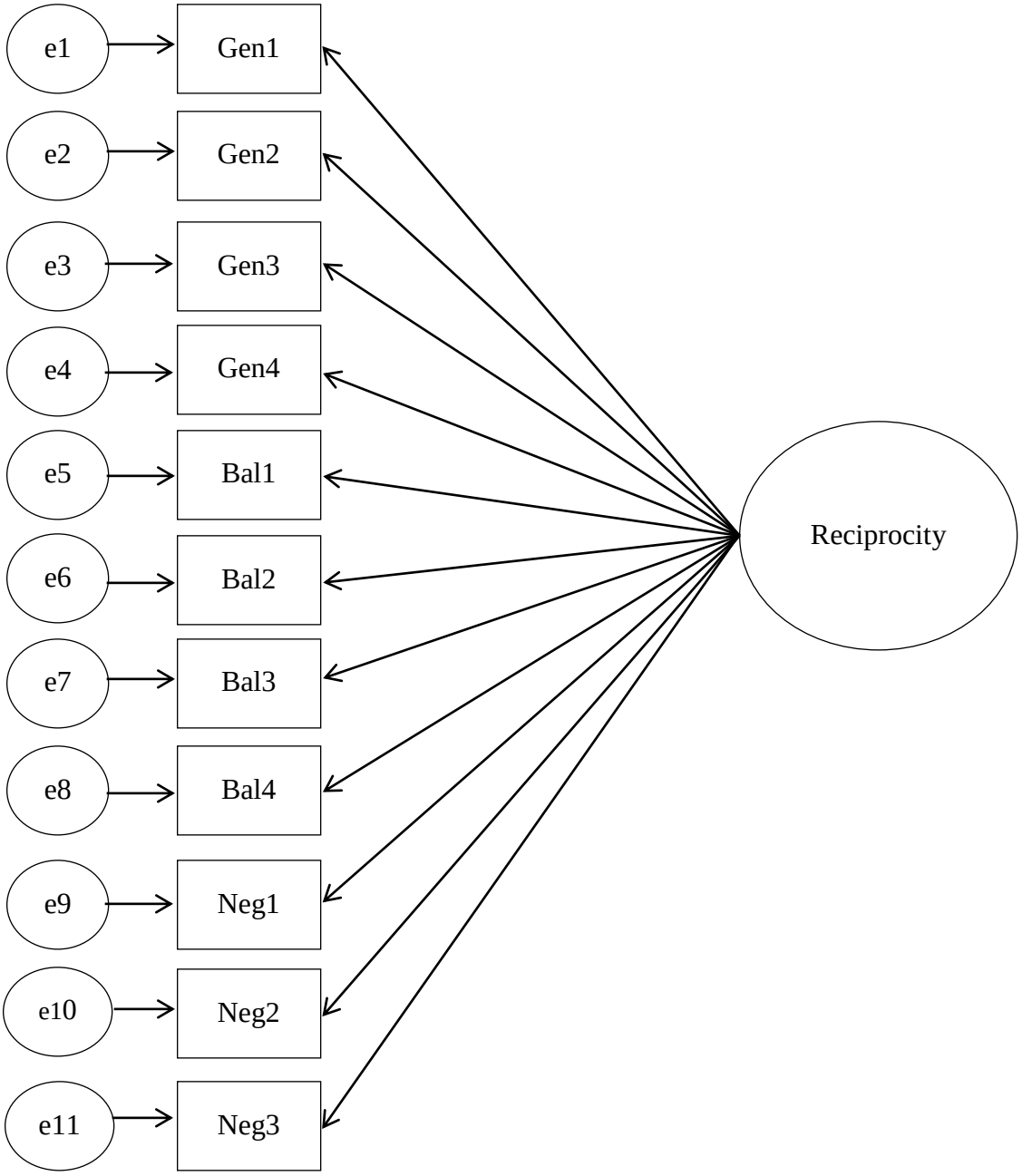

Figure 3*:* Model 1 - One factor model for confirmatory factor analysis of reciprocity items.

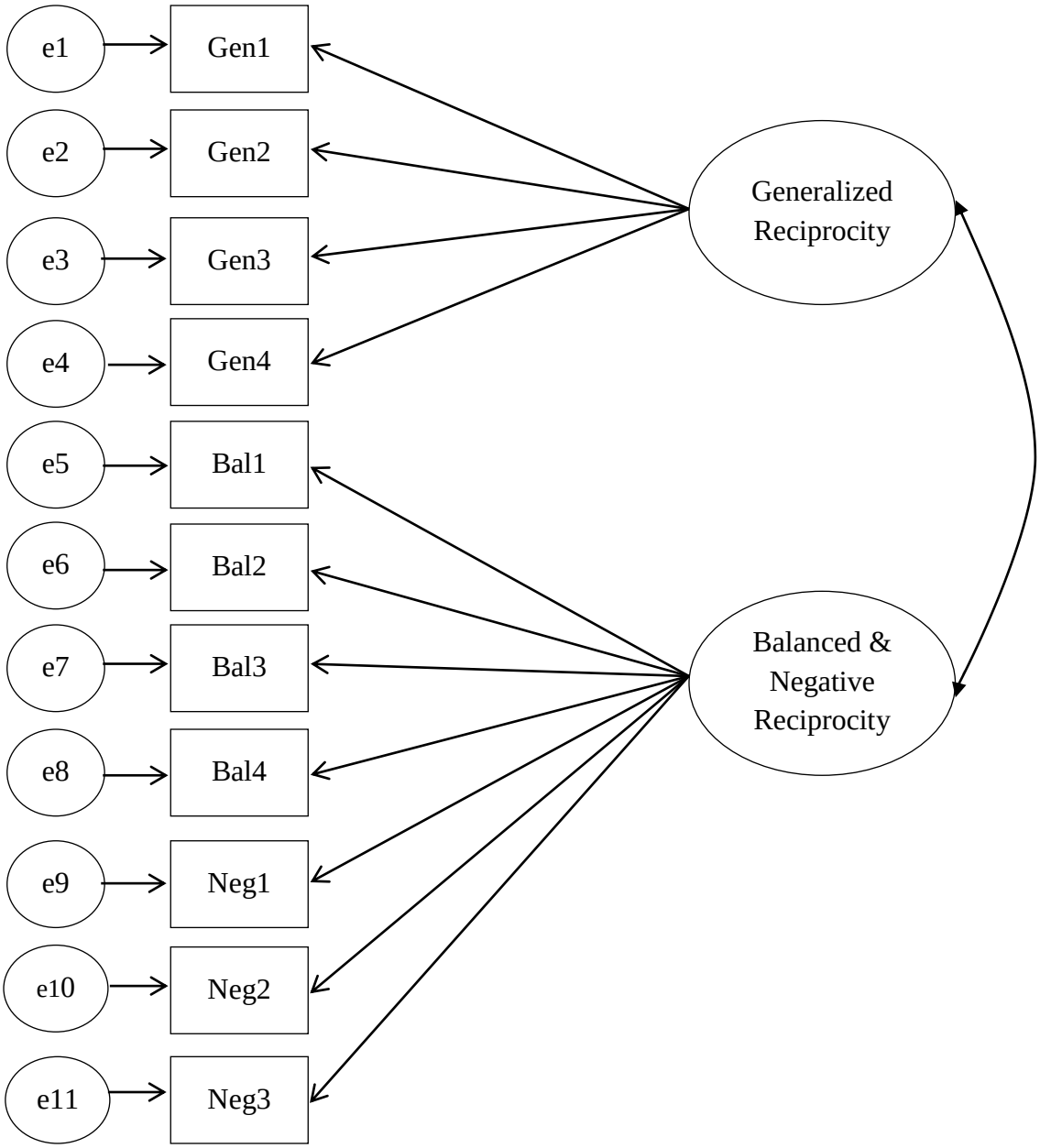

Figure 4: Model 2 - Two factor model for confirmatory factor analysis of reciprocity items.

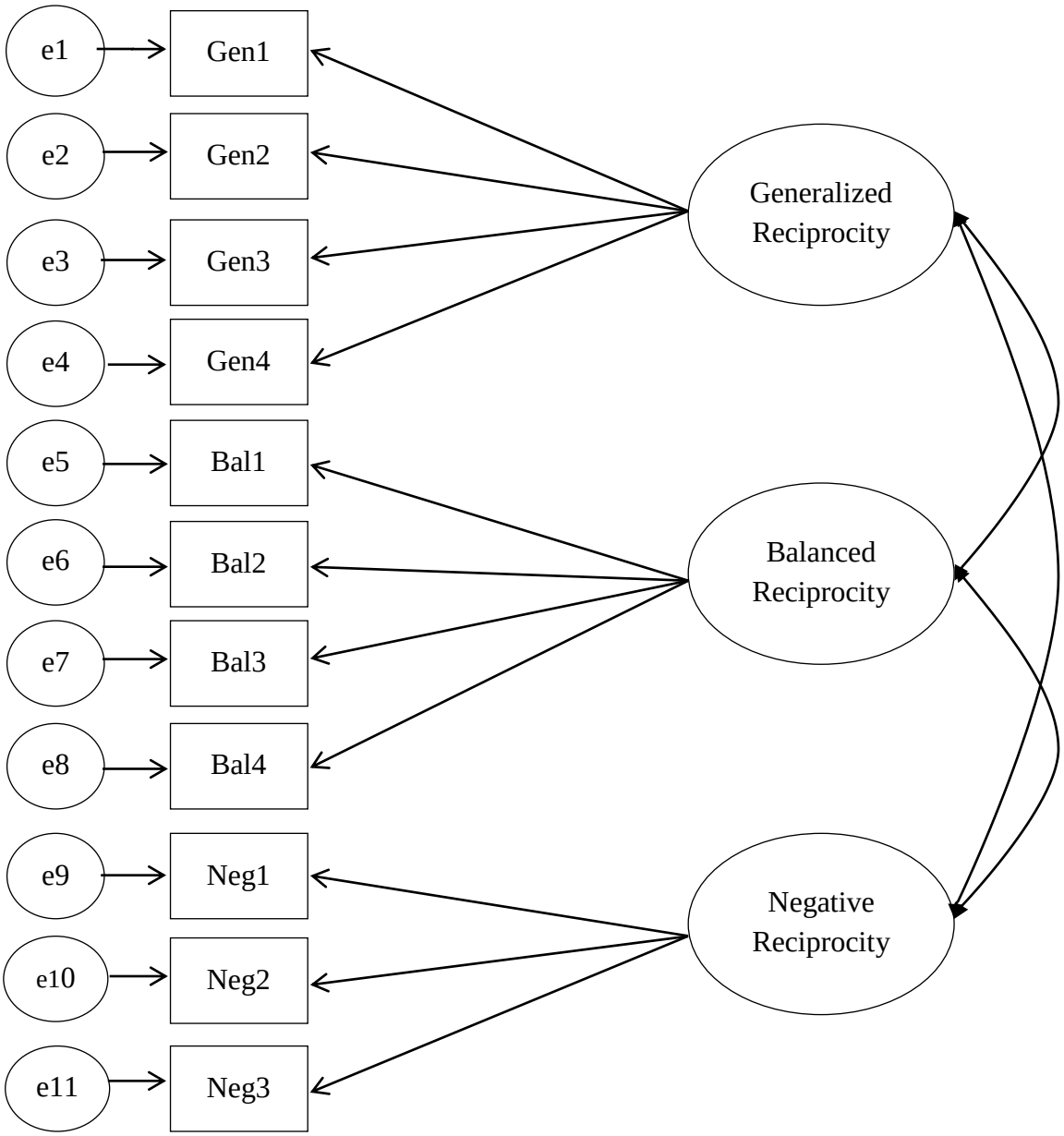

Figure 5: Model 3 - Three factor model for confirmatory factor analysis of reciprocity items.

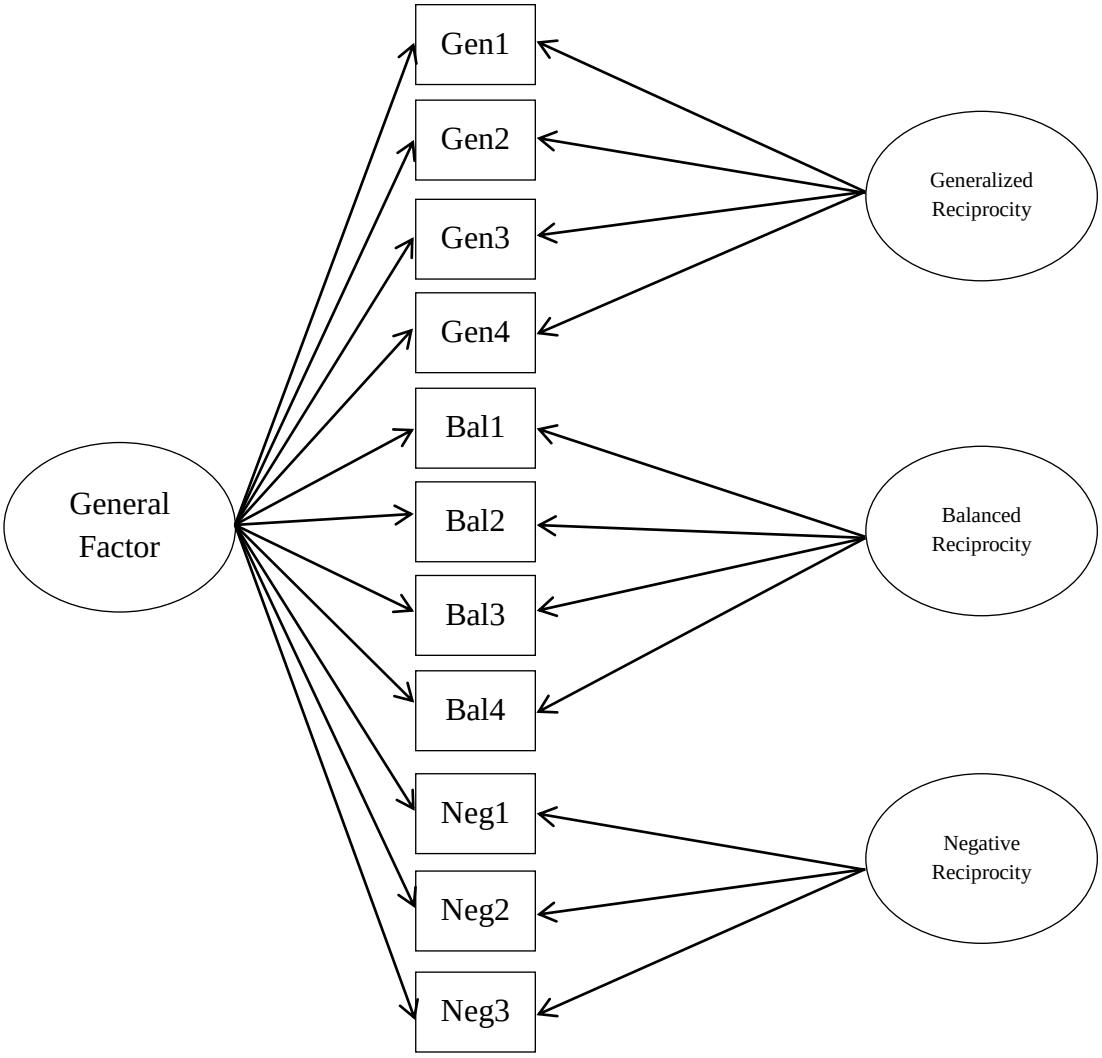

Figure 6: Model 4 – General and unique factors model (GUFM) with general factor for confirmatory factor analysis of reciprocity items (Note- Errors not depicted in figure for clarity)

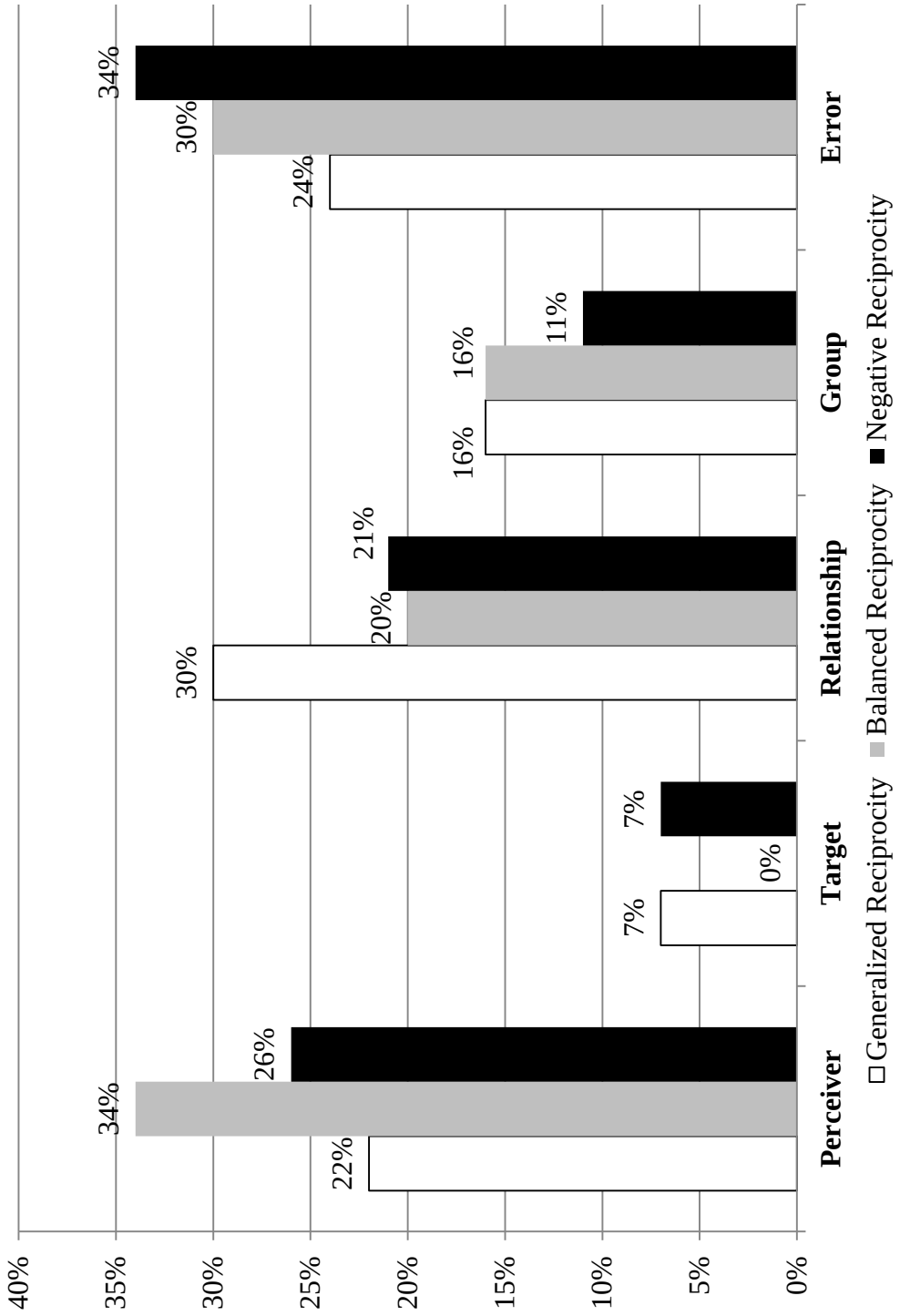

Figure 7: Relative variance components for reciprocity types.

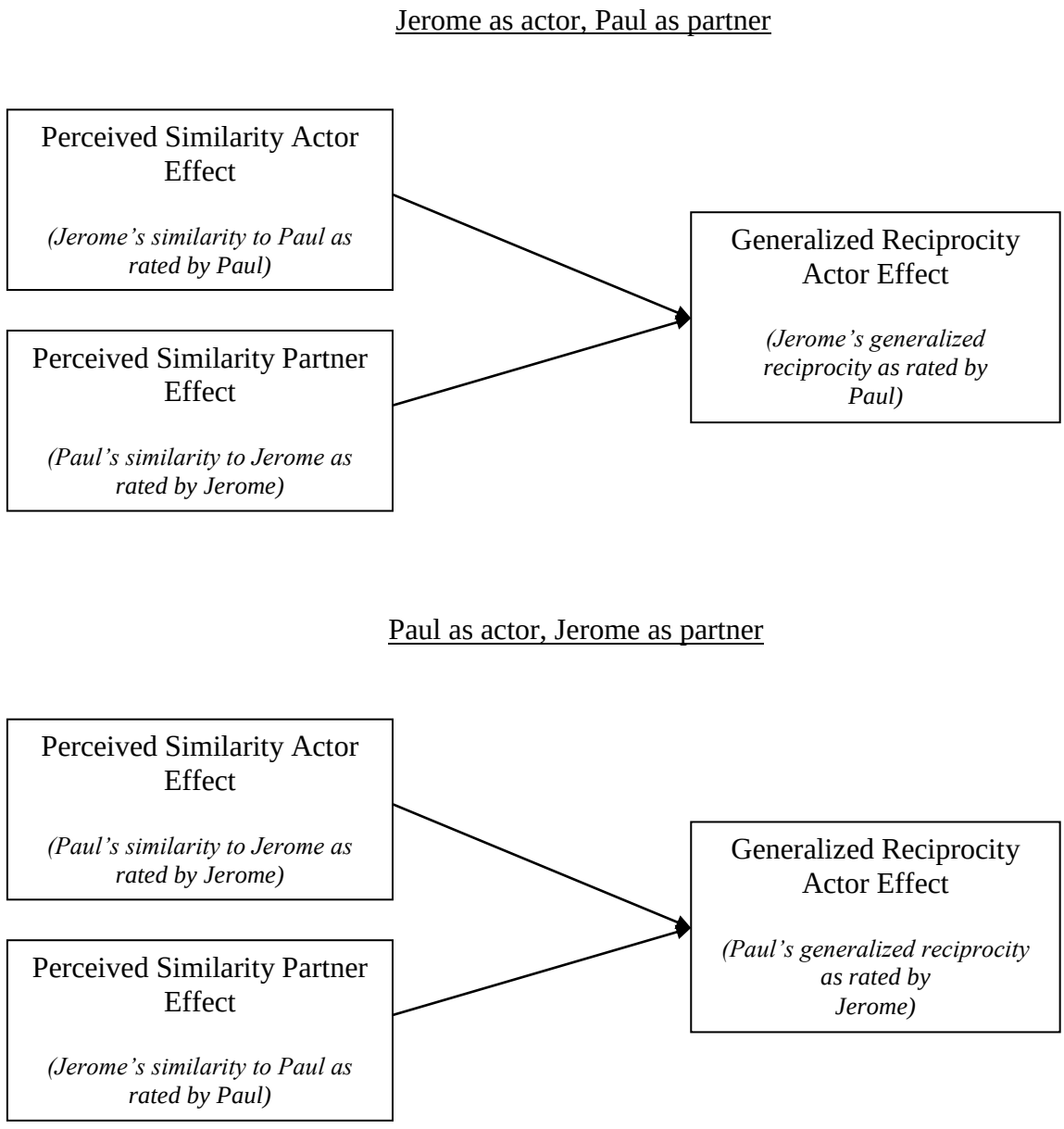

Figure 8: Example of actor and partner effects in a dyad.

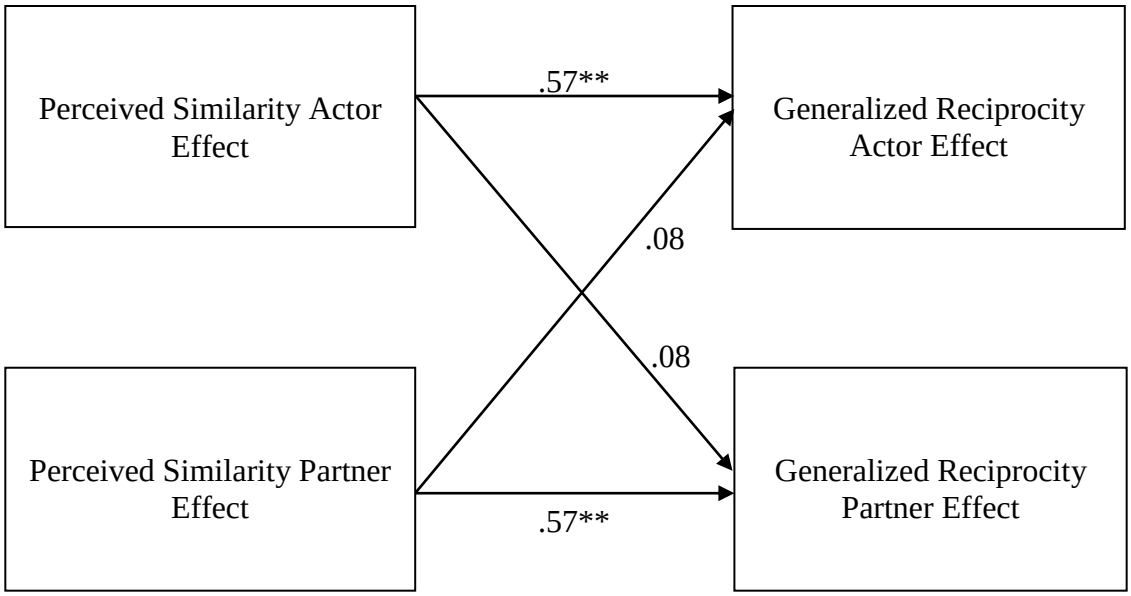

Figure 9: Results for actor-partner interdependence model predicting generalized reciprocity. ** p<.01, * p<.05.

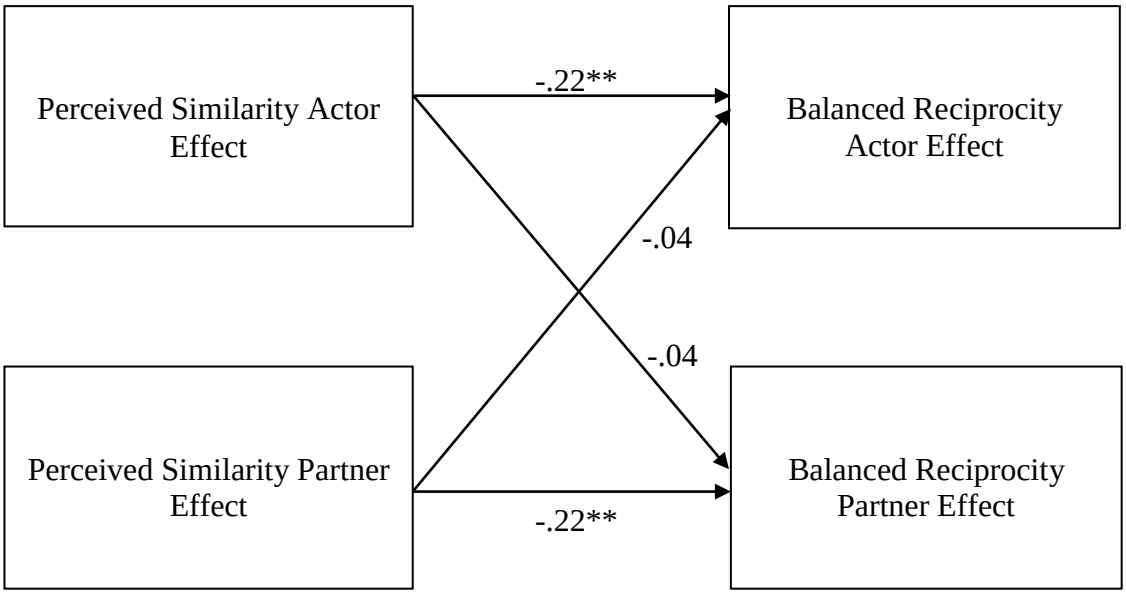

Figure 10: Results for actor-partner interdependence model predicting balanced reciprocity. ** p<.01, * p<.05.

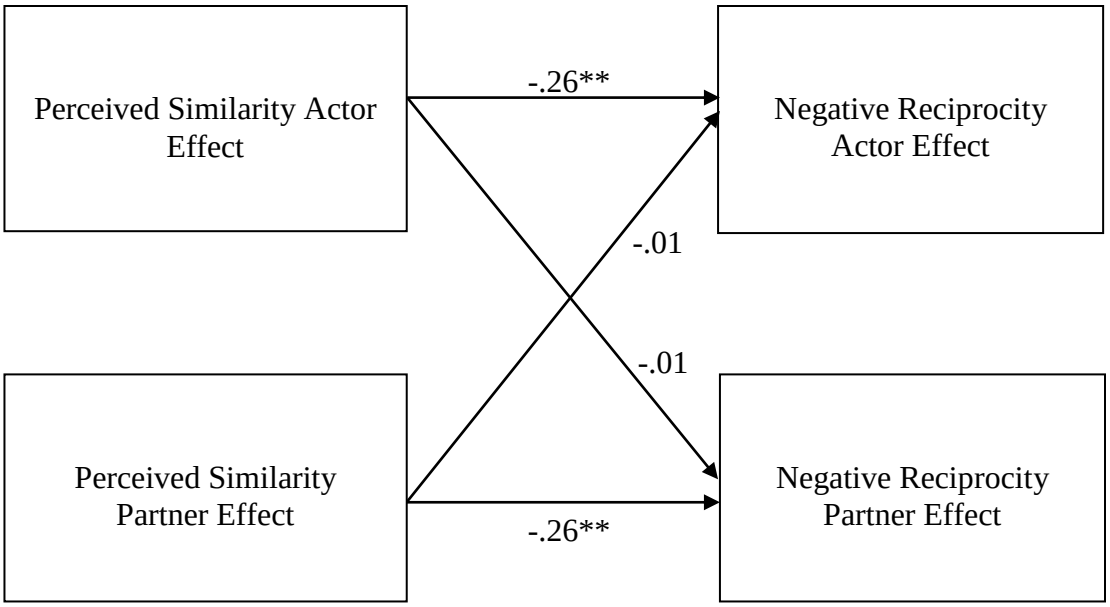

Figure 11: Results for actor-partner interdependence model predicting negative reciprocity. ** p<.01, * p<.05.

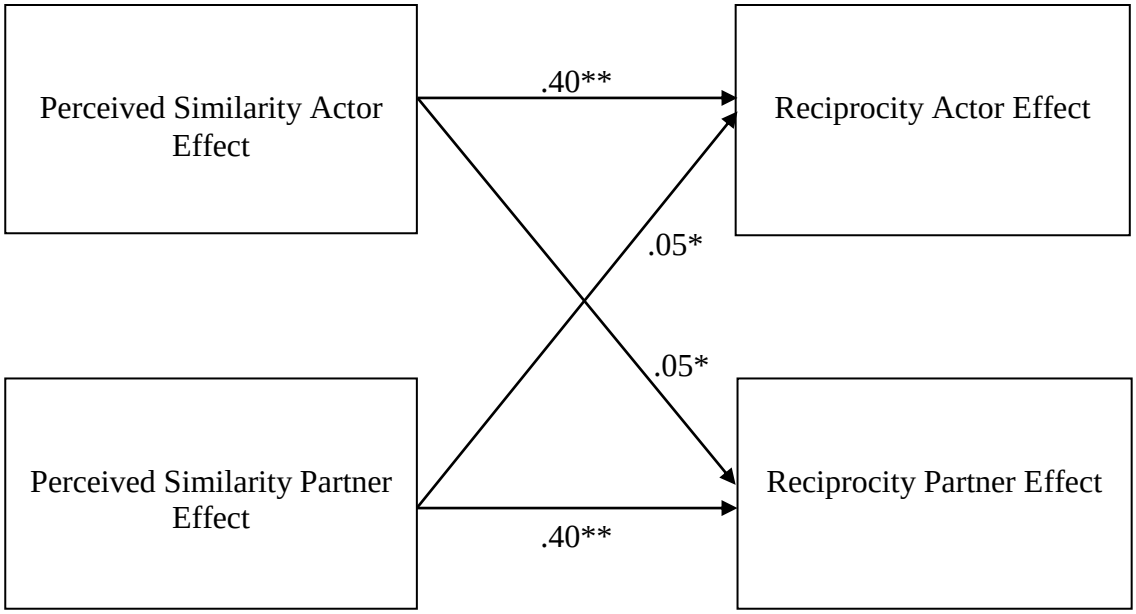

Figure 12: Results for actor-partner interdependence model predicting reciprocity composite. ** p<.01, * p<.05.

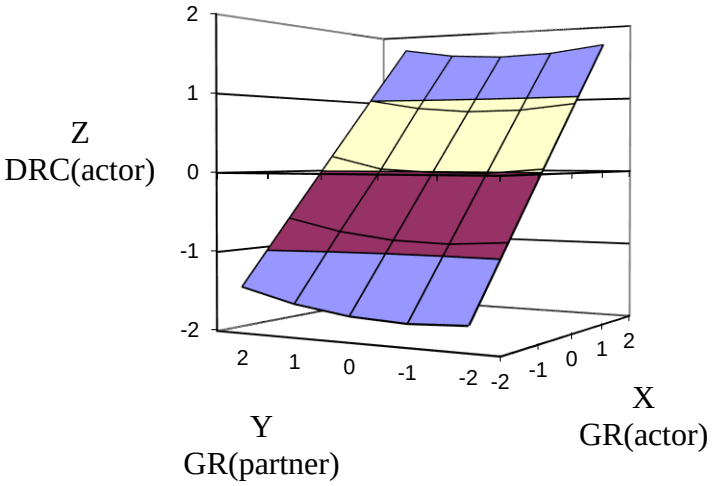

Figure 13*:* Desired relationship continuance (DRC) as predicted by generalized reciprocity (GR) actor-partner discrepancy.

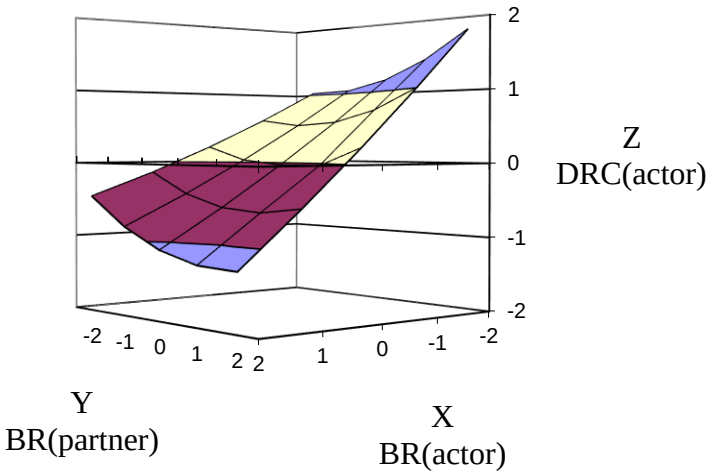

Figure 14: Desired relationship continuance (DRC) as predicted by balanced reciprocity (BR) actor-partner discrepancy.

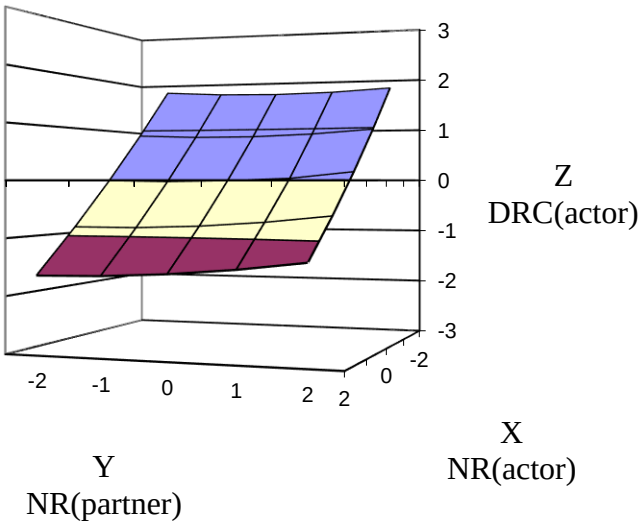

Figure 15: Desired relationship continuance (DRC) as predicted by negative reciprocity (NR) actor-partner discrepancy.

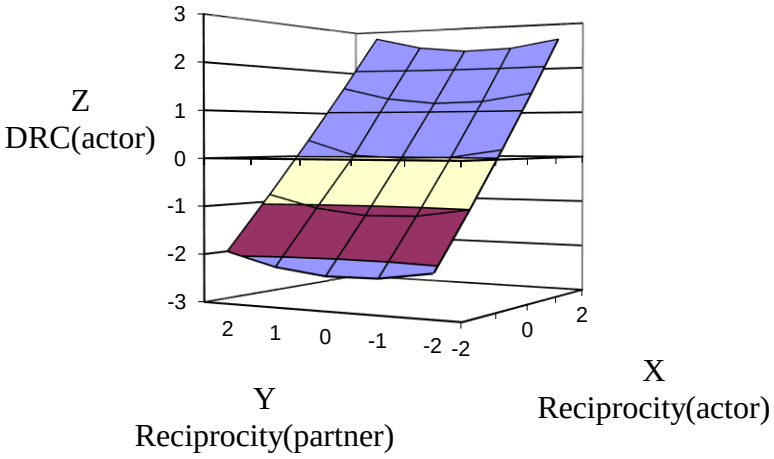

Figure 16*:* Desired relationship continuance (DRC) as predicted by reciprocity compositeactor-partner discrepancy.

APPENDIX C: SURVEY ITEMS FOR STUDY 1 AND STUDY 2

Exchange Ideology (*1 = strongly disagree, 5 = strongly agree)*
1. An employee's work effort should depend partly on how well the organization deals with his or her desires and concerns.
2. An employee who is treated badly by the organization should lower his or her work effort.
3. How hard an employee works should not be affected by how well the organization treats him or her.
4. An employee's work effort should have nothing to do with the fairness of his or her pay (R).
5. The failure of the organization to appreciate an employee's contribution should not affect how hard he or she works (R).
Extraversion (*1 = very inaccurate, 7 = very accurate)*
1. Talkative
2. Extroverted
3. Bold
4. Energetic
5. Shy (R)
6. Quiet (R)
7. Bashful (R)
8. Withdrawn (R)
Agreeableness (*1 = very inaccurate, 7 = very accurate)*
9. Sympathetic
10. Warm
11. Kind
12. Cooperative
13. Cold (R)

14. Unsympathetic (R)
15. Rude (R)
16. Harsh (R)
Conscientiousness (*1 = very inaccurate, 7 = very accurate)*
17. Organized
18. Efficient
19. Systematic
20. Practical
21. Disorganized (R)
22. Sloppy (R)
23. Inefficient (R)
24. Careless (R)
Neuroticism (*1 = very inaccurate, 7 = very accurate)*
25. Unenvious (R)
26. Relaxed (R)
27. Moody
28. Jealous
29. Temperamental
30. Envious
31. Touchy
32. Fretful
Openness (*1 = very inaccurate, 7 = very accurate)*
33. Creative
34. Imaginative

35. Philosophical
36. Intellectual
37. Complex
38. Deep
39. Uncreative (R)
40. Unintellectual (R)
Generalized Reciprocity (GR) (*1 = strongly disagree, 7 = strongly agree)*
1. This person would help me out even if there were nothing in it for him/her.
2. This person would give me something without expecting anything in return.
3. This person would do something for me with no strings attached.
4. If this person does something special for me, it does not matter how soon I respond.
Balanced Reciprocity (BR) (*1 = strongly disagree, 7 = strongly agree)*
1. If this person does something extra for me, he/she expects me to do something of equal value for him/her in return.
2. When working with this person, they keep track of "who owes whom".
3. When working with this person, it is important to return a favor immediately.
4. If I accepted a favor from this person, I would be obligated to him/her.
Negative Reciprocity (NR) (*1 = strongly disagree, 7 = strongly agree)*
1. This person does not keep his/her end of the bargain.
2. This person would take advantage of me if given a chance.
3. This person supports me in private, but tears me down in public.
Perceived Similarity (*1 = nothing or almost nothing/not at all, 5 = a great deal)*
1. How much do you think you have in common with this person?
2. How similar do you think you and this person are?

Desired Relationship Continuance (*1 = strongly disagree, 7 = strongly agree*)
1. I would gladly work with this individual in the future.
2. If I were selecting members for a future work team, I would pick this person.
3. I would avoid working with this person in the future (R).

APPENDIX D: GROUP PROJECT DESCRIPTIONS FOR STUDY 2

Class(es)	**Group Project Descriptions**
1 & 3	**Team project -** Individually and as a team, you will research recent ethical problems that businesses have faced to illuminate the financial, legal and ethical dimensions of a business ethical problem. Then you will make recommendations that make sense financially, legally, and ethically for correcting the problems and preventing them from happening again. As a team, students will present your research and recommendations in class as well as submitting a full written report. Identify a recent (within the last three years) ethical problem that a business has faced and the solution that it chose. To make the project more interesting and to facilitate the recommendation of changes at the company, choose a topic where you and your fellow team members believe the company has done something wrong or objectionable. You will create a team paper and presentation. The presentation should be 30-40 minutes long followed by a question and answer period in which classmates in the audience will participate. **Grading** – 25% of final grade
2 & 4	**Team project -** Individually and as a team, you will analyze the strategic situation of an existing company and its industry. You will research and analyze the current and past situations for the firm. Based on these, the major focus of the analysis and presentation should be on the future direction of the firm and on a recommended course of action. You will create a team paper and presentation. The presentation should be 30-40 minutes long followed by a question and answer period in which classmates in the audience will participate. **Grading** – 25% of final grade
5	**Group research project** - You will work with a group to design and conduct a research study. There are many aspects to this project, including completing training on human subjects (offered by the Office of Sponsored Research), the development of an application for the Institutional Review Board, data analysis, a final paper, and presentations. During the first few weeks of class we will be soliciting research ideas based on readings provided in the topic packets. You will indicate the research projects you would like to work on based on a listing of possible

	projects developed jointly by our class discussions, your TA, and me. You will be organized into groups based on your interests. We will make every effort to accommodate your fist choice for a project but in some cases, this may not be possible. Each group will be responsible for designing, conducting, analyzing, and presenting the research project and its results. **Grading:** 20% of final grade for research project final paper, 10% for presentation, 10% for IRB application & study materials
6	**Team research project and final presentation -** The team project provides opportunities for students to understand the real world from a sociological perspective. This project will also help students to develop teamwork skills. Each team should first complete a team proposal to identify an interesting topic, main ideas, data sources, and a collaboration structure. Each team will deliver the final presentation (about 40 minutes) toward the end of this course. Each team should present an exciting topic, collect and analyze data, and demonstrate social implications of one economic phenomenon. **Grading**- 25% of final grade
7-9	**Group project & portfolio**- Students will be randomly assigned to a group as indicated on the syllabus. Groups will have approximately two months to conceptualize, develop and execute an authentic University or community project and compile a portfolio and presentation explaining what you have done. "What kind of project?" There are many problems and need on campus and/or community. Projects MUST be credible, verifiable and doable within the timeline allotted. That means, groups must establish the need by providing data; explicate evidence of input, throughput and judicious output results; and complete the task from beginning to end before the portfolio deadline. Group presentations should explain project design (What ideas were considered? What ideas were discussed? Why did your group pick your organization/situation? How did you learn of the organization/situation?); implementation (Explain your task and maintenance throughput?); accomplishments (What was the output/result?) and references/resources within a 10-20 minute timeframe **Grading –** 16% of final grade for group portfolio, 5% for group presentation

10 &11	**Business strategy game -** The BSG-online strategy game is a simulation in which teams of students manage footwear companies. You will make many decisions such as how many shoes to produce, of what quality, where to sell them, and at what price. Teams compete against each other. The collective actions of the "companies" (teams) in the "industry" (group of competing teams) affect how each company performs on criteria that determine each company's final score. There are two practice rounds, then the game will be re-set and you will have eight decision rounds that count toward your grade. The simulation ties together much of what you will learn in this course as well as your other business courses. Each round takes approximately 2-3 hours of work early in the semester, and 45 minutes to an hour near the end of the semester. After the simulation, you will complete a 5-7 minute team presentation on the results. **Grading –** 1% of final grade for team-charter, 2% for keeping team minutes, 15% for the simulation score (adjusted for team-member contribution), 5% for team presentations
12 & 13	**Group project**- The instructor will randomly assign each student to a group. Groups may choose between the following two options: a community service project or an original product design. You must fulfill the project, present it to the class, and write a 10-12 page paper on the project. **Grading-** 17% of final grade for group paper, 4% for group presentation
14-16	**Business strategy game -** The BSG-online strategy game is a simulation in which teams of students manage footwear companies. You will make many decisions such as how many shoes to produce, of what quality, where to sell them, and at what price. Teams compete against each other. You will be required to complete ten decision rounds with your group. In addition to the simulation activities, you will be required to complete a 3-year strategic plan with your group as well as a company report and presentation. **Grading –** 5% of final grade for simulation exercises, 5% for 3 year strategic plans, 10% for company report and presentation, 10% for overall company performance