

## ABSTRACT

Title of Document: THE LINK BETWEEN RELATIONSHIP ORIENTATIONS AND FRIENDSHIP QUALITY: THE MEDIATING ROLES OF SOCIAL GOALS AND RESOLUTION STRATEGIES

Bridget Kay Fredstrom, Doctor of Philosophy, 2013

Directed By: Professor Judith Torney-Purta, Department of Human Development & Quantitative Methods

During adolescence, friendships become increasingly important to overall well-being, yet it is common for individuals to experience frequent conflicts with their friends. Theories relating to social cognition offer a framework to examine how adolescents think about expectations for reciprocity as well as goals and strategies in response to hypothetical conflicts (and how these social cognitions are associated with friendship quality).

Participants included 198 adolescents from 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grades from two racially diverse schools in a southern state. All participants had parental consent and provided verbal assent. They provided nominations of two same-sex best friends in their grade who attended their school and rated their perceptions of four dimensions of positive friendship quality for each. Participants also completed an exchange and a communal orientation scale (revised from adult versions) responding with reference to each of their nominated friends. Finally, participants read four hypothetical

conflicts and were asked to imagine that they and their nominated friend were described. They rated the likelihood that they would choose each of a set of specific social goals and strategies in resolving conflict.

Hierarchical linear regressions examined whether adolescents' exchange and communal orientations predicted their perceptions of positive friendship quality. Moderated-mediation analyses examined whether individual differences in social goals and resolution strategies mediated the associations between exchange and communal orientations and positive friendship quality (and also gender differences).

Exchange and communal orientations had different associations with friendship quality. Choice of social goals appears to be one process through which relationship orientations are associated with friendship quality. Exchange orientation was not significantly associated with positive friendship quality. However, mediation models revealed that adolescents with higher expectations for tit-for-tat exchanges were more likely to endorse revenge goals which in turn were associated with lower friendship quality. In contrast, communal orientations were positively and significantly associated with overall rated friendship quality, suggesting the importance of reciprocity in meeting the needs of others. Finally, gender differences suggest that relationship orientations partially explain why adolescent males and females have qualitatively different friendships, and manage conflict differently. Limitations, implications, and future directions for analyses and research are discussed.

THE LINK BETWEEN RELATIONSHIP ORIENTATIONS  
AND FRIENDSHIP QUALITY:  
THE MEDIATING ROLES OF SOCIAL GOALS  
AND RESOLUTION STRATEGIES

By

Bridget Kay Fredstrom

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Advisory Committee:  
Professor Judith Torney-Purta, Chair  
Professor Jude Cassidy  
Professor Melanie Killen  
Professor Geetha Ramani  
Professor Kathryn Wentzel

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## **Chapter 1: Introduction**

### **Friendship during Early Adolescence**

Friendship involvement, which has been defined as being in a voluntary mutually reciprocated friendship (Rubin, Fredstrom, & Bowker, 2008), has been associated with a myriad of benefits including higher self-esteem, greater academic achievement, and fewer internalizing difficulties (see Rubin, Bukowski, & Parker, 2006 for review). Research has consistently shown that children and adolescents with friends fare better than their non-friended age mates in social adjustment (i.e. peer acceptance and loneliness), perspective-taking skills, and school adjustment (Asher & Paquette, 2003; Ladd, 1990; Parker & Asher, 1993). Furthermore, there is some evidence that friendships act as buffers for children and adolescents, protecting them from the negative internalizing and externalizing consequences of peer victimization (Hodges, Boivin, Vitaro, & Bukowski, 1999). Of particular note is that the benefits of friendships remain throughout the lifespan (Hartup & Stevens, 1997); however the functions and characteristics of friendships are very different depending on the developmental stage of the lifespan. Therefore, it is important to examine those characteristics of friendship that are of most importance to the individuals and the relationship during a particular age period. Early adolescence (10-14 years) represents a pivotal time in the course of friendship, a time of change for individuals as well as relationships.

During early adolescence, there are several changes in friendship that occur, including increases in self-disclosure and intimacy as well as spending increasing amounts of time with one another (Brown, 2004; Newcomb & Bagwell, 1996; Rubin,

Bukowski, & Parker, 2006). In addition, early adolescents on average report engaging in at least one daily disagreement with one another (Laursen, 1995) and also demonstrate changes in how they think about reciprocity, which refers to the rules and expectations guiding exchange of resources within a relationship (Laursen & Hartup, 2002; Youniss, 1980). The many changes that are evident in early adolescents' friendships underscore the importance of examining the characteristics associated with a good quality friendship from the point of view of each of the friends. The latter two changes are particularly significant considering the importance of reciprocity and the limited and sometimes mixed evidence regarding the nature and meaning of conflict in adolescent friendships. However, to examine the effects of reciprocity and conflict in adolescents' friendships, it is important to adopt a framework in which both constructs can be included. Social cognitions which refer to "cognitive processes used to decode and encode the social world" (Beer & Ochsner, 2006, p.98), are useful constructs by which to examine reciprocity and conflict. More specifically, examining adolescents' social cognitions about reciprocity and conflict situations with their friends will help to advance the understanding of how these two important constructs are associated with successful friendship involvement.

## **Social Cognitions about Friendship**

Social cognitive theories have provided a useful framework through which to examine how individual differences in social cognitions are related to individual adjustment (e.g., Crick & Dodge, 1994; Keller & Wood, 1989; Selman, 1980) but more specifically and of relevance to this study, relationship quality (Burgess, Wojslawowicz, Rubin, Rose-Krasnor, & Booth-LaForce, 2006; Dwyer, Fredstrom, Rubin, Booth-LaForce, Rose-Krasnor, & Burgess, 2010). There is strong theoretical and empirical support for the significance of understanding how social cognitions about friendship are associated with friendship quality. The quality of friendship has been associated with various types of children's and adolescents' social cognitions. For example, how children and adolescent think about issues central to friendship, such as friendship formation and termination (Selman, 1980), as well as specific social cognitions following a hypothetical provocation or conflict scenario, such as attributions of intent and resolution strategies, (e.g. Burgess et al., 2006; Peets, Hodges, Kikas, & Salmivalli, 2007; Rose & Asher, 1999) have all been associated with friendship quality. Thus there is a rich body of literature supporting the significance of children's and adolescents' social cognitions about issues central to friendship. However, less attention has been given to how early adolescents think about aspects of friends that appear to change during this period, specifically the nature of reciprocity.

**Reciprocity.** Reciprocity is a broad term that is used to describe behaviors, relationships, and social cognitions. More specifically, reciprocity refers to behaviors or rules and expectations that depict how an individual understands the process of

exchange within a relationship (Laursen & Hartup, 2002; Youniss, 1980). During early adolescence, adolescents' expectations of reciprocity shift from focusing on "tit-for-tat" exchanges to focusing on meeting the needs of their friends (Laursen & Hartup, 2002).

Much of the work on reciprocity in adolescents' friendships has been theoretical or descriptive or conducted with Caucasian middle class student, often several decades ago. Both Selman (1980) and Youniss (1980) conducted extensive interviews in which children and adolescents were asked to describe examples of interactions with their friends. Through these interviews, common themes of friendship, including making and maintaining friendships as well as modes of resolving conflicts with friends, were identified. Reciprocity was one of the themes that both children and adolescents mentioned. Through these interviews it became evident that the rules or expectations of reciprocity change as young people enter early adolescence. Children think of reciprocity in terms of "tit-for-tat" exchanges; yet as they move into early adolescence, the expectations for reciprocity are focused less on "tit-for-tat" exchanges in favor of a mutual understanding to meet one another's needs when they are present (Youniss, 1980). Both Selman and Youniss argued that these changes in thinking about reciprocity are reflected in shifts from one stage of cognitive and social maturity to another stage. Whereas there is strong theoretical and empirical evidence demonstrating these changes in how adolescents think about reciprocity, there has been little attention given to whether this is in fact a stage-like process or to how expectations for reciprocity are associated with friendship quality.



*Relationship orientations* refer to “cognitive conceptions of relating to and helping others” (Jones & Costin, 1995, p.518) and refer to individuals’ expectations for the exchange of resources. An *exchange* orientation refers to the extent to which individuals implicitly and explicitly focus on fairness and keeping track of exchanges in their relationships and whether there is equity in these exchanges (Clark & Mills, 1979; Mills & Clark, 1982). Individuals with a higher exchange orientation might pay for a friend’s dinner with the explicit expectation that the friend pays the next time. In contrast, a *communal* orientation refers to the extent to which an individual considers the specific needs of their relationship partner and how to meet them (Clark, Ouellette, Powell, & Milberg, 1987). Individuals higher in communal orientation may pay for a friend’s lunch after realizing their friend does not have enough money to pay, but there is not the explicit expectation that the friend pays the next time.

The communal orientation differs from the exchange orientation in that the exchange of the resource, or helping in a time of need, is not expected to be returned immediately. Rather the expectation with a communal orientation is that the friend offers to help when a need is present (Buunk, Doosje, Jans, & Hopstaken, 1993). The rules that guide the exchange of resources in exchange and communal orientations reflect the developmental changes in reciprocity that Youniss (1980) argued children demonstrate as they move into adolescence. Therefore, exchange and communal orientations toward relationships offer a social cognitive framework through which to examine reciprocity in friendship relationships.

Given the theoretical importance of and changes in reciprocity expectations during early adolescence, it is surprising that few researchers have examined how variations in relationship orientations are associated with successful friendship involvement. The adult literature suggests that individuals with a higher exchange orientation tend to report more difficulties in their close relationships, including romantic relationships and friendships (Buunk & Van Yperen, 1991; Murstein, Cerreto, & MacDonald, 1977). In contrast, adults reporting a higher communal orientation tend to report greater helping behaviors towards friends in need and do so in empathetic and less controlling ways (Harber, Jussim, Kennedy, Freyberg, & Baum, 2008). Research on adolescents' relationship orientations have revealed similar patterns and suggest that exchange orientations not only decrease with age but are also negatively associated with friendship satisfaction as children move into early adolescence (Jones & Costin, 1995).

Even though some attention has been paid to adolescents' relationship orientations, there are notable limitations to understanding how these social cognitions are associated with successful friendship involvement. First, almost all of the research on relationship orientations, with the exception of Jones and Costin (1995), comprised samples of middle- to upper-class undergraduate students or adults. Whereas Jones and Costin (1995) did report age and gender differences in exchange and communal orientations in samples of children and adolescents, this seems to be, after an extensive literature search, the only study in which the age range of interest to the current study is the same. Furthermore, this single study was published over 17 years ago, and perceptions of friendship quality may now be

associated with different factors (Blais, Craig, Pepler, & Connolly, 2008; Valkenburg & Peter, 2007). In addition, there has been little attention given to whether the context of the school (especially its ethnic diversity) is associated with how adolescents think about reciprocity.

Second, researchers have used single-item assessments of friendship satisfaction, which neglect the fact that in most friendships several positive dimensions of friendship quality co-exist (Bukowski, Hoza, & Boivin, 1994). Furthermore, a recent review of gender differences in friendship quality points out that assessments of friendship satisfaction fail to yield differences between males and females. Furthermore, data for this single study on adolescents' relationship orientations were collected about 20 years ago. The authors of the extensive review argued that the lack of gender differences in friendship satisfaction may be due to the fact that satisfaction is a broad term. It is unclear whether boys and girls are thinking about how satisfied they are with the closeness of their friendship or perhaps how satisfied they are with the intimacy of their friendship. Furthermore, it is unclear whether boys and girls think differently when responding to items about satisfaction with their friends (Rose & Rudolph, 2006). In contrast, assessments of several dimensions of positive friendship quality do reveal consistent gender differences (Rubin, Bukowski, & Parker, 2006).

Finally, researchers have asked adolescents about friendships generally and have not asked them to identify specific friendships when assessing relationship orientations and perceptions of relationship satisfaction. Therefore, it is not clear whether adolescents' exchange and communal orientations were specific to a

particular friend or perhaps even different between friends. There is recent evidence that early adolescents think differently about negative experiences involving a specific friend versus a peer who was not known well (e.g., Burgess et al., 2006; Peets et al., 2007). Taken together, this evidence suggests that the extent to which adolescents' use an exchange orientation and/or communal orientation could vary based on who adolescents were asked to think about when responding to questions.

The first research aim of this study addressed these limitations in the current research on adolescents' relationship orientations. Specifically, the first research aim examined the extent to which adolescents think about the exchange of resources from a more exchange orientation or a more communal orientation and whether each of these relationship orientations predicted their perceptions of the quality of their friendship. Within this first research aim, two research questions were examined. The first research question examined whether the extent to which adolescents endorsed an exchange orientation and the extent to which they endorsed a communal orientation were associated with a friend's perception of several positive dimensions of friendship quality. The second research question examined whether gender moderated any of the associations between relationship orientations and friendship quality. Addressing these limitations in the current research on adolescents' relationship orientations will potentially advance our understanding of adolescent friendships by providing empirical evidence for the associations between social cognitions about reciprocity and multiple dimensions of friendship quality.

**Conflict as a context for reciprocity and friendship quality.** Individual differences in relationship orientations have the potential to add greatly to our

understanding of early adolescent friendships. However, research on social cognitive theories has demonstrated that social cognitions about peer experiences and relationships vary based on the context in which the cognitions are assessed. Whereas some researchers use the term context to refer to neighborhoods, SES, and even gender, researchers in the peer relationship and friendship literatures often refer to specific relationships as contexts, such as mutually reciprocated friendships compared a mutual antipathy relationship (Peets et al., 2007). There is evidence that adolescents' social cognitions following a negative experience are influenced based on what type of relationship they have with the provocateur. For example, following a hypothetical peer provocation vignette, children and early adolescents attributed more hostile intent when the provocateur was an "enemy" whereas they attributed more prosocial intent when the provocateur was a mutual friend (Burgess et al., 2006; Peets et al., 2007). In addition, context can refer to the specific type of scenario or story that adolescents are invited to evaluate and to which they are asked to respond. Although not often considered by researchers focused on friendship, it appears that adolescents may give different justifications for actions depicted in a scenario depending on whether the issue is an example of a moral, social-conventional or personal transgression as well as whether it involves a friend, sibling, or acquaintance (Smetana, 2006; Tisak & Tisak, 1996). Therefore, to advance our understanding of how adolescents' relationship orientations are associated with friendship quality, it is important to examine individual differences in relationship orientations placing the focus on a specific friendship context, such as mild conflicts over personal issues with a close friend (Nucci, 1981).

Conflict is frequent in adolescents' friendships (Laursen, 1995) and typically reflects some type of inequality, be it over resources, making decisions, or not meeting the needs of one another (Laursen & Pursell, 2009). Furthermore, there is strong empirical evidence that individual differences in social cognitions about conflict, specifically the extent to which individuals endorse certain social goals and resolution strategies following a hypothetical conflict scenario, are associated with friendship quality (Chung & Asher, 1996; Rose & Asher, 1999). Research on relationship orientations and social cognitions about conflict represent two distinct bodies of literature and have been examined separately. However, given that both have revealed important associations between individual differences in social cognitions and friendship quality, it is important to explore how relationship orientations and social cognitions about conflict are associated with one another and together provide a clearer picture of early adolescents' friendships. The social information processing (SIP) model (Arsenio & Lemerise, 2004; Crick & Dodge, 1994; Lemerise & Arsenio, 2000) provides a heuristic through which these two separate bodies of literature can be brought together and empirically examined.

The SIP model (see Crick & Dodge, 1994) proposes a series of steps that individuals use to understand, process, and make decisions about how to react following a negative peer experience. In addition, the model proposes that individuals approach negative peer experiences, such as conflict with a friend, with a set of previous knowledge, schemas, and expectations, from which they can pull information to help guide and influence processing and decisions. Empirical evidence supports the utility of this model in identifying how individual differences in

processing at various steps and individual differences in the previous knowledge, schemas, or expectations are associated with social adjustment and relationship quality (e.g., Huesmann & Guerra, 1997; Lemerise, Fredstrom, Kelley, Bowersox, & Waford, 2006). In addition, a recent article by Arsenio and Lemerise (2004) suggests that the SIP model can be integrated with the domain theory of moral development to understand how adolescents respond to transgressions that represent different domains of morality, such as moral, social-conventional, and personal transgressions (Nucci, 1981; Turiel, 1998). From childhood, individuals distinguish between these different domains (Nucci, 1996; Turiel, 1998). Thus adolescents possess social knowledge specific to these domains to which they refer when evaluating a current conflict with a friend (Nucci, 2004). Finally, Arsenio and Lemerise (2004) raise an important point that “despite the fact that most SIP research addresses children’s aggressive behavior, the model is theoretically constructed to address a much wider range of socially competent and incompetent behaviors” (p.992). This can include conflict situations with close friends over personal transgressions.

Exchange and communal orientations represent more general sets of expectations for the process of exchange, and thus represent a set of previous social knowledge from which individuals draw as they try to understand negative experiences. In addition, adolescents’ judgments about whether a given transgression represents a violation of a moral, social-conventional, or personal rule could also be used to evaluate behaviors and goals during a conflict with a friend. However that is beyond the scope of the current investigation.

Previous researchers have examined how the extent to which children and adolescents endorse specific social goals and resolution strategies, two of the steps in the SIP model in response to hypothetical conflict scenarios, are associated with positive and negative dimensions of friendship quality (e.g. Rose & Asher, 1999). Thus, the SIP model provides a heuristic through which to combine existing theories and research on reciprocity and conflict in adolescents' friendships. The majority of work using the SIP model has focused on one or two steps rather than the full model. This piecemeal methodology can be limiting, but is often the only feasible strategy. This study is based on the premise that focusing on specific components of the model, such as reciprocity as a component in the database, social goals, and resolution strategies, can provide important information about early adolescents' friendship.

However, the existing literature on adolescents' social goals and resolution strategies has similar limitations as the existing research on relationship orientations. First, the existing studies comprised samples of children up to the sixth grade and who were primarily Caucasian (Chung & Asher, 1996; Rose & Asher, 1999). Second, when participants were presented with the hypothetical conflict scenarios, they were not asked to imagine any particular friend as being involved in the conflict, thus ignoring the possibility that the context of a specific friendship might be associated with how adolescents rate specific social goals and resolution strategies. The current proposal will address these limitations.

The second research aim focused on whether individual differences in the social goals and resolution strategies adolescents chose in response to conflict scenarios with a specific friend were associated with how adolescents perceived the



quality of their friendship. Therefore, the second research aim of this study examined whether adolescents' social goals and resolution strategies following hypothetical conflict scenarios with a specific friend were associated with relationship orientations and friendship quality. Specifically, social goals and resolution strategies were examined as possible mediators of the associations between relationship orientations and multiple dimensions of positive friendship quality. Three specific research questions were examined to address this aim. The first research question examined whether adolescents' social goals were associated with and/or mediated associations between relationship orientations and several positive dimensions of friendship quality. The second research question examined whether adolescents' resolution strategies were associated with and/or mediated associations between relationship orientations and several positive dimensions of friendship quality. The third research question examined whether gender moderated any of the mediated associations described above. Broadly, this second research aim has the potential to identify how social cognitions regarding two important characteristics of adolescent friendships, reciprocity and conflict, are associated with friendship quality. Furthermore, both research aims and the specific research questions of this study have the potential to shape new research and interventions designed to assist those early adolescents who demonstrate ineffective social cognitions which undermine the quality of their close friendships.

### **Problem Statement and Research Aims**

Young people have different expectations of reciprocity, an important characteristic in friendships. Little attention has been given to how orientations to

relationships (focused on exchange and or on communal orientations) reflect individual differences in adolescents' expectations for reciprocity. The research literature includes few studies about how relationship orientations are associated with dimensions of positive friendship quality, including companionship, help, security, and closeness. There are also mixed results on the effects of conflict on adolescents' friendship quality. However, research exploring the social goals and resolution strategies adolescents prefer following conflicts with their friends is an avenue for clarifying these mixed findings. Social goals and resolution strategies may be associated with and/or mediate the associations between relationship orientations and several dimensions of friendship quality. This study attempts to provide evidence of how adolescents' social cognitions are important to understanding close relationships.

The first research aim focused on the extent to which adolescents think about the give-and-take of resources within a relationship from a more exchange orientation or a more communal orientation and whether each of these relationship orientations predicted perceptions of the quality of their friendship. Furthermore, given the gender differences in adolescents' friendship experiences, specifically friendship quality, it was important to also examine whether gender acted as a moderator of any of the associations between adolescents' relationship orientations and friends' perceptions of overall positive friendship quality. Few studies have examined adolescent relationship orientations, and no study to date has asked adolescents to think about a specific friend when responding to all exchange and communal orientation items.

The second research aim focused on whether individual differences in the social goals and resolution strategies adolescents chose in response to conflict

scenarios with a mutual friend were associated with they perceived the quality of their friendship. Specifically, this research aim sought to examine whether social goals and/or resolution strategies acted as a mediator between adolescents' relationship orientations how their perceptions of the quality of the friendship. The rationale for this research aim was to further our understanding of conflict in adolescent friendships by pulling together two distinct sets of literature (i.e., relationship orientations and social cognitions) to examine whether an adolescents' social cognitions about reciprocity were associated with their own perceptions of the quality of the friendship in a positive way.

The original research aims focused on using adolescents' mutual friends' perceptions of friendship quality as the outcome variable. Following completion of the data collection, it was necessary to make an alteration to the proposed analytical plan due to an insufficient number of adolescents participating in the study. The research questions, which appear in the next chapter, reflect this. Only 29 unique friendship dyads were identified from the final sample, which was an inadequate number to conduct the proposed number of analyses. Therefore, the decision was made to use adolescents' own perceptions of friendship quality as the outcome variable.

This altered data analytical plan does raise several issues, including potential shared-method variance that might impact the results as well as not fully addressing all the limitations of the existing literature that have been pointed out thus far; these issues are presented in more detail in the *Discussion* section. However, the altered analytical plan still addressed several of the limitations, including using multiple

dimensions of friendship quality and asking adolescents to think about a specific friend when answering items for each of the constructs being assessed. Therefore, the analyses still address the same research aims and specific research questions, but the conclusions will be more limited than originally planned due to the lack of mutual friend dyads requiring a change in the analysis plan.

### **Glossary**

**Communal orientation** refers to the extent to which an individual considers the specific needs of their relationship partner and how to meet them (Clark & Mills, 1979; Mills & Clark, 1982). Individuals with a higher communal orientation have expectations that there is mutual understanding to meet the needs of their close relationship partner. Additionally, it is expected that these needs are met when they are present. (Adolescents' communal orientations were measured using a self-report Likert rating scale. Adolescents were asked to indicate how well a set of statements depicting communal orientations describe themselves. This construct was treated as a continuous variable in analyses).

**Context** refers to the circumstances or facts surrounding a social event that are used to understand the social event. As an example, friendship as a context refers to the “conditions external to the development, maintenance, and dissolution of specific friendships...those elements that surround friendships” (Adams & Allan, 1998, p4). (In my measurement of relationship orientations, social goals, and resolution strategies, participants were asked to think about the context of a specific friendship when answering each item. In addition, the conflict scenarios depicted

examples of transgressions in which the friends disagreed primarily over what would be considered personal issues.)

**Database** refers to the set of latent mental structures that an individual brings to each social situation and uses to understand social situations (Arsenio & Lemerise, 2004; Crick & Dodge, 1994; Lemerise & Arsenio, 2000). These latent mental structures include things such as past social experiences, schemas for relationships, normative beliefs, and even scripts about how social situations should take place. In the SIP model, Crick and Dodge (1994) argue that these components of the individual's database act as cognitive heuristics that help individuals process and understand the current social situation. (It is argued in the current proposal that adolescents' relationship orientation (e.g., communal and exchange) are examples of latent mental structures that would be considered part of the database. See Communal orientation and Exchange orientation for further information on how these were measured).

**Exchange** refers to the “voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others (Blau, 1964, p. 91). (Throughout the proposal, I used this term in the phrase “exchange of resources” when describing the differences between exchange and communal relationship orientations. It is a broad, general term used to describe the social give-and-take that is present in all relationships. It is not operationalized in a measure or used in analyses.)

**Exchange orientation** refers to the extent to which individuals implicitly and explicitly focus on fairness and keeping track of the exchanges in their relationships

and whether there is equity in these exchanges (Clark & Mills, 1979; Mills & Clark, 1982; Murstein et al., 1977; Sprecher, 1992). There is an expectation that every offer of help or support is returned in kind, resembling a tit-for-tat type of expectation. (Adolescents' exchange orientations were measured using a self-report Likert rating scale. Adolescents were asked to indicate how well a set of statements depicting exchange orientations describe themselves. This construct was treated as a continuous variable in analyses.)

**Friendship quality** refers to individuals' evaluations about the quality of interactions they have with relationship partners. In regards to friendship quality specifically, most measures of friendship quality assess several dimensions of friendship quality, including broad areas of positive and negative qualities (Furman, 1996). Several researchers have developed measures of friendship quality based on several central themes or tasks of friendship. In the current proposal, four different dimensions of friendship quality (i.e., companionship, help, closeness, and security; defined below) will be assessed. (These dimensions served as the dependent variables in all analyses, and were measured using the Friendship Qualities Scale (FQS; Bukowski, Hoza, & Boivin, 1994). The four dimensions of friendship quality described below were used as different aspects of friendship quality. Furthermore, the four dimensions of companionship, help, closeness, and security were combined to form a broad scale of positive friendship quality.

- **Companionship** refers to the desire or motivation to spend time with others, and to have a social preference for who to spend time with (Howes, 1996). (This specific dimension of friendship quality was

measured using four items from the FQS (e.g., *My friend and I spend all our free time together*)).

- **Help** refers to an individual's desire to provide assistance to another (e.g., close friend) when they are in need. (One of the benefits of the FQS is that the items measuring help (5 items) consist of examples of general providing assistance to a friend as well as providing protection from harm (e.g., *If other kids were bothering me, my friend would stick up for me*)).
- **Closeness** refers to individuals' "feelings of acceptance, validation, and attachment" to a specific person (Bukowski et al., 1994, p. 477). (The FQS closeness scale consists of five items that reflect an individual's perceptions the affective bond (e.g., *I feel happy when I am with my friend*) and validation from their friend (e.g., *When I do a good job at something, my friend is happy for me*)).
- **Security** refers to an individual's perception that the relationship they have with a close friend will last through any disagreement or conflict. Security also refers to the understanding that friends know they can trust one another. (The FQS consists of five items measuring security, including items assessing transcending problems (e.g., *If my friend or I do something that bothers the other one, we can make up easily*) and reliable alliance (e.g., *If I have a problem at school or home, I can talk to my friend about it*)).

**Individual differences** refer to heterogeneity among individuals on a particular variable that are thought to be associated with development (Kraemer & Korner, 1976). (In this proposal, I examined individual differences in several variables, including exchange orientations, communal orientations, social goals, and resolution strategies. It is believed that individual differences in these variables will help to explain the associations and variance in reports of friendship quality).

**Reciprocity** refers to behaviors or rules and expectations that depict how an individual understands the exchange of resources within a relationship (Laursen & Hartup, 2002; Youniss, 1980). For the purposes of this study, reciprocity was operationalized as social cognitions, and more specifically the expectations that adolescents have for the exchange of resources within their close friendships. (In this proposal, reciprocity was a broad theme that supports the framework of this study. It was operationalized as exchange and communal orientations and measured as describe above).

**Relationship orientations** refer to “cognitive conceptions of relating to and helping others” (Jones & Costin, 1995, p.518) and refers to individuals’ expectations for the exchange of resources. (This is part of the theoretical background supporting the main research questions of the proposal. Further, relationship orientations are measured; however there are more specific operational definitions for how these will be measured (see Communal orientation and Exchange orientation)).

**Resolution strategies** refer to possible solutions or actions individuals generate in response to conflict scenarios (Rose & Asher, 1999). (Resolution strategies are one of the two categories of mediators that will be examined in this



proposal. Four specific types of resolution strategies that have been previously used in the examination of hypothetical conflicts with friends were examined and are defined below).

- **Accommodation** strategies include those in which the individual acquiesces to the demands of the other (e.g., I would tell my friend he can pick the game; 1 item; Rose & Asher, 1999)
- **Compromise** strategies are those in which the individual suggests an alternative solution in which both partners might get what they want (e.g., I would say my friend could pick the game now, and I'll pick next time; 1 item; Rose & Asher, 1999)
- **Hostile** strategies include those in which the individual uses negative, aggressive, or friendship damaging behaviors to end the conflict (e.g., I would tell my friend to shut up because I am picking the game; 3 items; Rose & Asher, 1999).
- **Self-interest** strategies are those in which the individual suggests a solution in which his or her needs are met (e.g., I would tell my friend we should play the same game again; 1 item Rose & Asher, 1999).

**Social cognition** refers to the “cognitive processes used to decode and encode the social world” Beer & Ochsner, 2006, p.98). This includes any cognitive process that an individual uses to make sense of their social world, including perspective-taking, attributions of intent, attitudes, and motivations. (In this study, social cognitions were used as a general term for many of the constructs that were

measured. For example, relationship orientations, social goals, and resolution strategies are all examples of social cognitions that were measured and used in subsequent analyses).

**Social competence** refers to the ability to demonstrate successful interactions with others, including “sustaining positive engagement with peers” (Rose-Krasnor & Denham, 2009, p. 163). (In this proposal, I refer to social competence when reviewing the supporting literature that suggests individual differences in SIP differentiate children and adolescents who display varying levels of social competence.)

**Social goals** refer to “focused arousal states that function as orientations towards producing (or wanting to produce) certain outcomes (Crick & Dodge, 1994, p. 87). There is empirical evidence suggesting that there are individual differences in the types of goals individuals endorse based on the social situation. (Social goals are one of the two categories of mediators that will be examined in this proposal. Three specific types of social goals that have been previously used in the examination of hypothetical conflicts with friends were examined and are defined below).

- **Relationship Maintenance** goals include examples of goals in which the individual has a stronger desire to preserve the harmony of the relationship rather than win the conflict (e.g., I would be trying to stay friends; 3 items; Rose & Asher, 1999)
- **Instrumental/Control** goals include examples of goals in which the individual puts their own needs above those of their relationship partner and asserts their desire to control activities (e.g., I would be

trying to keep my friend from pushing me around; 2 items; Rose & Asher, 1999)

- **Revenge** goals are those in which the individual desires to get back at another individual (e.g., I would be trying to get back at my friend; 1 item; Rose & Asher, 1999).

**Social information processing (SIP)** refers to specific steps or tasks that individuals undertake to understand a social situation and arrive at a particular behavior to enact (Arsenio & Lemerise, 2004; Crick & Dodge, 1994; Lemerise & Arsenio, 2000). (This is part of the theoretical background of my research. Specific steps of SIP were measured, including adolescents' Likert ratings of how likely they are to choose a variety of social goals and conflict resolution strategies following a hypothetical conflict scenario with a best friend.

## **Chapter II: Literature Review**

### **Overview of Literature Review**

The previous section presented the concepts research aims, and specific research aims of the current study. In the next section, I review the theoretical and empirical evidence of reciprocity, conflict, and friendship quality in adolescents' friendships that guides and supports the research aims of this study. The first section includes an overview of some of the major constructs that are cited throughout this chapter, focusing on the specific researchers and the studies and methodologies they employed. The second section contains a theoretical discussion of reciprocity, including how relationship orientations represent the appropriate framework through which to examine adolescents' social cognitions of reciprocity. Furthermore, this section includes a review of the empirical evidence on exchange and communal orientations with specific attention paid to the limitations and gaps in this line of research in adolescent friendships and friendship quality.

The third section is devoted to a review of the theory and research on conflict in adolescent relationships. In particular, I review the literature on the definition and common themes of conflict in adolescents' friendship as well as how social goals and resolution strategies are social cognitive constructs related to conflict. This section ends with a presentation of how conflict is associated with friendship quality, with a discussion on how current evidence is mixed regarding the advantages and disadvantages of conflict on friendship quality and how the current study attempted to make these effects clearer. The fourth section is devoted to a theoretical and empirical discussion of how social cognitions act as mediators between reciprocity

and friendship quality. This section begins with a discussion of the SIP model, followed by specific examination of how reciprocity and social cognitions about conflict with a friend, specifically social goals and resolution strategies, fit within the parameters of the SIP model. The final section includes a brief summary of the literature review and how it supports the specific research aims and questions of the current study.

### **Overview of Major Studies**

**Reciprocity in adolescence.** James Youniss conducted a series of studies in which he examined how children and adolescents think about social interactions they have with close relationship partners. Youniss' goal was to "discover and evolve measures which meaningfully tap children's thinking about relations" (Youniss, 1980, p.44). These series of studies were synthesized into two separate books in which he described how the characteristics of children's and adolescents' relationships vary with their mothers, fathers, and friends (Smollar & Youniss, 1985; Youniss, 1980).

The majority of his studies comprised Caucasian participants from middle- to upper-class two-parent families. While this limits the generalizability of his findings, Youniss did include participants as young as 6 years old up to 18 years, which enabled him to make conclusions about developmental changes that occur in how children and adolescents think about their close relationships. A typical study employed an interview methodology in which participants were asked to think about a specific relationship partner (e.g., mother, father, or friend) and then asked questions about a specific type of interaction with their relationship partner.

Examples of interactions included having participants describe instances in which they or their partner were kind or unkind to one another, or to provide examples of typical activities that are done with their relationship partner, or even examples of things that they fight or disagree over with their relationship partner.

The intent behind the use of this open-ended free response methodology was that the data would reveal children's "thinking and represent their conceptions of interpersonal relations" (Youniss, 1980, p.44). Subsequently, responses from these interviews were analyzed to identify common themes across developmental periods as well as how those themes changed with age. This qualitative data was subsequently used to design questionnaires and surveys that were used with other samples to obtain quantitative assessments of the varying interactions children and adolescents have with different relationship partners. Through his work, Youniss (1980) identified that children's conceptualizations of reciprocity change with age as well as identified common themes of conflict in adolescents' friendships (Youniss & Smollar, 1985).

In respect to reciprocity, Youniss (1980) examined children's and adolescents' responses to what they would do following a kind or unkind action by a peer. He described these interactions as examples of *symmetrical reciprocity*, which refers to "tit-for-tat" social exchanges when children expect that any initiation they make be met with the same behavior. For example, a child who shares a toy with a peer is free to ask that the same peer share his or her own toy in return. However, the understanding and use of symmetrical reciprocity changes with development. Adolescents' responses to kind and unkind behaviors by peers demonstrated that their

understanding of reciprocity is that it takes place in response to one another's needs rather than simply reacting in a similar way to a peer's initiation.

As an example of Youniss' research on adolescent conflict, he asked a sample of 15-18 year old adolescents "What kinds of events cause problems in a close friendship?" and subsequently "How frequently do these events occur?" Analyses were primarily descriptive in that several common themes of adolescents' conflicts with friends were identified and the frequencies of these themes were calculated. Results revealed that both males and females see untrustworthy acts (e.g., not keeping secrets) as being the most common source of disagreement with friends, followed by lack of attention (e.g., doesn't call), and disrespectful acts (e.g., bossy). Gender differences were found across these categories, with males reporting higher rates of disrespectful acts with their friends than females whereas females reported higher rates of lack of attention from their friends than males (Youniss & Smollar, 1985).

**Friendship understanding in adolescence.** Robert Selman took a similar approach to examining how children and adolescents think about their close relationships by conducting interviews. However, in contrast to the general instructions that Youniss (1980) used, Selman used a semi-structured clinical interview. In this methodology, individuals were given the same set of questions designed to measure their level of understanding on specific issues of friendship (e.g., formation, dissolution). Based on the response given, additional probes were used to further clarify individuals' understanding of the specific issue. All responses were documented and subsequently coded into one of five invariant developmental stages.

These stages reflect changes in perspective-taking and the ability to coordinate multiple viewpoints at the same time.

Results from Selman's work suggest that individuals' level of friendship understanding is related to their social adjustment. For example, in a study of adolescents seeking treatment for clinical disorders, those who had aggression or emotional difficulties had lower levels of friendship understanding than matched-samples of adolescents who were not seeking treatment (Gurucharri, Phelps, & Selman, 1984). Other researchers have demonstrated that individuals who are shy or withdrawn have lower levels of friendship understanding for issues such as closeness than their non-withdrawn age-mates (Fredstrom et al., 2012). The empirical work and specific methodologies developed by Selman have been valuable in furthering our understanding of how childrens' and adolescents' social cognitions about friendship are related to their social adjustment.

While Youniss and Selman used similar interview methodologies and asked questions about similar topics central to friendship (e.g., reciprocity), the resulting data from each source was different. Youniss presented more qualitative, descriptive conclusions about how children and adolescents think and differ in their thinking of friendship. Selman provided a quantitative way to measure and analyze the differences in how children and adolescents think about friendship and suggested developmental stages of friendship.

**Peer relations, friendship, and social information processing.** Kenneth Rubin, Ken Dodge, and Nicki Crick have each contributed to the literature on peer relations and friendship, as well as social information processing. Furthermore, in the



papers in which they have examined children's and adolescent's social information processing, each researcher also assessed peer acceptance and friendship. Given that they used similar methodologies and their results support one another, it is appropriate to summarize their research strategies and findings together. Furthermore, most of the studies cited by these authors report similar demographics of their samples. The majority of the work on friendship and social information processing comprises samples of primarily Caucasian middle-class children and adolescents. In a few of Dodge's larger projects, he does report higher percentages of minorities (e.g., 17% African-American; Dodge et al., 2003; Lansford et al., 2006). Yet even in studies in which a more diverse sample was used, ethnicity and/or SES were either ignored in the analyses or used as covariates.

*Peer acceptance.* Peer acceptance “refers to the extent to which a child is liked or accepted by other members of a peer group (Asher, Parker, & Walker, 1996, p.367) and is typically assessed using a rating scale (e.g., Rose & Asher, 1999). Participants are provided a list of their classmates or a roster of students from their entire grade and are asked to rate on a Likert scale how much they like each person, with the lowest score representing “Do not like” and the highest score representing “Like a lot” (Dodge et al., 2003). Participants' ratings received from all their peers, either within classroom or within grade, are then averaged, typically within gender and grade, to create an overall peer acceptance score. Peer acceptance has also been assessed using nomination methods in which participants are asked to nominate a set number of classmates that they “like the most” or “like the least” (Coie, Dodge, &

Coppotelli, 1982). The number of nominations received are averaged within gender and grade, and a peer acceptance score is obtained.

*Behavior nominations.* In the peer relations literature, it is common for researchers to identify those children and adolescents who tend to demonstrate particular patterns of behaviors. Put another way, researchers are often interested in identifying those individuals who, compared to their peers, are characterized as aggressive, shy/withdrawn, or popular (Rubin et al., 2006). Furthermore, children's peer acceptance scores may be combined with their social status and subsequently categorized as accepted-aggressive or rejected-aggressive (Dodge et al., 2003).

To identify those children and adolescents who demonstrate a particular pattern of behaviors, participants are given a set of behavioral descriptions, such as "Someone who fights" or "Someone who is shy", and asked to nominate classmates for each description (Rubin, Wojoslawowicz et al., 2006). These nominations are then averaged and standardized within gender in order to obtain a score for each person for each set of nominations.

*Friendship status.* There is a long-standing literature supporting the distinction between peer acceptance and friendship. Whereas peer acceptance refers to how an individual is liked by the larger peer group, friendship is dyadic and defined by both members mutually agreeing that the friendship exists (Asher et al., 1996). Therefore, friendships are identified with a nomination rather than a rating procedure. Individuals are asked to either select from a roster of their classmates or write down the names of a select number of friends (Rubin et al., 2006). Decisions about how many friends' names to write down or circle on the roster vary, but most

researchers ask for at least two or three (Rose & Asher, 2004; Rubin et al., 2006).

Friendship status is determined based on reciprocated friend nominations.

Reciprocated, or mutual, friendships are those in which both individuals nominate one another as a friend whereas unreciprocated friendships are those in which one individual nominates another as a friend, but the nomination is not reciprocated (Parker & Asher, 1993).

*Social information processing.* The typical methodology for assessing individual differences in children's and adolescents' social cognitions generally involves a scenario depicting a hypothetical negative experience. This scenario may be acted out by similar-aged peers in a video, or read aloud to a classroom, or provided in written form for the participant to read. Regardless of the method of presentation, the hypothetical scenarios typically depict some type of negative experience, such as an ambiguous provocation or a conflict scenario (Crick & Dodge, 1994; Rose & Asher, 1999).

The participant is instructed to imagine that they are one of the people in the story, and this person is always the victim. An example of an ambiguous provocation scenario is one in which the participant imagines he is eating lunch in the lunchroom when someone walks behind him and spills milk down his back. The ambiguity in the scenario refers to the intent of the provocateur, specifically whether it was intentional or an accident. Variations of this ambiguous provocation methodology have depicted the provocateur as a mutual best friend (e.g., Burgess, et al., 2006) or a disliked peer (e.g., Peets et al., 2007). Rose and Asher (1999, 2004) have used the same scenario framework, but rather than present an ambiguous provocation scenario,

they asked participants to imagine they were involved in a mild hypothetical conflict with a friend. An example scenario is one in which the participant is asked to imagine that he and his friend always work on class projects together. However his friend wants to ask another person to work with them.

Following the presentation of the scenario, the participant is asked a series of questions assessing the specific processing step that is of interest to the researcher. For example, and of relevance to the current study, participants' social goals following the scenario would be assessed by giving them examples of goals and asking participants to rate the extent to which they would choose each goal for the story (Lemerise et al., 2006). Similarly, participants' resolution strategies following a conflict might be assessed by presenting them with examples of possible strategies and having them rate each one on the extent to which they would choose that strategy (Rose & Asher, 1999, 2004).

### **Reciprocity**

Reciprocity has been defined and operationalized in many ways. Broadly, reciprocity has referred to any "social interaction that involves giving and taking or returning in kind" (Laursen & Hartup, 2002, p. 30). This broad definition suggests that there is little unanimity in the precise definition of reciprocity. For example, reciprocity may refer to an equal exchange of resources between two individuals (Blau, 1964) or it may simply describe turn-taking behaviors (Hill & Stull, 1982). In addition, reciprocity has been used to define how much one individual adjusts his or her behavior in response to a specific relationship partner (Kenny & La Voie, 1984). Responsive behaviors that are identical have been referred to as symmetrical

reciprocity, and those responsive behaviors that are not equivalent have been referred to as complementary reciprocity (Laursen & Hartup, 2002; Youniss, 1980).

Beyond describing behaviors between relationship partners, reciprocity has also been used to qualify a relationship itself. For example, friendships are traditionally identified when two individuals nominate each other as a friend; thus, their friendship is defined by their reciprocal nominations (Asher et al., 1996). Reciprocity as a defining relationship characteristic is further supported by Clark and Mills' (1979) dichotomy of communal and exchange relationships. Exchange relationships are characterized by an equal exchange of resources between two relationship partners and reciprocity is measured in terms of the equal value of these resources. In contrast, reciprocity in communal relationships focuses more on a mutual understanding of both individuals in the relationship to meet the needs of each other (Clark & Mills, 1979). Finally, reciprocity is also operationalized as a social cognitive construct representing how individuals think about and the expectations they have for reciprocity in their relationships. Therefore, the definition adopted for this study was that reciprocity refers to rules and expectations that depict how an individual understands the exchange of resources within a relationship (Laursen & Hartup, 2002; Youniss, 1980).

Through open-ended interviews, Youniss (1980) examined how children and adolescents think about reciprocity and discovered that the rules and expectations change over time. Young children tend to expect that any exchange, interaction, or offer of help towards a friend should be reciprocated in kind, or that "tit-for-tat" rules are the norm. Thus anytime children share, there is an expectation that the rules of

reciprocity encourage sharing by others. When a peer aggresses against a child, the rules of reciprocity permit the child to respond with similar aggression. However, with increased age, as children begin to develop a sense of mutual understanding with one another, the rules of reciprocity children and adolescents use are in response to one another's needs rather than simply reacting in a similar way to a peer's initiation (Laursen & Hartup, 2002). Thus, a child may share his or her toy without an expectation of sharing in return, or an adolescent knows it is not acceptable to respond with aggression every time a peer aggresses.

Selman's work using semi-structured clinical interviews revealed similar social cognitive changes with age. Selman (1980) argued that as children progress into adolescence, they develop more sophisticated interpersonal perspective-taking skills, including mutual awareness of support and intimacy. Around age 11, adolescents tend to think of reciprocal exchanges with their friends and how they can better serve their own self interests. Around the age of 15, perspective-taking skills continue to develop and adolescents think more about the mutual concerns they share with their friend rather than their own self-interests (Keller & Wood, 1989; Selman, 1980). The theories and evidence of Selman (1980) and Youniss (1980) suggest that not only is early adolescence an important developmental stage to examine reciprocity in friendship, but also it is important to examine reciprocity as a social cognitive construct.

Given the theoretical importance placed on reciprocity in adolescent relationships, it is surprising how little research has focused on adolescents' conceptualizations of reciprocity. If adolescents do shift their thinking about

reciprocity towards expectations of meeting the needs of a close friend rather than “tit-for-tat exchanges”, it is important to examine how adolescents think about the exchange of resources within their friendships. More importantly, given the frequency with which adolescents mentioned reciprocity as being important in their friendships in interviews with Youniss (1980), it would be adding to the literature on friendship to examine how adolescents’ expectations for reciprocity are associated with the quality of their friendships. Friendships in which two adolescents have incongruent expectations of reciprocity may be of poor quality and not offer the benefits, support, and protective factors that are often mentioned in the friendship literature (see Rubin et al., 2006). However, the associations between reciprocity and friendship quality are not clearly explained in the existing literature. To address this gap, a specific framework for assessing expectations of reciprocity will be adapted, specifically *relationship orientations*.

**Relationship orientations.** Relationship orientations refer to “cognitive conceptions of relating to and helping others” (Jones & Costin, 1995, p.518) and originate from a body of literature distinguishing between communal and exchange relationships among adults (Clark & Mills, 1979). More specifically, these cognitive conceptions Jones and Costin (1995) mention refer to the expectations individuals have regarding the exchange of resources in their relationships. Represented as separate continuums on which individuals can be high or low, *exchange* and *communal* relationship orientations represent individuals’ expectations for the exchange of resources in social relationships. Exchange orientation refers to the extent to which individuals implicitly and explicitly focus on fairness and keeping

track of the exchanges in their relationships and whether there is equity in these exchanges (Clark & Mills, 1979; Mills & Clark, 1982; Murstein et al., 1977; Sprecher, 1992). Aligning this definition with how Youniss describe reciprocity expectations in children, someone high in exchange orientation would expect “tit-for-tat” exchanges in their relationships (Mills and Clark, 1982). In contrast, others may be more inclined towards a *communal orientation*, which refers to the extent to which an individual considers the specific needs of their relationship partner and how to meet them (Buunk et al., 1993; Clark & Mills, 1979; Mills & Clark, 1982). Comparing this definition with Youniss’ work on reciprocity, communal orientations represent the shift in expectations that Youniss discovered as children moved into adolescence. To understand the distinction in these two social cognitive constructs, it is necessary to briefly review earlier work on exchange and communal relationships.

***Exchange and communal relationships.*** Clark and Mills (1979) proposed that relationships can be characterized based on the specific guidelines that govern the exchange of resources between two individuals. As social psychologists, Clark and Mills created experimental manipulations in which college students were led to desire either an exchange or communal relationship with a confederate. In exchange relationships, individuals expect that when resources are taken, similar or compensatory resources will be offered in return. There is a sense of obligation or debt that equal reciprocity will take place (Mills & Clark, 1982). The resources that are exchanged may not be exactly the same (e.g., apples for apples); however, the value of the resources would be equal (e.g. apples for money). The definition of exchange is narrow and explicit such that resources received are expected to be



returned with equally comparable resources (Clark & Mills, 1993). Exchange relationships are illustrated in any economic transaction between a buyer and a seller and can also occur between strangers or acquaintances (Clark, 1984). Each member keeps track of what the other gives to ensure that there is an equal exchange of resources (Clark, 1984).

In contrast, *communal relationships* are those in which the exchange of resources between individuals occurs out of a mutual “concern for the welfare of the other” (Clark & Mills, 1979, p. 12). It is this concern that drives individuals to share their resources with one another. The obligation or expectation to reciprocate with equal resources found in exchange relationships does not exist in communal relationships (Clark & Mills, 1993). In fact, an obligatory reciprocation of resources in a communal relationship could be damaging to the relationship, as it suggests that there is misunderstanding about the concern each person has for the other (Clark & Mills, 1979). Additionally, within communal relationships, individuals do not keep track of whether the giving of resources is equal, but instead, they attend to the needs they meet for each other (Clark, Mills, & Powell, 1986). Examples of communal relationships include families, friendships, and romantic partnerships (Clark, 1984), but individuals can have a communal relationship with any person; what may differ is the strength of any given relationship relative to any other (Clark & Mills, 1993; Mills, Clark, Ford, & Johnson, 2004). For example, stopping on the side of the road to help a stranger change a tire reflects a concern for the stranded driver; however, the assistance is offered without any expectation of an equally reciprocal action or the subsequent formation of a relationship between giver and receiver. In contrast,

helping a best friend grieve the loss of a parent reflects a concern for the friend without an expectation of a reciprocal action other than the continuation of the relationship.

The extant literature examining the rules that govern the giving and receiving of resources in exchange and communal relationships is vast. However, much of the research has focused on experimentally manipulated relationships (e.g. Clark & Mills, 1979; Williamson, Clark, Pegalis, & Behan, 1996) rather than actual relationships (e.g. Clark, Mills, & Corcoran, 1989; Yee & Greenberg, 1998), and most researchers have utilized social psychology experimental manipulations to lead participants to desire either an exchange or communal relationship with a confederate.

To fully interpret the findings from the extant literature, it is important to first understand the general experimental manipulations used to examine differences in exchange and communal relationships. For example, Clark and Mills (1979) brought unmarried male study participants into a room to complete a vocabulary task. The participants were told that the focus of the study was to examine performance on a vocabulary task while two participants could see each other working independently through a video monitor. The participants were instructed that the second part of the study would involve being in the same room with the other participant to discuss common interests. It was mentioned that some participants in the past got to know each other well through the discussion. Mentioning this second part of the study was part of the experimental manipulation, so the discussion between participants never took place. The other participant in this particular study was an attractive confederate female named Tricia (Clark & Mills, 1979). It was hypothesized that male

participants would desire a communal relationship with the attractive female confederate if they were led to believe that she was available for such a relationship. In contrast, if the male participants were led to believe that she was unavailable for a communal relationship, they would desire only an exchange relationship with her. The experimenter employed the experimental manipulation by providing specific information about Tricia. In the communal manipulation, the male participants were told

“Tricia is anxious to get on to the next part of the study, since she thinks it will be interesting. She’s new at the university and doesn’t know many people. She has to be at the administration building in about half an hour and she wants to finish before then” (Clark & Mills, 1979, p 15).

Participants in the exchange manipulation were told

“Tricia is anxious to get on to the next part of the study, since she thinks it will be interesting. Her husband is coming to pick her up in about half an hour and she wants to finish before then. (Clark & Mills, 1979, p15).

Researchers have used similar manipulations for female participants with the assumption that unmarried females would also desire communal relationships with an unmarried male (Clark & Waddell, 1985). In addition, results show that this experimental manipulation to desire an exchange or communal relationship yields similar results regardless of the attractiveness of the confederate (Clark, 1986).

Although the experimental methodology of leading participants to desire an exchange or communal relationship has provided an avenue through which to explore and differences between the two types of relationships, it has done little to provide evidence for whether these differences hold true in existing relationships. Other

researchers have asked participants to think about a real relationship rather than an experimentally manipulated one. Thus, when participants are asked to think about a communal relationship, they have been asked to think about a close friend, dating partner, or spouse (Beck & Clark, 2009; Lemay, Clark, & Feeney, 2007; Peck, Shaffer, & Williamson, 2004). In contrast, when participants are asked to think about a real example of an exchange relationship, they have been asked to think about an acquaintance (Yee & Greenberg, 1998).

Whereas asking individuals to think about an existing relationship is methodologically more realistic than thinking about experimentally manipulated relationships, this method also has limitations. When a participant is asked to think about a close friendship, as an example of a communal relationship, it is not known whether the friendship is reciprocated. Research on friendship suggests that there are qualitative differences between reciprocated and nonreciprocated friendships. In their meta-analysis on friendships, Newcomb and Bagwell (1995) revealed that reciprocated friends report higher communication, cooperation and positive affect with one another compared to nonreciprocated friends. Furthermore, reciprocated friends report greater amounts of affection and closeness and tend to be more similar to one another in their behaviors and social cognitions. Results from a study examining responses to a hypothetical provocation scenario in a sample of first through sixth graders revealed that having a reciprocated friend who was aggressive increased the likelihood that the individual would generate aggressive responses (Brendgen, Bowen, Rondeau, & Vitaro, 1999).

There are also limitations to this line of research when participants are asked to think about an acquaintance as an example of an exchange relationship. For example, Yee and Greenberg (1998) examined female undergraduates' level of support towards a crime victim who was a friend (communal relationship) or an acquaintance (exchange relationship). The authors offered no guidelines or descriptions for what constitutes an acquaintance (Yee & Greenberg, 1998); thus it is unclear whether, and how, the participant distinguishes between an acquaintance and a close friend.

Given these limitations in having individuals imagine an existing communal or exchange relationship, some researchers have chosen to observe real relationships as the partners interact. In an example of this methodology, pairs of undergraduate friends agreed to participate in a study together, but when they came to the laboratory, they were paired either with their friend (communal relationship) or with a stranger (exchange relationship) who happened to be a friend from another pair (Clark et al., 1989). Results from this study using existing friendships showed that when participating with a friend versus a stranger, undergraduates pay more attention to the needs of their partner. These results are similar to results from a study in which participants were led to desire an experimentally manipulated communal or exchange relationship (Clark et al., 1986). This suggests that examining real relationships, either by having individuals indicate relationship partner that can be confirmed or providing explicit instructions on what constitutes a communal or exchange relationships, could be a valid and reliable methodology to examine differences in exchange and communal relationships.

*Differences between exchange and communal relationships.* Although the use of real or experimentally manipulated relationships varies from study to study, several reliable differences have been discovered in the rules governing exchange and communal relationships. Using the experimental paradigm described above, well-established effects have been found differentiating individuals who are led to desire an exchange versus a communal relationship. When led to anticipate an exchange relationship, individuals keep track of each other's inputs on cooperative tasks (Clark et al., 1984; Clark et al., 1989; Clark et al., 1986) and there are high expectations that favors be returned in an equal and timely fashion (Clark & Mills, 1979). These effects reflect the "tit-for-tat" definition of reciprocity governing the exchange of resources in exchange relationships. In contrast, when individuals are led to desire a communal relationship, evidence suggests that individuals pay more attention to the needs of their partners, suggesting that they are willing to provide assistance even when they know their partner cannot repay the favor (Clark et al., 1986). Furthermore, when led to desire a communal relationship, individuals are more likely to notice the emotions of the other person, suggesting that when in a communal relationship individuals are open to signs that a need is present (Clark & Taraban, 1991). These effects reflect the rules of reciprocity in communal relationships, such that the needs of a relationship partner are important rather than an equal exchange of resources.

In addition to studies using experimentally manipulated relationships or ones with an identified friend in the next room, the effects when individuals are asked to *think* about a real relationship are similar. For example, undergraduates were presented with a vignette describing either a close friend (communal relationship) or

an acquaintance (exchange relationship) needing help and were asked to report on level of need and costs associated with helping their relationship partner (Yee & Greenberg, 1998). When an acquaintance was in need of help, participants reported higher costs and a lesser need than when it was a friend needing assistance (Yee & Greenberg, 1998). Additional evidence suggests adults reported a greater likelihood of offering help to and requesting help from a close friend than an acquaintance (Beck & Clark, 2009). In addition, adults were more likely to offer help in any type of relationship, but more likely to request help from a communal rather than exchange relationship partner (Beck & Clark, 2009). These results support the Mills and Clark (1979) original theory that the distinction between an exchange and communal relationship rests in one's awareness of and willingness to help someone when a need is expressed.

There is also evidence suggesting that within communal relationships, returning a favor when a need is not present may undermine the relationship. For example, Clark and Mills (1979) manipulated male undergraduate to desire either an exchange or communal relationship with a female confederate. In the task, the female confederate demonstrated a need and asked for assistance with the task. There was no difference between exchange and communal groups in the likelihood of offering help. However, within the communal group, ratings of attractiveness of the confederate were lower when the confederate returned the assistance when the participant did not indicate a need was present than when the confederate did not return the favor and no need was present (Clark & Mills, 1979). These results seem to support the argument that in a communal relationship, when assistance is offered without a need being

present, it undermines the expectations for the relationship and may be associated with the overall quality of the relationship.

The research on exchange and communal relationships has been considerable, however there are several limitations. First, most researchers have focused almost exclusively on college-aged or older adults and have primarily focused on experimentally fabricated relationships. Second, study samples have been either male or female, thus precluding the possibility of examining gender differences in response to exchange or communal relationships. Those studies in which both males and females have been used, the results do not offer an examination of gender differences (e.g., Beck & Clark, 2009). Finally, most studies do not provide ethnicity/race or socioeconomic status and those that do are comprised of almost all Caucasian participants (e.g., 79%; Clark & Finkel, 2005). Therefore, it is unclear whether gender of the participant, relationship partner, and demographic characteristics are important variables that would be associated with the exchange of resources in exchange and communal relationships.

Although these studies have been replicated, and the effects appear to be consistent across methodology (e.g. manipulated relationships or real relationship) and types of tasks (e.g. offering help or working together on a task), there is a need to examine whether early adolescents perceive the differences between exchange and communal relationships and demonstrate the same patterns in their own relationships. At this time, no empirical study has explored whether adolescents understand and perceive the difference between exchange and communal relationships. Furthermore, given the work of Youniss (1980) and Selman (1980), it would be more innovative to



examine early adolescents' social cognitions regarding the exchange and communal distinction rather than their behaviors and responses in exchange versus communal relationships. The extensive literature on exchange and communal relationships has influenced the work done on relationships orientations in both adults and adolescents (Clark & Finkel, 2005; Jones & Costin, 1995). The review of exchange and communal *relationships* provided thus far will be useful in understanding differences between communal and exchange *orientations* during early adolescence.

***Exchange and communal orientations.*** As mentioned previously, relationship orientations represent individuals' cognitive conceptions of reciprocity, or their expectations for the exchange of resources. Relationship orientations mirror the same rules and norms of the previously described exchange and communal relationships. However, rather than describing the relationship, relationship orientations refer to individual differences in expectations for the exchange of resources. Exchange and communal orientations are not mutually exclusive; in fact, correlations between the two continuums in studies comprised of adolescents ranged from -0.31 to 0.10 (Jones & Costin, 1995) and in studies of adults correlated 0.35 (Johnson & Grimm, 2010), suggesting that individuals can be high or low exchange orientation while at the same time be high or low on communal orientation.

The exchange orientation focuses on the extent to which individuals focus on fairness and keeping track of the exchanges in their relationships and whether there is equity in these exchanges (Murstein et al., 1977; Sprecher, 1992). There is an expectation that every offer of help or support is returned in kind, resembling a tit-for-tat type of expectation. Theorized as a continuum on which individuals may be

high or low in exchange orientation, researchers have explored whether individuals' level of exchange orientation is associated with the quality of their relationships. Adults with a high exchange orientation tend to keep track of what they give as well as what they receive from their relationship partners, whereas adults with a low exchange orientation are not concerned with any such inequalities (Murstein et al., 1977; Sprecher, 1998). In a sample of adults who donated to the performing arts, a higher exchange orientation towards the performing arts center was positively associated with expectations of receiving perks, such as better seats as a performance (Johnson & Grimm, 2010). Additional research on undergraduates indicates that the exchange orientation is negatively associated with marriage adjustment and satisfaction (Buunk & Van Yperen, 1991; Murstein et al, 1977) as well as satisfaction in cohabiting and dating relationships and friendships (Jones, 1991; Milardo & Murstein, 1979; Sprecher, 1992). In samples of married adults, a higher endorsement of exchange orientation norms was associated with a greater sense of unfairness in division of household work and men reported higher levels of exchange orientation (Grote & Clark, 1998; Murstein, Wadlin, & Bond, 1987).

Murstein and colleagues (1977) acknowledge that whereas a high exchange orientation tends to be associated with negative relationship quality, some relationships positively benefit from both partners holding a high exchange orientation. For example, a high exchange orientation may be beneficial when two individuals are forming a friendship. An equal exchange of favors with one another may set the foundation for a strong friendship (Murstein et al, 1977). However, close marital and romantic relationships, and close, established friendships, may be

negatively affected when partners continuously expect an equal exchange of resources.

Similar to communal relationships, a communal orientation refers to the extent to which individuals consider the specific needs of their relationship partner and how to meet them. The expectations associated with a higher communal orientation are that there is a mutual understanding to meet the needs of one's relationship partner, and that the equality of the exchange or support or help is measured by mutually agreeing to meet one another's needs when they are present. It is also believed that a communal orientation is a continuum on which individuals can have high or low levels. Older adults' (mean age 70.2 years) communal orientations were positively associated with friendship satisfaction (Jones & Vaughan, 1990). In samples of undergraduates and young adult dating couples, a higher communal orientation was associated with higher levels of helping behaviors and a greater likelihood of expressing emotion to a relationship partner (Clark & Finkel, 2005; Clark et al., 1987). Furthermore, undergraduates' communal orientation was positively associated with helping behaviors that were more empathic and less controlling, whereas their exchange orientation was positively associated with helping behaviors that were more controlling and direct (Harber et al., 2008). These results suggest that young adults with a higher communal orientation are more attentive to the needs of their relationship partners whereas those with an exchange orientation simply focus on fixing the problem. A high communal orientation may also act as a protective factor by reducing the likelihood of relationship dissatisfaction in undergraduate intimate relationships when individuals are faced with relationship

inequity, such as unequal division of household tasks (Buunk & De Dreu, 2006).

Similar patterns have also been found in business relationships; adults high in communal orientation prefer to take the side of a friend over an acquaintance in business matters (Yang, Van de Vliert, Shi, & Huang, 2008), suggesting that a relationship orientation permeates different types of relationships and contexts.

Finally, there is some evidence that adult females tend to report higher communal orientations than males (Jones, 1991).

One important question to consider is the extent to which exchange and communal orientations are associated with overall social adjustment. Mills and Clark (1982) have suggested that even though researchers repeatedly find empirical differences between communal and exchange *relationships*, individuals are neither explicitly aware nor do they explicitly use the distinction. This is evident in that some adults consider all relationships communal whereas others consider all relationships as exchange relationships (Mills & Clark, 1982). Furthermore, correlations between adolescents' exchange and communal orientations have been modest, yet significant ( $r = -.31, p < .05$ ; Jones & Costin, 1995) suggesting that the two continua are not mutually exclusive. Given these possible dispositional differences in thinking about the exchange of resources in relationships, it would be beneficial to examine individuals' relationship orientations in terms of their expectations in a specific relationship rather than how they categorize their relationships.

Additionally, given the increased emphasis on intimacy, mutuality, and reciprocity within adolescent friendships, it seems that variations in the extent to which adolescents endorse an exchange and/or communal orientation may be evident

in adolescent friendships. As adolescents begin to become more aware of the specific needs of their friends and are more likely to turn to their friends for support than their parents or siblings (Buhrmester & Furman, 1987; Helsen, Vollebergh, & Meeus, 2000; Hill, Bromell, Tyson, & Flint, 2007; Youniss & Smollar, 1985), an examination of relationship orientations in adolescence has the potential to provide more insight into these important changes in adolescent friendships. As stated previously, the central assumption between exchange and communal orientations is not *what* is exchanged between individuals, but rather the rules that govern the exchange of resources (Mills & Clark, 1982). It is possible that adolescents with a high communal orientation towards their friends also report higher levels of intimacy, closeness, and equality in those friendships. In contrast, adolescents with a high exchange orientation would report lower levels of intimacy, closeness, and equality in friendships. An examination of the associations between exchange and communal orientations and friendship quality in adolescents' friendships would significantly improve our understanding of the role of reciprocity. Whereas there is an extensive literature examining friendship quality, much less has been done on adolescents' relationship orientations.

*Relationship orientations in adolescent friendships.* Only one article has been published on adolescents' exchange and communal orientations. Jones and Costin (1995) conducted a set of studies examining age and gender differences in relationship orientations in a sample of adolescents ranging from 11 to 15 years of age. In contrast to the adult literature in which most studies did not examine or report gender differences, Jones and Costin (1995) revealed that female adolescents reported

higher communal orientations than males. In contrast, adolescent males reported higher exchange orientations. This was the first study to include results which suggest that males and females may use different rules for exchanging resources with their friends. Previous work in the adult literature on exchange and communal relationships as well as exchange and communal orientations has neglected to examine gender differences. However, given the qualitative differences of male and female friendships during adolescence (see Rubin, Bukowski, and Parker, 2006 for review), gender differences in exchange and communal relationships are important to consider. This point will be elaborated below in the discussion of gender differences in friendship quality among adolescents.

However, regardless of gender, Jones and Costin (1995) reported a decrease in mean levels of exchange orientation from 6<sup>th</sup> to 10<sup>th</sup> grade, or roughly the ages of 11 to 15; there were no significant changes in communal orientation during the same time. These findings are in line with the work of Selman (1980) and Youniss (1980) who argued that there are developmental changes in awareness of others' needs, perspective-taking, and mutuality. Furthermore, the rules of reciprocity that children use reflect the more "tit-for-tat" rules of exchange orientation compared to the rules of reciprocity more often endorsed by adolescents which focus on meeting the needs of their relationship partners (Youniss, 1980). The decreases in exchange orientation reported by Jones and Costin (1995) are in line with the changes in reciprocity Youniss (1980) reports. The lack of change in communal orientations from 6<sup>th</sup> to 10<sup>th</sup> grades suggests that adolescents begin thinking about the exchange of resources in a more communal way before completely abandoning the more exchange rules of

reciprocity. However, additional longitudinal rather than cross-sectional studies would need to be conducted to flesh out these patterns of change.

Jones and Costin (1995) also examined associations between exchange and communal orientations and friendship quality. Two independent studies were reported in the same 1995 article, with similar methods and sample characteristics (e.g., ages, gender). However, the two studies revealed conflicting evidence regarding friendship quality. In study one, there were no significant associations with friendship quality for exchange or communal orientations for the whole sample. However, when separate analyses were run for males and females, males' communal orientations were positively associated with perceptions of friendship quality. In study two, there were no significant associations between communal orientations and friendship quality. In contrast, exchange orientations were negatively associated with friendship quality; however when the analyses were run separately for males and females, this association was only found for males (Jones & Costin, 1995). These results do support previously cited evidence from the adult literature on relationship orientations (e.g., Jones, 1991). The negative association between exchange orientation and friendship quality is also consistent with evidence that behaviors associated with an exchange orientation may undermine the close relationships of adults (Clark & Mills, 1979). However, the inconsistent results from the two studies suggests that there are several limitations that need to be raised.

*Limitations in adolescent relationship orientations research.* First, researchers who have studied adolescent relationship orientations have not asked adolescents to think about a specific friendship. Rather, participants have responded

to relationship orientation items about their friendships, in general (Jones & Costin, 1995). There is evidence to suggest that children and adolescents have different experiences with *specific* friendships. Kiesner and colleagues, for example, found that adolescents rated their top three friendships differently from one another in terms of validation and caring, and conflict (Kiesner, Nicotra, & Notari, 2005). Also, empirical evidence suggests that best friends have a stronger influence over adolescents' delinquent activities than other types of friends (Mercken, Candel, Williems, & de Vries, 2007). There is also evidence that young adolescents use different rules for getting along with close friends versus other friends and other peers-in-general (Bigelow, Tesson, & Lewko, 1992). And finally, recent evidence suggests adolescents process information differently following an ambiguous provocation scenario when the provocateur is identified as a mutual best friend versus a general peer (Burgess et al., 2006), which further support the importance of exploring social cognitions adolescents hold for their friendships. Taken together, this empirical evidence highlights the importance of asking adolescents to think about a specific friendship when they are responding to items about that friendship, such as relationship orientations and friendship quality. This study addressed this notable gap by having adolescents respond to relationship orientation and friendship quality items for each of their nominated friends.

A second limitation in the work on relationship orientations is that assessments of relationship satisfaction and relationship quality have been weak. Adults have reported on relationship satisfaction, which assesses the extent to which “they felt happy and satisfied” (Lemay et al., 2007, p.838). Adolescents have



completed friendship quality measures that not only are broad and reflect only one positive quality factor, but the items are not worded such to identify a specific friendship (Jones & Costin, 1995). The limitations of Jones and Costin's (1995) friendship quality measure may explain why their results were inconsistent across their two independent studies.

There are more widely-used measures of friendship quality that assess a variety of friendship features (see Berndt & McCandless, 2009 for a review). Furthermore, evidence suggests not only that friendship quality is multidimensional, but also that there are different associations with adolescent adjustment when these multiple dimensions are considered. For example, more positive friendship features have been associated with higher levels of self-esteem, whereas more negative friendship features have been associated with anxiety and hostility (Bagwell, Bender, Andreassi, Kinoshita, Montarello, & Muller, 2005). Due to evidence suggesting that positive and negative qualities of friendship are differentially associated with individual differences in adjustment, it is imperative that a more detailed assessment of friendship quality be used when examining individual differences in relationship orientations. In this study, I used a well-established friendship quality assessment that examined both positive and negative relationship characteristics (Bukowski et al., 1994).

Third, there needs to be a more detailed focus given to gender differences in relationship orientations, and in particular whether these gender differences moderate any associations with friendship quality. Surprisingly, few studies of either adults or adolescents closely examined gender differences in the extent to which individuals

endorsed exchange and communal orientations. For those studies in which gender differences were examined, results tended to be mixed, as in the Jones and Costin (1995) study on adolescents. Furthermore, some studies reported that adult males were higher on exchange orientation while females were higher on communal orientation (Jones, 1991; Murstein et al., 1987) while other studies reported no gender differences in adults on exchange or communal orientations (Clark et al., 1986; Clark et al., 1987; Murstein & Azar, 1986). This study addressed this notable limitation by examining whether there were any gender differences in both exchange and communal orientations. Many of these studies were conducted a couple decades ago, and there has been considerable change in gender expectations in the intervening years.

Furthermore, this study addressed this gap by examining whether gender moderated any of the associations between relationship orientations and friendship quality. There is a prolific literature on gender differences in friendship quality among adolescents. In a recent, and extensive, review on gender differences in peer relationships, Rose and Rudolph (2006) examined gender differences at both the level of the peer group as well as at the level of the dyad, or friendship. In their review, results consistently reveal that female adolescents report higher levels of self-disclosure, closeness, validation, and trust with their friends than do males (Rose & Rudolph, 2006). In contrast, results consistently reveal that there are no gender differences for ratings of conflict between male and female adolescents (Rose & Rudolph, 2006). These robust gender differences in adolescents' friendship quality underscore the importance of taking into consideration whether gender moderates any

associations between relationship orientations and friendship quality. The current study addressed this notable limitation, and the friendship quality measure selected was one Rose and Rudolph (2006) reviewed and reported as consistently demonstrating the aforementioned gender differences.

Finally, there is a need to examine relationship orientations and friendship quality within mutually reciprocated best friendships. There is evidence suggesting the importance of distinguishing between mutually reciprocated best friends and unilateral best friendships when examining friendship quality (Adams, Bukowski, & Bagwell, 2005; Rubin et al., 2006). In particular, De Goede and colleagues (2009) encouraged future researchers interested in perceptions of the qualitative features of friendships to include mutually reciprocated dyads. This was originally an aim of this study. Because fewer than expected number of students had parental permission to participate and relatively few dyads were identified, this was not feasible.

In summary, the first research aim of the current study was to examine the associations between relationship orientations and multiple dimensions of friendship quality among mutually reciprocated adolescent friendship dyads. This particular research aim will serve to not only address each of the previously described limitations in the literature on relationship orientations, but it will also advance our understanding of the role of reciprocity in adolescent friendships. Given the theoretical importance of reciprocity in adolescent friendships (Selman, 1980; Youniss, 1980), the results from this study will advance our understanding of the role reciprocity plays within adolescents' friendships. The implications of this evidence could help to identify certain deficiencies or biases in adolescents' relationship

orientations that may be associated with difficulties forming or even maintaining good quality friendships (Bowker et al., 2010). Furthermore, this evidence could help us to understand the complex nature of conflict in adolescent friendships. Laursen and Pursell (2009) point out that “conflict signals inequality” (p. 274) and this inequality may represent disparities in adolescents’ expectations for reciprocity with their friends. Conflict, which happens frequently in adolescents’ friendships, has mixed positive and negative effects on friendship quality. For example, higher levels of conflict with friends have been associated with lower school grades (Adams & Laursen, 2007). However, observations of adolescent friends working on a difficult task together revealed that conflicts in which both friends engaged in constructive discussion of the problem were associated with greater problem solving for both individuals (Azmitia & Montgomery, 1993). Therefore, conflict represents an important context through which to understand reciprocity.

### **Conflict in Adolescent Friendships**

Adolescents’ friendships are characterized by many positive qualities, including intimacy and closeness (Furman & Buhrmester, 1985). However, friendship quality is multidimensional such that friends reporting high levels of intimacy and closeness may also report frequent conflicts and disagreement. Researchers suggest that being able to successfully navigate conflict with friends is not only important to maintaining the friendship but also helps adolescents evolve their level of mutuality with one another (Collins & Laursen, 1992; Rose & Asher, 1999). Hartup (1992) theorized that conflicts afford friends the opportunity to consciously think about how they behave with one another and subsequently adjust their expectations and

behaviors in favor of maintaining a harmonious relationship. This is supported by evidence that adolescents' reports of conflict with their friends are not associated with friendship loss over the course of six months (Bowker, 2004). Theorists as far back as Piaget (1932) have argued that cognitive change requires some form of disequilibrium in order for the individual to realize that change needs to occur. Disequilibrium among friends may be a catalyst for not only cognitive growth, but also strengthening of the relationship.

However, conflict is not always beneficial to the individuals involved or the relationship itself. Empirical evidence on mutual friendship dyads suggests that when high levels of conflict are reported, both members of the friendship dyad also report greater externalizing problems as well as decreases in positive friendship qualities (Burk & Laursen, 2005; Demir & Urberg, 2004). This paradox of positive and negative outcomes associated with conflict in adolescents' friendships is a complex one. However, there is strong theoretical and empirical evidence suggesting that how adolescents think about conflict with their friends and the resolution strategies they select may help to disentangle this paradox.

Evidence from the social cognitive literature suggests that how adolescents process, understand, and react to negative situations is predictive of individual differences in behavior as well as friendship quality (Burgess et al., 2006; Crick & Dodge, 1994; Dwyer et al., 2010). More specifically, the types of social goals and resolution strategies adolescents choose following a hypothetical conflict scenario with a friend are related to friendship quality with a close friend (Rose & Asher, 1999). Conflicts between friends can include disagreements over reciprocity

expectations, and as such it is important to examine how adolescents' expectations for reciprocity are associated with their social cognitions about conflict. More specifically, it is of interest to examine associations between adolescents' relationship orientations and the types of social goals and resolution strategies they endorse in the context of hypothetical conflicts with friends. Finally, adolescents' expectations for reciprocity, social goals, and resolution strategies may help to disentangle the mixed effects of conflict on friendship quality.

Therefore, the second aim of this study was to examine whether social goals and resolution strategies mediated the association between exchange and communal relationship orientations and multiple dimensions of positive friendship quality in mutually reciprocated adolescent friendship dyads. I explore this research aim by first reviewing the literature on conflict in adolescent friendships. Second, I present an overview and evaluation of the literature on the social information processing model and how it serves as a theoretical framework from which to examine the intricate associations between reciprocity, social cognitions about conflict, and friendship quality.

**Definitions and common themes of conflict in adolescence.** Conflict is typically defined as “a state of disagreement that may be manifest in terms of incompatible or opposing behaviors and views” (Laursen & Pursell, 2009, p.268). By this definition, a typical adolescent conflict involves a disagreement over which movie to see on a Friday night or whether a friend told another friend's secret (Collins & Laursen, 1992; Youniss & Smollar, 1985). Repeatedly throughout the literature, the term “disagreement” has consistently been used to describe conflict

(Adams & Laursen, 2007; Hartup, 1992), with most adolescents reporting at least one daily disagreement with their close friends (Laursen, 1995). Conflict, therefore, is different from aggression, competition, and dominance (Hartup, 1992; Laursen & Collins, 1994; Shantz, 1987). Not all conflicts involve aggressive acts or resolutions nor do all conflicts result in a winner or loser, as is the case with zero-sum competition (Hartup, 1992). Conflict is different from aggression in that it does not involve a power differential as is common in aggression and dominance. It is likely that conflict leads to aggression, competition, and dominance (Adams & Laursen, 2007), but at its core, conflict involves disagreements and oppositions (e.g. arguing over which movie to see on a Friday night).

Another important distinction between conflict and aggression is that conflict should be viewed separately from the affect (e.g. anger, sadness) that may or may not accompany the disagreement (Collins & Laursen, 1992). Particularly within close relationships, it is common for disagreements to be emotionally charged. Yet, specific types of affect are not necessary for a conflict to occur (Laursen & Pursell, 2009). Given that emotions, such as anger, frustration, or even disappointment, are not necessary for conflict to occur, it is important to examine the emotions that surface following a disagreement separately from the issue that caused the conflict.

Furthermore, conflict is inherently dyadic in that it involves two individuals who have expressed a specific disagreement. A conflict does not exist until both individuals involved become aware of their differing viewpoints or the presence of some inequality. Thus, to fully understand conflict in adolescent friendships, it is

necessary to adopt a dyadic framework and examine how adolescents think about conflict with a specific friend (Collins & Laursen, 1992).

Many researchers have asked adolescents to report on the types of topics that cause the most conflict with their friends. Youniss and Smollar (1985) conducted a set of studies in which adolescents were interviewed about or asked to fill out open-ended questionnaires about things they did to cause conflict with a friend and things their friends did to cause conflict. Youniss and Smollar (1985) identified several categories of conflict that adolescents noted across multiple studies, including untrustworthy acts, lack of attention, disrespect, and unacceptable behaviors, all of which pertain to conflicts over interpersonal issues (Collins & Laursen, 1992; Laursen & Pursell, 2009). Interpersonal issues include intimacy and companionship as well as annoying behaviors and teasing or keeping secrets and promises (Laursen, 1995; Youniss & Smollar, 1985). What is not seen in adolescents' reports of friendship conflicts are disagreements over instrumental issues, such as sharing a toy, that are more common in childhood (Hay & Ross, 1982). The lack of disagreements over instrumental issues is evidence supporting the changes in how adolescents think about reciprocity, specifically that adolescents focus more on mutuality and meeting one another's needs rather than tit-for-tat instrumental exchanges (Youniss, 1980). Therefore, it is important to examine whether social cognitions about reciprocity, or relationship orientations, are associated with how adolescents think about conflicts with their friends.

Furthermore, the majority of the work on reciprocity in adolescent's friendships from which to draw theory and empirical evidence is over 10 years old,



thus highlighting a gap in the literature in today's adolescent friendships. Finally, researchers consistently show frequencies of conflicts do not seem to be associated with overall friendship quality (e.g., Adams & Laursen, 2007), but rather conflict management skills, such as resolution strategies, are associated with friendship quality (e.g., Rose & Asher, 1999).

**Conflict resolution strategies in adolescence.** Just as it is important to understand the common topics of disagreements among adolescents, it is necessary to understand the types of resolution strategies that adolescents use. Theorists, including Piaget (1932) and Selman (1980), have argued that conflict resolution strategies differ based on the cognitive maturity of the individual. A recent meta-analysis provided empirical evidence to support these theories. Children are more likely to use hostile and coercive strategies to resolve a conflict whereas adolescents are more likely to use resolution strategies that focus on maintaining the relationship with their conflict partner (Laursen, Finkelstein, & Betts, 2001). This may be why negotiation and compromise tend to be the most common conflict resolution strategies among adolescents, particularly with their friends, as they both represent the need to resolve the conflict while trying to maintain the harmony of the relationship (Laursen, Hartup, & Koplak, 1996).

Preferred conflict resolution strategies also differ based on with whom the adolescent is having a conflict. Negotiation and compromise are more common during conflicts with friends and peers rather than with adults (Selman, Beardslee, Shultz, Krupa, & Podorefsky, 1986). In contrast, within parent-child conflicts, adolescents tend to endorse more submissive strategies whereas parents rely on more

unilateral authority (Youniss & Smollar, 1985). Interestingly, when presented with hypothetical conflict scenarios involving a friend, adolescents reported greater use of strategies in which they simply forgot about or accepted the violation caused by a friend (Youniss & Smollar, 1985). The differences presented suggest not only that conflict resolutions may be context dependent (e.g., relationship partner), but also that there may be instances where adolescents make maintaining their friendship a priority over addressing/resolving a specific disagreement. This is an example of the level of cognitive maturity during adolescence argued by Piaget (1932) and Selman (1980) and further highlights the importance of reciprocity in adolescent friendships. The needs of the relationship and the other member of the dyad are deemed to have priority over winning a disagreement or making sure that a conflict is resolved in a tit-for-tat manner. There are instances in which simply forgetting or ignoring a violation may be more important to maintaining the harmony of the relationship than a negotiating or compromising strategy. These differences highlight the importance of examining the specific context in which the conflict takes place. In this study, the context was a hypothetical conflict within a specific friendship.

**Conflict and friendship quality in adolescence.** As stated previously, conflict with friends can have many benefits; however, these benefits depend on the overall quality of the relationship. The most widely used friendship quality measures in the peer relationship literature assess positive and negative dimensions of quality. Furman (1996) pointed out that the most frequently used friendship quality assessments ask individuals to rate their friendships on positive qualities, including companionship, intimacy, and validation, as well as rate their friendships on negative

qualities, including conflict, punishment, and power. Correlations between these two broad dimensions vary from study to study, with some reports of no significant association ( $r = 0.00$ ; Rose & Asher, 1999) and others reporting small ( $r = -0.13$ ; Burk & Laursen, 2005) to moderate negative associations ( $r = -0.33$ ; Bukowski et al., 1994). However, factor analyses of several different measures of friendship quality consistently show that children and adolescents do distinguish between these two broad dimensions, thus underscoring the importance of examining both dimensions of friendship quality (Berndt & McCandless, 2009; Furman, 1996).

Researchers have examined associations between both positive and negative dimensions of friendship quality and conflict in adolescent friendships. A particular note should be made here regarding studies on adolescent conflict with friends and friendship quality. Adolescents' ratings for negative friendship qualities do consist of their assessments of how much conflict occurs in their specific friendships. This characterizes all of the studies reviewed in this study. However, these studies also include separate measures of conflict that are distinct from the Likert ratings of how well a particular conflict statement applies to a friendship. For example, in addition to asking adolescents to rate the negative qualities of their friendships, Burk and Laursen (2005) asked adolescents to report on a recent conflict with a friend, including emotions and what happened after the conflict. The point is that when examining associations between negative friendship qualities and conflict in adolescent friendships, the studies reviewed did contain separate measures for the negative quality and assessment of conflict.

Burk and Laursen (2005) conducted a study consisting of an ethnically diverse sample of mutually reciprocated adolescent friends. Participants completed measures on friendship quality as well as conflict, including affect and what happened after a conflict occurred on the previous day. Results suggested that adolescents' ratings of negative friendship qualities, such as punishment, were more strongly associated with negative outcomes following a conflict with friends than were positive friendship qualities. For example, adolescents who reported higher friendship negativity also reported more negative emotions and a greater likelihood of separating from their friend following a conflict; however higher friendship positivity was not associated, even negatively, with the same negative outcomes (Burk & Laursen, 2005).

Negative friendship qualities, such as conflict and punishment, also act as moderators between the frequency of conflict with friends and adolescent psychological adjustment. A sample of ethnically diverse adolescents reported on the frequency of conflict with their close friends, friendship quality and adjustment problems (Adams & Laursen, 2007). Results suggest that the associations between conflict and adjustment difficulties of withdrawal and delinquency were moderated by friendship quality. Specifically, for adolescents reporting high levels of negativity, there was a significant and positive association between conflict frequency and outcomes of delinquency and withdrawal. Thus, as conflict frequency increased from low to medium to high levels, delinquency and withdrawal also increased when friendship negativity was high. In contrast, the associations between conflict and adjustment outcomes differed for those adolescents who reported low levels of negativity. Specifically, for adolescents who reported low friendship negativity, there

were no significant differences in withdrawal and delinquency at low and medium frequencies of conflict. However, both delinquency and withdrawal were higher when conflict frequency was high and friendship negativity was low (Adams & Laursen, 2007). While many suggest that having a good quality friendship, one characterized by low negativity, offers protective factors from negative outcomes, Adams and Laursen (2007) point out that while good quality friendships can buffer individuals from adjustment difficulties, even the highest quality friendship may not provide protection from negative outcomes when conflict frequencies are high. This evidence underscores the complex nature of conflict in adolescents' friendships. In particular, this evidence highlights the complex associations between conflict and both positive and negative dimensions of friendship quality and is the reason for examining both direct and moderating relations between these variables in the analysis.

Much of the work examining associations between conflict and friendship quality have primarily focused on reports of conflict frequency and friendship quality in samples of middle-class, Caucasian adolescents. In these studies, results reveal significant associations between frequent conflicts and more negative friendship quality in adolescents' friendships (e.g., Raffaelli, 1997). However, the studies by Burk and Laursen (2005) and Adams and Laursen (2007) support the idea that characteristics of friendship conflict other than frequency are important to consider. Furthermore, Hartup (1992) argued that dimensions of conflict such as relationship partner, specific conflict issues, and resolution strategies may increase perceived value for the adaptive or the maladaptive aspects of adolescent conflict. Therefore,

the current study included assessments in which adolescents responded to different conflict issues (e.g. disagreeing over resources, exclusivity), multiple types of social goals (e.g. relationship maintenance, control, revenge) and resolution strategies (e.g. accommodation, compromise, hostile, self-interest) that are relevant to conflict with a close friend.

Hartup (1992) suggested that there are several areas that warrant attention in future research on adolescent conflict, including “the extent to which reciprocity and complementarity are salient issues” (p. 209). However, in the intervening 20 years, no one has examined whether social cognitions about reciprocity are associated with how adolescents think about and respond to conflict with a close friend. Since conflicts include disagreements over the exchange of resources or not meeting one another’s needs (Collins & Laursen, 1992), it is also the case that understanding how adolescents’ orientations to relationships and responses to conflict may further help to disentangle the benefits and disadvantages of conflict on adolescents’ friendship quality. More specifically, adolescents’ relationship orientations reflect the expectations that they have for how their close relationships should function, particularly in regards to exchange of resources and meeting the needs of one another. Therefore, these relationship orientations represent a set of schemas, or expectations that can be generalized to a variety of social experiences. This is discussed further in the section on the *SIP database* below. However, in regards to conflict, the extent to which adolescents have a tendency for a high exchange orientation and/or a high communal orientation may be associated with the specific strategies that they use when dealing with conflict with a close friend.

To examine the associations between relationship orientations, social cognitions about conflict, and friendship quality, it is necessary to adopt an empirically derived framework through which to examine these separate constructs. The social information processing (SIP) initially developed by Dodge (1986), with significant revisions made by Crick and Dodge (1994) and Lemerise and Arsenio (2000) and Arsenio and Lemerise (2004), proposes that the processing steps individuals take to understand negative social experiences are associated with not only behaviors but also the quality of close relationships. Furthermore, all three constructs of interest in the current study, exchange and communal relationship orientations, social goals and resolution strategies related to conflict, and friendship quality, can be mapped onto specific parts of the SIP model. Therefore, the second research aim of the current study was to examine whether adolescents' social goals and resolution strategies following hypothetical conflict scenarios with a mutual friend were associated with relationship orientations and friendship quality. More specifically, the SIP model, and supporting research, suggests that social goals and resolution strategies would mediate the associations between exchange and communal orientations and multiple dimensions of friendship quality. Given the complex nature of conflict in adolescent friendships, an examination of whether specific cognitions about conflict are associated with and/or mediating the connection between adolescents' general relationship orientations and their overall friendship quality may reveal a clearer picture of social goals and resolution strategies that are indicative of higher quality friendships.

## **Social Cognitions as Mediators in SIP Model**

There is strong empirical evidence that children's and adolescents' social cognitions following difficult or provocative situations with relationship partners are associated with their perceptions of the quality of the relationship (see Crick & Dodge, 1994 for review). More importantly, there is evidence that specific processing steps in the SIP act as mediators between individuals' characteristics, such as attachment, and their perceptions of relationship quality (Dwyer et al., 2010). For example, a higher likelihood of being angry following an ambiguous provocation scenario mediated the association between attachment to one's mother and friendship quality with a best friend. To explore this research question, the next section will first present a theoretical discussion of the SIP model, with particular attention paid to how relationship orientations fit in the model. Next, a review of the literature on social goals and conflict resolution strategies in response to adolescents' conflicts with friends is presented.

**Social information processing model.** The SIP model proposes a series of steps that individuals use to perceive, interpret, and react to specific situations with others. Fontaine (2010) described it best as "a heuristic by which social behavior may be understood as the product of distinct patterns of social cognitive operations" (p.570). Researchers have used this model to primarily understand the social cognitive patterns of children and adolescents when they are faced with a negative event, such as being denied entry to a game on the playground or having milk spilled on one's back in the lunchroom (Burgess et al., 2006; Dodge & Price, 1994). A more detailed review of the literature appears later, but the research has consistently shown



that the steps and characteristics of the SIP model are useful in predicting not only how children and adolescents will react to these negative situations, but also that the steps are useful in identifying the specific cognitive biases that distinguish socially competent individuals from their less socially competent peers.

The majority of the research using the SIP model has used ambiguous provocation situations in which participants are presented with a scenario and asked to imagine they are the victim of a mild provocation by another peer (i.e. milk spilled on one's back) but the intent of the situation is ambiguous. Other types of scenarios have included being denied entry to a peer group, peer rejection, and being wrongly accused of doing something wrong by an adult (Dodge, McClaskey, & Feldman, 1985; Zelli et al., 1999). Whereas most researchers have relied on ambiguous provocation situations to understand individual differences in social cognitions, the theory and conceptualization of the SIP model does not suggest that ambiguous provocation situations are the only scenarios that are effective in understanding individual differences in social cognitions and behaviors (Arsenio & Lemerise, 2004).

Of particular relevance to this study were the scenarios in which children and adolescents have been presented with interpersonal conflict scenarios; in these scenarios, friends experience mild disagreements, such as disagreeing over what activities to do or how to exchange resources (Chung & Asher, 1996; Rose & Asher, 1999). Hypothetical conflict scenarios are effective tools for identifying individual differences in social cognitions, behaviors, and social competence by looking at processing at specific steps in the SIP model, including social goals and resolution strategies (e.g. Chung & Asher, 1996; Rose & Asher, 1999; Rose & Asher, 2004).

Furthermore, many disagreements, or conflicts, in adolescence involve some type of violation of expectations that friends have for one another. Reciprocity and more specifically relationship orientations, represent specific expectations that adolescents have for how resources are divided and needs are met within a friendship. For instance, adolescents may expect to receive help from their friends whenever a need is expressed, an example of a communal orientation; however friends may not be readily able or willing to help if their own needs are more important at the time, thus resulting in a violation of the reciprocity expectations.

While the SIP literature has focused primarily on identifying cognitive patterns in response to ambiguous hypothetical provocations by an unnamed/hypothetical peer, the model is designed such that it can be used to understand how adolescents respond to any type of social situation. Previous researchers have used the model as a framework to understand children and adolescents' processing of conflict scenarios (Chung & Asher, 1996) as well as processing of ambiguous scenarios involving a mutual best friend (Burgess et al., 2006). These previous studies offer support for applying the SIP model outside of the traditional method of hypothetical ambiguous provocation situations in favor of selecting specific contexts, such as hypothetical conflict scenarios involving disagreements over personal choices with a mutual friend, to examine adolescents' social cognitions (Nucci, 1981, 2004; Rose & Asher, 1999).

***SIP database.*** An understanding of the SIP model begins with what Crick and Dodge (1994) refer to as the “database”. This database represents many latent mental structures that consist of social knowledge, schemas, normative beliefs, scripts

and experiences that the individual use. The term “database” is technical and reinforces how the SIP model is grounded in computer information processing theory (Crick & Dodge, 1994). However, it is advantageous to use the term “database” in order to illustrate the mental structures that are part of the database as well as how the database and processing steps are associated with one another. The components of the database act as cognitive heuristics that help individuals process and understand the current social situation. In addition, emotion processes, such as emotion regulation, temperament, and mood, as well as moral decisions differentiating domains of transgressions are also considered part of the database and can facilitate and/or hinder how an individual processes information (Arsenio & Lemerise, 2004; Lemerise & Arsenio, 2000; Nucci, 2004). For example, when faced with a negative event involving a friend, adolescents can pull from their database specific memories of how similar events unfolded previously, including not only how their friend behaved but also behavioral responses that worked or did not work. Furthermore, an adolescents’ ability to regulate emotions during a difficult situation or even his or her current mood may influence how the situation is understood.

Being able to quickly draw on past experiences facilitates quick processing of the situation and determining what the most appropriate response is. Further, with each new social experience, individuals have the potential to gain new information, which would be subsequently stored in this database. Thus there is a reciprocal association between the latent mental structure of the database and every online processing step in the model such that previously stored information influences

processing at each step, and new information gained at each step influences and update the database (Crick & Dodge, 1994).

*SIP steps.* Apart from the database, the SIP model consists of six online processing steps through which the individual processes the situation. At Step 1, the individual encodes the cues and subsequently interprets these cues at Step 2. In a conflict situation, the individual would gather all the important information about the conflict and begin to interpret the information. Several types of interpretations are made at Step 2, including attributions of why the conflict took place and also the intent of the friend in relation to the conflict. Additional attributions also include evaluations of the self and others and past performances in similar situations. At Step 3, the individual focuses on choosing a goal or multiple goals that would be desired. Goals in conflict scenarios could focus on maintaining the harmony of the relationship, getting one's way, or seeking revenge. At Step 4, the individual generates new or retrieves from the database possible responses for the situation, which for a conflict situation would include resolution strategies, such as compromise or being hostile. These generated responses are then evaluated at Step 5 in terms of their efficacy, both at achieving the desired goal from Step 3 as well as the individual's ability to enact the response. Based on these evaluations, the individual selects a response strategy, and at Step 6, the behavior is enacted.

Following enactment of the behavior at Step 6, Crick and Dodge (1994) suggested there are additional evaluative processes that occur. In these evaluative processes, the individual will decide whether the response was effective, based not only on his or her own perceptions, but also on the perceptions of others involved. A

conflict can result in a successful resolution in which both members of the dyad agree to a solution. However, it is also possible for friends to not reach a resolution. In both of these cases, the outcomes will be evaluated and committed to the database. An effective response, in theory, will be evaluated as effective and transferred to the database for future retrieval as a successful solution should a similar situation occur again. An ineffective response will also be committed to the database as a reminder of what not to do the next time. It is important to further elaborate on the difference between components of the database and the processing steps of the SIP model. Crick and Dodge (1994) point out that the database consists of many latent mental structures which have an indirect influence on behavior. In contrast, the processing steps represent the on-line processing, which has a direct influence on behavior. Put another way, the SIP steps act as mediators between components of the database and actual behavior.

Several researchers have examined whether any of the SIP steps act as mediators between components of the database and some outcome variable in samples of children and adolescents by using hypothetical provocation scenarios. In a sample of young adolescents, participants reported on their perceptions of maternal control, including discipline tactics (Gomez, Gomez, DeMello, & Tallent, 2001). These perceptions of maternal control represented memories of past maternal behavior and were conceptualized as an example of a component of the database. In addition, participants' responded to items assessing their hostile attribution bias and generation of aggressive responses, or specific steps in the SIP model following a hypothetical provocation scenario. Finally, teachers provided ratings on aggressive

behavior, which was used as an outcome. Results supported that both the tendency to attribute hostile intent and number of aggressive responses mediated the association between maternal control and aggressive behavior (Gomez et al., 2001). In a similar study of elementary-aged children, the tendency to attribute hostile intent mediated the association between beliefs legitimizing aggression and aggressive behavior (Zelli et al., 1999). In addition, specific processing steps have also been shown to mediate the association between children's and adolescents' attachment style and number of friendship nominations and friendship quality (Cassidy, Kirsh, Scolton, & Parke, 1996; Dwyer et al., 2010) as well as mediate the associations between negative and positive affect and internalizing difficulties (Luebbe, Bell, Allwood, Swenson, & Early, 2010). It is of particular note that in each of these mediation studies, an alternative model was tested such that the database component would act as the mediator between the SIP step and outcome variable. In each instance, the alternative model proved to be a worse fit than the expected mediated model. This suggests that components of the database have an indirect effect on behaviors and evaluations of responses, such as friendship quality. This indirect effect occurs through the specific processing steps taken when understanding and reacting to a negative situation (Crick & Dodge, 1994).

The narrow focus of the existing SIP literature has revealed associations between the database, SIP steps, and aggressive behavior. However, as mentioned previously, the SIP model is designed such that it is a heuristic to understand social cognitions and behaviors that extend beyond hypothetical provocation situations and aggressive behavior. In this study, hypothetical conflict scenarios were used to

understand associations between reciprocity and friendship quality in adolescents' friendships. Specifically, adolescents' expectations of reciprocity, or relationship orientations, will be conceptualized as a component of the database, as they represent cognitive heuristics that guide processing of the conflict scenario and subsequent reactions. Furthermore, adolescents' endorsements of specific social goals (Step 3) and resolution strategies (Step 4) that have been previously identified as important in adolescents' conflicts with friends were assessed as the specific processing steps in the SIP model. Based on previous work, it is expected that while both relationship orientations (database component) and SIP steps would be associated with the quality of the friendship, the association between relationship orientations and friendship quality would be mediated by the specific SIP steps of social goals and resolution strategies (Dwyer et al., 2010). The following sections present a review of the literature in which the associations between relationship orientations, social goals and resolution strategies, and friendship quality are outlined. In addition, several gaps in the literature in respect to adolescents' friendships are highlighted, including how the current study addressed these gaps.

**Reciprocity as SIP database component.** Much of the work on the SIP model and its individual components has focused on examining how particular responses differentiate between children and adolescents who vary in social competencies, such as aggression, acceptance, and withdrawal (Burgess et al., 2006; Crick & Dodge, 1994; Rah & Parke, 2008). However, there has been little direct assessment of specific social knowledge, schemas, normative beliefs, and scripts held in an individual's database. Adolescents carry with them many years of social

experiences which have created a vast database of scripts, knowledge structures, and expectations for how they and others will act in particular situations. One set of knowledge structures in particular is the specific expectations adolescents have regarding the exchange of resources within their friendships, or relationship orientations.

*Evidence for the SIP database.* Although the type of information that is held in the database is vast, the existing literature seems to focus more on components of the family climate, such as harsh discipline, attachment style, and parental attributions, or normative beliefs, specifically ones regarding aggression.

The family context is the first environment in which children learn social rules and develop relationships and relationship expectations. Thus, the qualities of the family relationship help to create a rich set of experiences that are maintained in the database and subsequently influence processing at each step in the model. Tendencies to attribute hostile intent towards a provocateur and endorse more maladaptive responses to ambiguous provocation situations have been associated with lower socioeconomic status, greater maternal depression, negative life events, and harsh physical punishment (Schultz & Shaw, 2003; Weiss, Dodge, Bates, & Pettit, 1992; Ziv, Oppenheim, & Sagi-Schwartz, 2004). In a similar vein, consistent findings across childhood and early adolescence suggest that individuals with a more insecure attachment tend to attribute more hostile intent and external blame, endorse more negative coping strategies, such as revenge, and have higher expectations that peers will dislike and reject them following a negative situation (Cassidy et al., 1996; Dwyer et al., 2010; Ziv et al., 2004). Finally, there is longitudinal evidence from a



sample of ethnically diverse mothers and sons (ages 7-9) suggesting that maternal aggression towards sons during cooperative and competitive play is associated with sons having greater hostile intent attributions towards their mothers one year later (MacKinnon-Lewis, Lamb, Hattie, & Baradaran, 2001). This particular finding suggests that the sons have developed a schema in their database to expect aggression from their mother and subsequently interpret their mothers' actions as being hostile when presented in the context of a hypothetical scenario. Taken together, these studies examining characteristics of the family climate, including perceptions of behaviors, cognitive schemas, and expectations, lend support to the importance of considering parts of individuals' database when examining social cognitions about negative events.

In addition to the family climate, another component of the database that has been examined includes normative beliefs regarding aggression. A normative belief refers to "an individual's own cognition about the acceptability or unacceptability of a behavior" (Huesmann & Guerra, 1997, p. 409), and may be called upon to interpret and react to a social situation. Evidence from a study with an ethnically diverse sample of first graders suggests that children who have a normative belief in which they legitimize aggression as being appropriate tend to be viewed by their peers as more aggressive (Huesmann & Guerra, 1997). Furthermore, elementary-aged children who tend to legitimize aggression also tend to demonstrate more maladaptive SIP, including hostile intent attributions and positive evaluations of aggressive responses (Zelli et al., 1999). This evidence suggests that children who hold strong beliefs legitimizing aggression within their database use this knowledge to guide how they

process social information from negative situations, resulting in SIP biases and more aggressive behavior.

It is noteworthy that taking into account the research focused on components of individuals' database, very little attention has been given to specific knowledge structures, scripts, and expectations within the database that are particular to friendship. As Dodge and Price (1994) suggested, SIP patterns are domain-specific and that an individual processes social information differently based on the context of the situation or the relationship the individual has with the others involved. The context of a hypothetical scenario could vary based on the type of negative situation involved, such as an ambiguous provocation versus a hypothetical conflict, or even by the identity of the provocateur in an ambiguous provocation, such as an unfamiliar peer versus a mutual best friend. Evidence suggests that the associations between processing steps and behavior are stronger within a specific context (e.g. peer group entry scenario only) than they are across different story contexts (e.g. peer group entry versus provocation scenarios; Dodge, Pettit, McClaskey, & Brown, 1986; Dodge & Price, 1994). In one of the first studies to closely examine how friendship as a context influences children's SIP, Burgess and colleagues (2006) gave fifth and sixth graders two types of ambiguous provocation scenarios in which the identity of the provocateur was varied; one involved an unfamiliar peer as the provocateur and the second involved a mutual best friend as the provocateur. Their findings revealed that when the provocateur was a mutual best friend, children attributed more prosocial intent, were more likely to report feeling okay, and less likely to choose a revenge strategy than when the provocateur was an unfamiliar peer. Given the

evidence that context matters for SIP processing as well as the fact that few researchers have focused on components held in an individual's database that are specific to friendship supports the need to identify the specific context when assessing SIP.

Previously, limitations in research on adolescents' relationship orientations as well as the mixed evidence on the benefits of conflict were highlighted. These two separate, albeit significant sets of literature for adolescents' friendships highlight two important contexts for the current study. Specifically, relationship orientations represent a set of expectations that adolescents have developed over repeated interactions with their relationship partners, including close friends. These expectations are examples of the latent mental structures that Crick and Dodge (1994) argued are part of an individual's database in the SIP model. As examples of the constructs that can be in the database, adolescents can use their relationship orientations as cognitive heuristics by which to understand and react to negative situations. More specifically, when faced with a conflict involving a mutual friend, adolescents' interpretations and reactions to the conflict may be influenced by whether the conflict has violated their expectations for reciprocity in terms of their communal and exchange orientations. As an example of a component in the SIP database, adolescents' communal and exchange orientations will be assessed and examined for associations with particular SIP steps, specifically social goals and resolution strategies, following a hypothetical conflict scenario. Specifying the precise context in which social cognitions occur will help to uncover how components of an adolescents' database are associated with processing at certain SIP

steps and friendship quality. To date, no one has examined how relationship orientations are associated with how adolescents process and make decisions following conflicts with their close friends, even though evidence suggests that relationship orientations (e.g. Jones & Costin, 1995) and information processing about conflict with friends (e.g. Rose & Asher, 1999) are independently associated with friendship quality.

**SIP steps and conflict.** Whereas research on specific components held in individuals' database has been limited, a prolific line of research supports the validity, reliability, and utility of each of the SIP steps. The types of scenarios used and specific SIP steps assessed vary from study to study, but the empirical work on the SIP model has revealed consistent patterns distinguishing socially maladjusted children and adolescents from their more socially well-adjusted peers. In the following section, a broad review of SIP literature will be presented, with specific attention paid to the goal clarification and response decision steps, which are the two SIP steps that will be assessed in the current study.

***Evidence for SIP steps.*** As mentioned previously, the SIP model consists of six steps that outline the specific on-line processing that individuals use to make sense of their social worlds. Crick and Dodge (1994) presented an extensive review of the entire SIP model, focusing on how each step alone explain individual differences in behaviors, peer reputation, and peer acceptance. Consistently, researchers have found that aggressive children and adolescents tend to have a greater likelihood of interpreting a provocation as intentional, endorse more aggressive social goals, and generate fewer, albeit more aggressive responses (Asarnow & Callan, 1985; Crick &

Dodge, 1996; Lansford et al., 2006; Lemerise et al., 2006; Quiggle, Garber, Panak, & Dodge, 1992). A large meta-analysis of over 40 studies focused on the hostile attribution bias, or the tendency to attribute a hostile intent following an ambiguous provocation situation, and concluded it to be one of the most robust findings, yielding strong effects across ages and methodologies demonstrating that aggressive individuals more often attribute hostile intent (Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002).

The majority of the SIP literature had been focused on understanding the processing biases of aggressive children and adolescents during situations with an unfamiliar peer. Although this narrow focus has been instrumental in developing interventions designed to help aggressive adolescents change how they think and react to ambiguous situations, this narrow focus has also been limiting. Only recently have researchers begun to examine whether patterns of SIP vary for children and adolescents who are not aggressive. For example, a recent study examined differences in SIP following an ambiguous provocation scenario involving a hypothetical peer for obese compared to non-obese adolescents and whether these differences were related to friendship quality (Bowker, Spencer, & Salvy, 2010). Results revealed that adolescents who more often blamed themselves for the provocation also reported more conflict in their friendships. Similarly, adolescents who selected a more emotion-focused coping response (i.e., getting upset) also reported less positive friendship quality. However, both of these patterns were significant only for obese adolescents and non-significant for non-obese adolescents (Bowker et al., 2010).

Another study of fifth and sixth graders had adolescents respond to several ambiguous provocation scenarios; in half of the scenarios the provocateur was a hypothetical peer and in the other half of the scenarios the provocateur was a mutual best friend. Differences in SIP were examined between aggressive, shy/withdrawn, and non-aggressive/non-withdrawn participants (Burgess et al., 2006). Results revealed that for the shy/withdrawn participants in particular, SIP varied as a function of the identity of the provocateur. When responding to scenarios in which the provocateur was a hypothetical peer, shy/withdrawn children reported higher rates of angry emotions. In contrast, when responding to scenarios in which the provocateur was a mutual friend, shy/withdrawn children were less likely to blame themselves for the problem (Burgess et al., 2006). These two studies offer further evidence that the context in which SIP takes place influences the type of processing children and adolescents make. Therefore, the current study will focus specifically on hypothetical conflict scenarios involving a mutual friend. Previous researchers have examined both social goals and resolution strategies following hypothetical conflict scenarios and provide strong evidence for their validity as well as reliability in examining individual differences in SIP.

*Social goal clarification.* Following the encoding and interpretation of cues, Crick and Dodge (1994) proposed that individuals experience “arousal states that function as orientations toward producing (or wanting to produce) a particular outcome” (p. 87). Others have focused on the motivational aspect of the goal clarification step, suggesting that the goals endorsed reflect the individual’s desires (Chung & Asher, 1996). As a reminder, individuals come to each situation with a

memory store of goals in their database that can be used in any situation; however, it is also possible that new goals can be generated at any time (Crick & Dodge, 1994). The goals that are generated during this step will subsequently influence the response choices and eventual behavior selected, thus highlighting the importance of this particular step. In the existing literature on social goals, researchers have focused on a variety of goals in order to determine how specific goal orientations are related to social adjustment in children and adolescents. Goals focusing on dominance or hostility are endorsed frequently by children who are aggressive and also highly rejected by their peers (Erdley & Asher, 1996; Lemerise et al, 2006; Salmivalli, Ojanen, Haanpää, & Peets, 2005). Revenge goals are inversely related to peer acceptance (Rose & Asher, 1999) and are also predictive of delinquency in adolescence, including drug and alcohol use (Lochman, Wayland, & White, 1993). Furthermore, there is evidence that when the emotional cues of the provocateur vary, rejected-aggressive children rate social goals differently. When the provocateur portrays sadness (e.g. frowns) or anger (e.g., loud voice), rejected-aggressive children more frequently endorse hostile goals than non-aggressive children. However, when the provocateur was happy, rejected-aggressive and non-aggressive children do not vary in their ratings of hostile goals (Lemerise et al., 2006).

In contrast, prosocial goals, including ones focused on being nice to other kids or maintaining a relationship with the provocateur, are more frequently endorsed by children who are more prosocial, focused on solving problems with others, and are accepted by their peers (Erdley & Asher, 1996; Ojanen, Aunola, & Salmivalli, 2007; Renshaw & Asher, 1983; Salmivalli et al., 2005; Wentzel, Barry, & Caldwell, 2004).

Avoidant goals are more often endorsed by shy/withdrawn children compared to their more prosocial non-aggressive agemates (Burgess et al., 2006; Erdley & Asher, 1996). Similar to ratings of hostile goals, rejected-aggressive children were less likely than non-aggressive children to endorse prosocial goals when the provocateur displayed sad or angry cues (Lemerise et al., 2006).

Researchers have also reported gender differences in the ratings of or proportion of times specific social goals have been selected. In general, boys tend to give higher importance ratings or select more often instrumental or control goals as well as revenge goals (Chung & Asher, 1996; Lemerise et al., 2006; Rose & Asher, 1999; Troop-Gordon & Asher, 2005). In contrast, girls give higher importance ratings or more often select goals focused on intimacy, closeness and maintaining the relationship (Jarvinen & Nicholls, 1996; Lemerise et al., 2006; Rose & Asher, 1999; Ojanen et al., 2007). Given that consistent gender differences have been found across studies, across ages, and across methodologies assessing SIP, it is important to examine whether gender moderates any associations between relationship orientations, social goals, and friendship quality.

More recently, research has focused on how varying the context of hypothetical scenarios influence the goals selected by children and adolescents. In one study, young adolescents were presented with several hypothetical situations in which the context of the scenario varied, including conflict, group entry, victimization, and a positive scenario involving inviting someone to a movie (Ojanen et al., 2007). Following each scenario, adolescents were presented with a series of social goals and asked to rate how important each one was. Adolescents rated goals



asserting power as more important in the victimization scenario than in the group entry scenario. In contrast, adolescents rated goals focusing on affiliation and intimacy as more important in the positive, group entry, and conflict scenarios than the victimization scenario (Ojanen et al., 2007). In a separate study, elementary-aged children who were induced to experience either an angry, happy, or neutral mood also differed in their endorsement of particular goals (Harper, Lemerise, & Caverly, 2010). Specifically, instrumental goals were more likely to be endorsed by children induced to feel anger compared to those induced in a neutral mood, and this pattern held even for children of the same social adjustment category (e.g. low-accepted aggressive children).

Finally, in a sample comprised of lower- to middle-class fourth- and fifth-graders who were primarily Caucasian (96%), participants were given a hypothetical conflict scenario involving a peer the participant rated as liking, but who was not a friend (Troop-Gordon & Asher, 2005). After asking participants what they would do following the conflict and giving ratings for several social goals, participants were probed a second and/or a third time to give an alternative strategy if the previous one did not work. After each new strategy, participants again rated the likelihood of choosing several social goals. Results revealed that children's ratings of relationship-maintenance goals (e.g., getting along with the peer) decreased each time that they were told their strategy did not work, suggesting that children's goals do change depending on the context in which they are asked to rate the goals. Being repeatedly told that a certain resolution strategy does not work makes it more likely that children will abandon relationship-maintenance goals. A common limitation to several of the

reviewed studies is that the authors fail to provide detailed demographic characteristics, most notably socioeconomic status (e.g., Erdley & Asher, 1996; Lemerise et al., 2006). This omission makes it difficult to draw conclusions on whether these patterns are the same in children and adolescents who come from different socioeconomic backgrounds. However, the results from these studies in which the context of the scenario was varied do make it possible to draw the conclusion that SIP varies as a function of the context in which SIP is assessed. Furthermore, these studies provide evidence that the extent to which children and adolescents endorse certain social goals varies based on the context of the scenario.

There has been a little work looking at adolescents' social goals in the specific context of conflict scenarios that involve friends. Rose and Asher (1999) presented fourth- and fifth-graders with a series of hypothetical conflict scenarios that involved a friend and asked them to rate the likelihood of choosing a series of social goals and resolution strategies. Subsequently, associations between social goal and resolution strategy ratings and friendship quality were examined. It is important to point out that friendship quality was assessed from the perception of a mutual close friend; therefore, the results will show how an adolescent's own social goal and resolution strategy ratings are associated with how his or her friend views the quality of the friendship.

Results revealed that high ratings for instrumental and revenge goals were associated with higher ratings of conflict in the friendship. Furthermore, high ratings for revenge goals were negatively associated with positive friendship quality (Rose & Asher, 1999). These negative, self-serving, and hostile goals undermine the

reciprocity and mutuality of the friendship dyad, and thus may lead to greater incidences of disagreements and conflict. However, to date no one has examined whether adolescents' expectations for reciprocity, or relationship orientations, are associated with ratings of social goals following a hypothetical conflict scenarios with a friend. By examining whether relationship orientations are associated with social goals, we have evidence to support the argument that negative social goals undermine the quality of a close friendship. More specifically, we would be able to investigate whether ratings of social goals were associated with and/mediated the association between relationship orientations and multiple dimensions of friendship quality.

Whereas there were significant associations between social goal ratings and conflict, Rose and Asher (1999) did not find any significant associations between social goals and positive friendship quality. In their study, adolescents rated the likelihood that they would choose a relationship-maintenance goal (e.g., I would be trying to stay friends), but ratings for this goal were not associated with positive friendship quality or conflict. In their discussion, Rose and Asher surmised that the null findings may be due to the context of the hypothetical scenarios, and that social goals in response to a different social experience, such as self-disclosure, may be related to positive friendship qualities. Another explanation for the null findings may be due to a methodological limitation of their hypothetical scenarios. In the study, adolescents were presented with hypothetical conflict scenarios involving a friend; however, there was no indication of who the friend was, nor were adolescents asked to think about a specific friend.

As noted previously, there is strong evidence that when children and adolescents are asked to think about a mutually reciprocated friend compared to a general peer in a hypothetical scenario, there are differences in the SIP processing (Burgess et al., 2006; Peets et al., 2007). It may be that the importance adolescents place on different social goals vary as a function of their relationship with the friend in the scenario. Therefore, the current study addressed this limitation by having adolescents imagine that their close friends are the ones involved in the hypothetical conflict scenario. This change to the methodology aligns with the previous work on mutual friends as the provocateur in ambiguous provocation scenarios (Burgess et al., 2006; Peets et al., 2006) and also aligns with previously mentioned change to how relationship orientations were assessed by asking adolescents to report on their exchange and communal orientations with specific friends.

*Response decision.* The final processing step in the SIP model is the response decision step. It is at this time that individuals evaluate the previously generated responses, judging them on how well they will achieve the desired goals and also the individual's self-efficacy for being able to successfully carry out the chosen strategy (Crick & Dodge, 1994). Empirical evidence suggests that the strategies chosen by children and adolescents are indicative of individual differences in social competence. As would be expected, aggressive children tend to choose more aggressive, hostile, or coercive responses (Crick & Ladd, 1990; Erdley & Asher, 1996; Lemerise et al., 2006). In contrast, children who are generally more well-accepted by their peers or engage in frequent problem-solving behaviors with their peers tend to endorse more prosocial strategies (Erdley & Asher, 1996).

The evidence supporting individual differences in social competence for endorsing avoidant or passive strategies is less clear. Some results point to withdrawn children being more likely to choose passive strategies than prosocial and aggressive children (e.g. Chung & Asher, 1996) or are just as likely to choose avoidant strategies as non-aggressive peers (e.g. Erdley & Asher, 1996). In contrast, other results suggest that aggressive and withdrawn children are equally likely to choose avoidant coping strategies, but do so more often than non-aggressive/non-withdrawn children (Burgess et al., 2006). There are several possible explanations for the conflicting evidence for avoidant and passive strategies. First, it may be that avoidant or passive strategies are more likely to be chosen based on who the provocateur is. For example, children were more likely to choose an appeasement strategy following an ambiguous provocation situation involving a mutual best friend than a hypothetical peer, and rates of endorsement of the appeasement strategy did not differ between aggressive, withdrawn, or non-aggressive/non-withdrawn children (Burgess et al., 2006).

A second explanation is that there may be instances in which an avoidant or passive strategy may be an appropriate response, such as a disagreement or conflict with a friend. Adolescents do choose to ignore conflicts, which is an example of an avoidant resolution strategy, and or choose to give in to their friend following a conflict (Troop-Gordon & Asher, 2005). While these are examples of avoidant or passive strategies, they are also examples of effective strategies that adolescents may choose in order to maintain the harmony and the specific needs of their friendship. Thus, passive and avoidant strategies represent a unique category of strategies that may be most dependent on the context of the scenario, including whether it involves

an ambiguous provocation situation or a hypothetical conflict as well as who the provocateur or conflict partner is, such as a general peer or a mutual best friend. The conflicting evidence for how endorsements of passive or avoidant strategies distinguish among individual differences in peer reputation suggests that it is necessary to look at a specific context when assessing individual differences.

Just as researchers have found gender differences in social goals, there are also gender differences in the strategies children and adolescents select. Boys tend to give higher ratings to or more often select hostile or revenge strategies or those focused on self-interests (Burgess et al., 2006; Chung & Asher, 1996; Rose & Asher, 1999). In contrast, girls tend to give higher ratings to or more often select strategies that are more prosocial, polite, and accommodating or strategies in which they get emotionally upset (Burgess et al., 2006; Rose & Asher, 1999; Troop-Gordon & Asher, 2005). Just as with social goals, the empirical evidence on gender differences in response strategies across ages and SIP assessments underscore the importance of examining whether gender moderates the associations between relationship orientations, resolution strategies, and friendship quality.

Given that the focus of this study is on resolution strategies in the specific context of adolescents' conflicts with friends, it is important to examine previous research in this area. In previous studies of children and young adolescents, participants were presented with hypothetical conflict scenarios involving a friend and asked to rate the likelihood of selecting several conflict resolution strategies. Results revealed that children and adolescents who were aggressive were more likely to choose hostile/coercive strategies than their prosocial classmates, who in turn were

more likely to choose prosocial strategies, such as accommodation and compromise (Chung & Asher, 1996). In a later study in which hypothetical conflict scenarios were also used, Rose and Asher (1999) showed that fourth and fifth graders who gave high importance ratings to accommodating or compromising resolution strategies were rated by their friends as being lower on relationship conflict. Thus, compromising strategies are not only more common in adolescent friendships (e.g. Laursen et al., 1996), but they seem to also be related to children's perceptions of conflict with their friends.

There is evidence suggesting that individual differences in the resolution strategies endorsed by children and adolescents are associated with the quality of their mutual friendships. Fourth and fifth graders who choose hostile or self-interest strategies received high conflict ratings from their mutual friends (Rose & Asher, 1999). In contrast, choosing strategies focused on accommodation and compromise was associated with lower conflict ratings from a mutual friend (Rose & Asher, 1999). Just as was reported previously in respect to social goals, currently there is no evidence suggesting that positive friendship quality is associated with any specific resolution strategies following a hypothetical conflict scenario. The fact that more prosocial resolution strategies are not associated with positive friendship qualities further suggests the importance of having adolescents think about specific friendship when responding to hypothetical scenarios.

Cognitive and social cognitive theorists argue that the most adaptive conflict resolution strategies, such as negotiation and compromise, require a higher level of cognitive maturity and reasoning that most individuals do not reach until early

adolescence (10-14 years; Piaget, 1932; Selman, 1980; Youniss, 1980). Empirical evidence supports this theory in that young children frequently choose coercive strategies in response to a conflict situation, but these rates decrease in favor of an increase in negotiation strategies in adolescence (Laursen et al., 2001). The previously reviewed studies using conflict scenarios and ratings of resolution strategies focused on samples of children going up to the sixth grade, thus limiting our knowledge of whether these more cognitively mature resolution strategies are associated with positive qualities of friendship during adolescence. The current study expands the existing literature by using a sample comprised of seventh and eighth graders, thus focusing on individuals who have entered adolescence.

Another limitation of the work on resolution strategies following a conflict scenario is that most of the work on resolution strategies has focused on whether specific resolution strategies are associated with individual differences in aggression, social withdrawal, and peer acceptance (e.g. Chung & Asher, 1996; Rose & Asher, 1999). However, expectations of reciprocity, and more specifically relationship orientations, reflect an important individual difference within the database of the SIP model that may also differentiate the types of strategies adolescents choose to resolve a conflict with their best friend.

### **Summary of Literature Review**

Adolescence is a period of life in which several important developmental changes occur in relationships. Most specifically, friendships become more important to adolescents' overall well-being and also there are changes in how adolescents think about reciprocity, particularly the rules and expectations for meeting friends' needs.



However, adolescence is also a time in which there is a still considerable conflict between friends, albeit less than what is seen among younger children. Conflict is one form of an interactive exchange that occurs amongst friends (Laursen & Collins, 1994). Yet, the evidence on the effect of conflict on adolescent friendship quality is mixed. Therefore, the overarching focus of this study was to examine how specific social cognitions about reciprocity (i.e., relationship orientations) and social cognitions following conflict (i.e., social goals and resolution strategies) with one's mutual friend were associated with friendship quality. The extent to which adolescents are oriented towards an exchange orientation and the extent to which they are oriented towards a communal orientation may be associated with the type of social goals and resolution strategies following a hypothetical conflict scenario involving a close friend which would, in turn, would be associated with the overall quality of the friendship.

Little attention has been given to looking at how individual differences in relationship orientation may be associated with goals and resolutions following a conflict exchange with one's close friend. Given the theoretical importance placed on reciprocity during adolescence as well as the frequency with which adolescents experience conflicts that often involve violations of expectations for reciprocity with their mutual friends, it is noteworthy that no one has looked closely at how social cognitions for reciprocity and conflict are associated with one another. This particular issue is further compounded by the fact that no one has systematically assessed relationship orientations for adolescents' specific friendships while simultaneously

assessing social goals and resolution strategies following conflict scenarios involving the same friend.

The goal of the current study was to address these notable gaps by examining the associations among relationship orientations, social goals and resolution strategies, and friendship quality in response to a hypothetical conflict scenario in a sample of adolescent mutually reciprocated friend dyads. The results of this study have the benefit of adding to the existing literatures in SIP, friendship, and adolescent conflict, and will also further advance our understanding of how each of these relationship phenomena interact with one another and help us to better understand adolescent friendships.

**Research questions.** In this study, I examined two specific research aims exploring the associations among exchange and communal relationship orientations, social goals and resolution strategies, and several dimensions of positive friendship quality. Due to the insufficient sample size obtained for the current study, the research aims were changed to fit a revised analysis plan in which adolescents' own perceptions of friendship quality were used as the outcome for all analyses. The first research aim focused on whether the extent to which adolescents think about the exchange of resources from a more exchange orientation or a more communal orientation predicated adolescents' own perceptions of the quality of their close friendship. The second research aim focused on whether individual differences in social goals and resolution strategies in response to conflict scenarios with a close friend were associated with and/or mediated the associations between exchange and communal orientations and perceptions of positive friendship quality with a close

friend. To address these two research aims, five specific research questions were examined.

The first research question examined whether adolescents' tendencies to be more oriented towards an exchange orientation or more oriented towards a communal orientation were associated with their own perceptions of positive friendship quality with a specific close friend.

1a. To what extent did adolescents' exchange orientations predict overall positive friendship quality (i.e., companionship, help, closeness, and security) with a close friend?

1b. To what extent did adolescents' communal orientations predict overall friendship quality (i.e., companionship, help, closeness, and security) with a close friend?

The second research question examined whether gender moderated any of the associations between adolescents' relationship orientations and their own perceptions of positive friendship quality with a specific friend.

2a. To what extent did gender moderate the association between exchange orientations and overall positive friendship quality (i.e., companionship, help, closeness, and security) with a close friend?

2b. To what extent did gender moderate the association between communal orientations and overall positive friendship quality (i.e., companionship, help, closeness, and security) with a close friend?

The third research question examined whether adolescents' social goals in response to a hypothetical conflict with a friend were associated with and/or

mediators of the associations between adolescents' relationship orientations and their own perceptions of positive friendship quality with a specific friend.

3a. To what extent were adolescents' ratings of specific social goals (e.g., relationship maintenance, instrumental control, and revenge) in response to a specific context (i.e., hypothetical conflict with a close friend) associated with and/or mediators of the association between exchange orientation and overall positive friendship quality.

3b. To what extent were adolescents' ratings of specific social goals (e.g., relationship maintenance, instrumental control, and revenge) in response to a specific context (i.e., hypothetical conflict with a close friend) associated with and/or mediators of the association between communal orientation and overall positive friendship quality?

The fourth research question examined whether adolescents' resolution strategies in response to a hypothetical conflict with a friend were associated with and/or mediators of the associations between adolescents' relationship orientations and their own perceptions of positive friendship quality with a specific friend.

4a. To what extent were adolescents' ratings of specific resolution strategies (e.g., accommodation, compromise, hostile, and self-interest) in response to a specific context (i.e., hypothetical conflict with a close friend) associated with and/or mediators of the association between exchange orientation and overall positive friendship quality?

4b. To what extent were adolescents' ratings of specific resolution strategies (e.g., accommodation, compromise, hostile, and self-interest) in response to a specific

context (i.e., hypothetical conflict with a close friend) associated with and/or mediators of the association between communal orientation and overall positive friendship quality?

The fifth and final research question examined whether the mediation models for social goals and resolution strategies revealed different effects for males and females.

5a. To what extent did associations in the mediated models involving social goals vary for males and females? Specifically, did gender moderate the direct and/or indirect associations between relationship orientations, social goals, and overall positive friendship quality?

5b. To what extent did associations in the mediated models involving resolution strategies vary for males and females? Specifically, did gender moderate the direct and/or indirect associations between relationship orientations, resolution strategies and overall positive friendship quality?

**Conceptual framework summary and hypotheses.** In this study, several different lines of theory and research were pulled together to inform and guide the research questions. However, it was necessary identify a framework through which all of the constructs could be defined and assessed. The social information processing (SIP) model (Crick & Dodge, 1994; Lemerise & Arsenio, 2000) provided an empirical model by which to operationalize each of the constructs of interest, as well as empirical support to guide the research questions and proposed analyses.

Based on the SIP model, adolescents' relationship orientations (e.g., exchange and communal orientations) were operationalized to be part of the database of

previous knowledge and schemas that adolescents bring to each situation. They can pull from this knowledge and behavioral possibilities to help guide their processing and subsequent reactions. In addition, adolescents' goals and resolution strategies were depicted as steps three and five, respectively, in the SIP model. Finally, Crick and Dodge (1994) proposed that adolescents reflect on their chosen behaviors following enactment. Through these evaluative processes, adolescents decide which goals and/or resolution strategies were effective or not effective, which ones should be used in the future, and interpret peers' reactions to behaviors. These evaluative processes are then proposed be associated with future processing. Perceptions of friendship quality were assessed as an example of the evaluative process. In addition to the separate constructs being defined in the model, the empirical evidence supporting the utility of the SIP model also describes the directionality of the expected associations among the constructs.

Crick and Dodge (1994) proposed a cyclical model of information processing that describes the specific ordering of steps individuals take to process, understand, and react to social situations. They argue that the sequence of the steps is invariant, such that encoding in step one must take place before interpreting at step two. However, processing of multiple events can occur simultaneously, such that "during all waking hours, individuals are perpetually engaging in each of the steps of processing" (Crick & Dodge, 1994, p. 77). In respect to the current project, this cyclical pattern of information processing helps to explain the expected directionality of associations among the constructs being studied. To better explain the directionality, the associations will be described in the context of the most

complicated statistical model proposed in this study, which is the mediation model depicted in Figure 1 and described in research questions three, four, and five.

Furthermore, the more simplistic associations described in research questions one and two are nested within the more complex mediation model, assuming that the directionality of associations are best described through the mediation model.

***Direct association between relationship orientations and friendship quality:***

***path c.*** As portrayed in Figure 1, the direction of associations for the current study assume that how adolescents think about the expectations of reciprocity (e.g., relationship orientations) will be associated with how they perceive the overall quality of the friendship; this is depicted as path c. Previous researchers who have examined the association between relationship orientations and friendship quality have found mixed results (e.g., Jones & Costin, 1995). However, the current study sought to address this issue by using an aggregate measure of friendship quality that comprised multiple dimensions of friendship quality rather than focusing only on satisfaction, as Jones and Costin (1995) did.

Previous theoretical and empirical research with children and adolescents suggests that friendship quality is multidimensional, with different constructs contributing to overall positive friendship quality perceptions, such as companionship, closeness/intimacy, and help/guidance (Berndt & McCandless, 2009). In addition, these particular dimensions of friendship quality become increasingly important for friendship during adolescence (Rubin et al., 2006). Finally, the empirical literature in adult relationships suggests that a higher communal

orientation is associated with more positive relationship quality than a higher exchange orientation.

As proposed in research question two, gender was examined as a moderator between exchange and communal orientations and friendship quality. Gender differences in correlations were also examined. One of the limitations of the current literature on relationship orientations is a lack of attention to gender differences, either by using samples of a single gender or neglecting gender in statistical analyses by controlling for it (e.g., Beck & Clark, 2009). Furthermore, a review of those studies in which gender differences were examined revealed mixed results. Some researchers, primarily using undergraduates, revealed that females had higher communal orientations and males had higher exchange orientations (e.g., Jones & Costin, 1995; Murstein et al., 1987) whereas other researchers did not find gender differences (Clark et al., 1986; Clark et al., 1987; Murstein & Azar, 1986). However, from a conceptual and empirical position, there are strong reasons to expect gender to moderate the associations between relationship orientations and friendship quality. In a recent, and extensive, review on gender differences in peer relationships, Rose and Rudolph (2006) point out that female adolescents report higher levels of self-disclosure, closeness, validation, and trust with their friends than do males. What is unclear are the possible processes or underlying mechanisms that may explain why these gender differences exist. Given the changes in expectations for reciprocity during adolescence (Youniss, 1980), it may be that examining the way adolescents think about the exchange of resources with their friends can help to further understand these gender differences in friendship quality.



*Social goals and resolution strategies as mediators: paths a and b.* To understand the direction of associations for paths a and b in the mediation model depicted in Figure 1 and as outlined in research questions three and four, it is important to consider them simultaneously in the context of the SIP model (Crick & Dodge, 1994; Lemerise & Arsenio, 2000). Using the SIP model as an empirical guide for the research questions in this study, it was expected that adolescents' relationship orientations, as part of the database in the SIP model, would act as cognitive heuristics guiding the specific social goals and resolution strategies that adolescents choose; this is depicted as path a. Therefore, the direction of associations is theorized to be from relationship orientations to the social goals in step 3 or resolution strategies in step 4, path a. Subsequently, the directionality of path b in the mediation model suggests that social goals and resolution strategies would be associated with how adolescents perceived the quality of the friendship. As previously described, Crick and Dodge argued that the order of the steps in the SIP model are invariant, thus the direction of path b should be as described.

There is empirical evidence supporting the mediated direction of effects described above. Specifically, separate researchers have demonstrated that the association between attachment representations, an example of a database component in the SIP model, and friendship involvement were mediated by certain processing in the SIP model. More specifically, attributions of intent, responses to provocation scenarios, peer evaluations and emotions were significant mediators between attachment representations and either the number of mutual friends (e.g., Cassidy et al., 1996) or friendship quality (Dwyer et al., 2010). More importantly, though, in

each of these mediation studies, an alternative model was tested such that the database component (e.g., attachment) would act as the mediator between the SIP step and friendship involvement. In each instance, the alternative model proved to be a worse fit than the expected mediated model. This suggests that components of the database have an indirect effect on how adolescents perceive the quality of their friendships. This indirect effect occurs through the specific processing steps taken when understanding and reacting to a negative situation (Crick & Dodge, 1994).

## Chapter III: Method

### Participants

Participants were 198 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> graders from two schools located in a small town in Alabama. Based on 2000 census data, the community is comprised of approximately 6,000 people and the demographic breakdown of 65% White, 33% Black, and 2% other. The median household income is approximately \$41,500. One of the schools was an elementary school, which housed K-6<sup>th</sup> grades; data were only collected on the 6<sup>th</sup> graders from this school. The second school was a middle school, which housed 5<sup>th</sup>-8<sup>th</sup> grades; data were only collected on the 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> graders from this middle school. The sample comprised 87 males (43.4%) and 111 females (56.6%) with a mean age of 12.08 years (SD = 0.93). Ethnicity was only available for the sample as a whole and showed that 68.28% were White, 26.3% were Black, and 2.75% were Hispanic.

### Procedure

**Recruitment.** Parental consent forms were distributed to all 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> grade classrooms at one school and all 6<sup>th</sup> grade classrooms at the second school. A member of the research staff gave a brief introduction to the study as the parental consent forms were distributed in the classrooms. All students were encouraged to bring their consent forms back to their teacher, who collected them, regardless of whether their parent gave them permission to participate. All adolescents who returned their permission forms, regardless of permission status, were entered into one drawing per school for an iPod touch. Participation rates were 41% for the first

school in which 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> graders were recruited and 34% for the second school in which only 6<sup>th</sup> graders were recruited.

**Survey administration.** Questionnaires were administered in large group formats (e.g. classrooms) or with an entire grade (e.g. library, cafeteria) during one session in the Fall of 2012. During each session, several research assistants were available to roam throughout the room to answer questions and ensure that participants were staying on task and keeping their answers confidential. All participants first completed friendship nominations and the Friendship Quality Scale (FQS) for the top 2 friends they nominated, as well as provided demographic information (i.e., gender, age). The remaining two measures, the Relationship Orientation Scale (ROS) and the hypothetical conflict vignettes, were filled out last. Participants were assured that all their answers would be kept private and confidential. In addition, they were asked to not discuss their answers with others.

## **Measures**

### **Friendship nominations** (Bukowksi, Hoza, & Boivin, 1994.)

Participants were asked to write the names of their top two best friends. Adolescents were asked to only name same-sex friends at their school and in their grade (see Appendix A). Reciprocated friendships were identified by looking for mutual friend nominations. It was possible for participants to have up to two reciprocated friendships. In this study, 195 participants nominated two friends and 3 participants nominated just a single friend. Of all the friendships nominated, 39 reciprocated dyads were identified; 29 of these were unique dyads. This number of unique reciprocated dyads was not enough to conduct the original proposed analyses which

would have used mutual friend dyads (see *Power Analysis* section below). Therefore the decision was made to use adolescents' self-report for all variables of interest for all analyses.

**Friendship qualities scale** (Bukowski et al., 1994.). The FQS is a 23-item survey designed to assess five dimensions of adolescent friendship quality, including *companionship*, *conflict*, *help*, *closeness*, and *security*. Three of the scales are further broken down into two subscales each. The *help* dimension is comprised of *aid* and *protection* subscales, while the *closeness* dimension is comprised of *affective bond* and *reflected appraisal* subscales. Finally, the *security* dimension is comprised of *reliable alliance* and *transcending problems* subscales (see Appendix A). Whereas the subscales for the help, closeness, and security dimensions are important to the study of adolescent friendship quality (Bukowski et al., 1994), a parsimonious set of analyses was desired for the current study. Furthermore, there is precedence for focusing on just the primary dimensions of friendship quality, including just the overall *total positive friendship quality* (Bowker & Rubin, 2009). Additional detail for this decision is also provided in the *Results* section. In this study, an a priori decision was made to not use the conflict scale as the focus was on positive dimensions of friendship quality. The four positive subscales were combined to create a total positive friendship quality scale, which was used for all analyses.

When responding to each item, participants provided an answer about each of the friends they nominated in the previous friendship nomination task. Therefore, regardless of how the unique reciprocated friend pairs were determined, each participant provided friendship quality data for each of their two potential

reciprocated friends. Participants responded to each item on a 5-point Likert scale with 1 being “*Not true at all,*” 3 being “*Somewhat true,*” and 5 being “*Really true.*” Items for each of the respective subscales and the Total Positive friendship quality scale were summed and averaged based on the number of completed items.

Cronbach alphas were run separately for first nominated friend data and second nominated friend data as an index of reliability of each of the subscales. For the companionship scale, alphas were 0.51 and 0.68, for friend 1 and friend 2 respectively. The help scale alphas were 0.77 and 0.83, for friend 1 and friend 2 respectively. The closeness scale alphas were 0.79 and 0.80, for friend 1 and friend 2 respectively. The security scale alphas were 0.60 and 0.64, for friend 1 and friend 2 respectively. The total positive friendship quality scale alphas were 0.88 and 0.90, for friend 1 and friend 2 respectively. These reliability estimates are in line with previous research (e.g., Bukowski et al., 1994), with the exception of the companionship subscale, which had lower alphas in the current study. However, the total positive friendship quality scale will be used as the outcome variable for all analyses. See the *Descriptives and correlational analyses* section in the *Results* section for additional justification for this decision.

**Relationship orientation scale (ROS;** Clark, Ouellette, Powell, & Milberg, 1987; Murstein & Azar, 1986; Murstein, Wadlin, & Bond, 1987). The Relationship Orientation Scale (ROS) is a 19-item survey designed to assess the extent to which adolescents think about their relationship with their friend in terms of exchange and communal orientations. This measure is a combined selection of items from the 14-item Communal Orientation Scale (COS: Clark, et al., 1987) and the 15-item

Exchange Orientation Scale (EOS: Murstein & Azar, 1986; Murstein et al., 1987).

For this study, the 19 selected items from the COS and the EOS were randomly ordered into one questionnaire (see Appendix B). As with the FQS, participants provided an answer about each of their two nominated friends for each item.

Participants responded to all items on a 5 point Likert scale with 1 being “*Not at all true of me,*” 3 being “*Somewhat true of me,*” and 5 being “*Very true of me.*”

The COS is a 14-item scale designed to assess the degree to which individuals think about the needs of others. This scale was originally designed for use with college-aged adults. Clark and colleagues (1987) reported acceptable scale reliability ( $\alpha = 0.78$ ) and test-retest reliability over an 11 week period ( $\alpha = 0.68$ ). Validity results support that a higher communal orientation is related to higher indices of social responsibility and emotional empathy. In addition, responses to the communal orientation scale were unrelated to social desirability measures (Clark, et al., 1987). It is important to note that the COS has also shown acceptable reliability in a sample of 6<sup>th</sup>-9<sup>th</sup> grade adolescents ( $\alpha = 0.72$ ; Jones & Costin, 1995). In order to maintain a reasonable time requirement for the whole study, 9 items were selected from the COS that were representative of all the items, with attempts made to also remove negatively worded items that were confusing. For example, two items in the original COS addressed the respondent’s perception of how they help others: “*I don’t consider myself to be a particularly helpful person*” and “*I often go out of my way to help another person.*” The latter item was retained since it was positively worded and thus did not need to be reverse-scored.

The EOS includes multiple items from the original EOS (Murstein & Azar, 1986) and the revised EOS (Murstein et al., 1987). The original 21-item scale had an acceptable reliability in a sample of college-aged adults ( $\alpha = 0.76$ ). In the revised 19-item scale, strong item-total score correlations were found in a sample of married adults ( $r_s$  ranged from .47-.88); however a total score reliability coefficient was not provided. Researchers have used 12-item versions of the EOS that have included items from the original and revised scales. In these samples, acceptable reliabilities have been found ( $\alpha = 0.78$ : Jones, 1991;  $\alpha = 0.73$ : Jones & Costin, 1995). The Jones and Costin (1995) study sample included adolescents with a mean age of 11.4 years. Regrettably, details about the specific items selected for the shorter scales were not provided. In order to maintain a reasonable time requirement for the whole study, 10 items were selected from the EOS that were most representative of all the items, with a focus on removing items that might be confusing for adolescents. For example, several items had multiple parts (e.g. *I usually do not forget if I owe someone a favor or if someone owes me a favor*), thus making it difficult to discern which part of the item participants were responding to. Other items were irrelevant to adolescent friendships (e.g. campaigning for someone, borrowing a lawn mower and returning it broken).

The original scales were designed to assess individuals' general relationship orientation. Since the purpose of this study was to assess relationship orientations in specific, mutual friendships, adolescents were asked to think about and respond to the items about each of their two nominated friends. Thus, the 19 selected items taken from the COS and the EOS were altered such that the phrase "my friend" was



inserted in lieu of the more general terms from the original measures. Grammatical changes were also made to the items to reflect this change. A table of original and revised items selected for this study is in Appendix C.

A few additional changes were made to the phrases and wording of some items. In the original EOS items, some of the phrases and wordings were outdated for today's adolescents. For example, one item stated "*If I tell someone about my private affairs (business, family, love experiences) I expect them to tell me something about theirs.*" The phrase "*private affairs*" and subsequent examples are not common vernacular with adolescents. Thus, the wording was changed from "*private affairs*" to "*secrets*" and the examples were removed. Additional changes were made to reflect adolescents' use of technology over letter writing, and hanging out rather than going to dinner. These specific alterations are evident in Appendix C.

Due to the changes made to the wording of the items and also having participants think about a specific friend when answering each item, a series of confirmatory factor analyses (CFA) were conducted to determine if the original factor structure of the exchange and communal orientation scales remained. A detailed description of these CFAs are presented in the *Results* section below. Based on the CFAs, it was determined that six of the original 10 exchange orientation items would be kept and five of the original nine communal items would be kept. The relevant items for the exchange and communal scales were summed and averaged for the number of completed items to create scale scores. These exchange and communal scale scores were computed separately for each of the nominated friend data.

Reliability estimates for the exchange orientation scale scores were good, with Cronbach alphas of 0.72 and 0.73, for friend 1 and friend 2 respectively. The Cronbach alphas for the communal scale scores were also good at 0.75 and 0.72, for friend 1 and friend 2 respectively.

**SIP hypothetical conflict vignettes** (Rose & Asher, 1999). Participants were presented with a series of four vignettes that portrayed mild conflict situations with a friend. The chosen scenarios had been used previously by Rose and Asher (1999) at which time they asked adolescents to complete social goals and resolution strategy ratings for 30 hypothetical scenarios that covered five contexts of disagreement. Because of limited time for survey administration, four scenarios were chosen from the original 30 scenarios. The four chosen scenarios covered four types of disagreements: a) maintaining reciprocity, b) friend in need, c) disagreeing over resources, and d) exclusivity (see Appendix D). The fifth context of disagreement that Rose and Asher (1999) focused on in the original set of scenarios involved disagreements over choosing a more favorable activity over a previously planned activity with a friend. The examples of these scenarios seemed distinct from the scenarios chosen for the current study, which focused more on disagreements that were related to reciprocity.

Participants were instructed to imagine that the friend in the scenario represented their previously nominated friend. As with the FQS and the ROS, participants provided an answer about each of their two best friends for each item. Participants first responded to all items on the four scenarios for their first nominated

friend, and then they completed the same set of scenarios and items for their second nominated friend.

***Social goals.*** The first set of questions after each scenario assessed participants' social goals. They were asked "*What would you be trying to do?*" followed by six social goals and asked to rate each goal on scale from 1 "*Really Disagree*" to 5 "*Really Agree.*" The social goals were divided into three categories. The *relationship maintenance* goals included three goals focused more on the friendship rather than the conflict (e.g. I would be trying to stay friends). The second category of goals, *instrumental/control* goals, included two goals in which the participant's needs are put first or the participant is trying to maintain control (e.g. I would be trying to keep my friend from pushing me around). The final category, *revenge* goals, consisted of a single goal aimed at getting back at one's friend (e.g. I would be trying to get back at my friend). The order of the goals was counterbalanced across the four scenarios. Participants' ratings for the goals in each category were averaged across completed items across the four stories to create summary scores for each of the goal categories.

Reliability estimates for each category of goals across the four scenarios were assessed using Cronbach alpha's separately for first nominated friend and second nominated friend. For the relationship maintenance goals, Cronbach alphas were 0.85 and 0.88, for friend 1 and friend 2 respectively. For the instrumental/control goals, Cronbach alphas were 0.72 and 0.79, for friend 1 and friend 2 respectively. Finally, for the revenge goals, Cronbach alphas were 0.76 and 0.82, for friend 1 and friend 2 respectively. Whereas these reliability estimates are lower than those reported by

Rose and Asher (1999), who reported alphas greater than 0.96 with the use of 30 scenarios, they are still high and suggest adequate internal consistency. Furthermore, other researchers have used similar methods to assess social goals with only seven scenarios and reported a similar range of Cronbach alphas as those found in the current study (Lemerise et al., 2006; Cronbach  $\alpha$ 's ranged .81-.93).

**Resolution strategies.** After rating each of the six goals, participants were asked "*What would you say or do?*" followed by six resolution strategies and asked to rate each on a scale from 1 "*Definitely would not do*" to 5 "*Definitely would do.*" The response choices covered three types of resolution strategies, including *accommodation* (e.g. I would help him look for his lunch) and *compromise* (e.g. I would tell him I was going to finish eating my lunch, and then would help him). There were also examples of *hostile* responses (e.g. I would tell my friend I won't be friends with him anymore if he keeps trying to get me to help) with the final category of resolution strategies being *self-interest* responses (e.g. I would finish eating my lunch). The order of the response choices were counterbalanced across the four scenarios. Participants' ratings for the response choices in each resolution strategy category were averaged across completed items across the four stories to create summary scores for each of the resolution strategy categories.

Reliability estimates for each of the three categories of resolution strategies were assessed using Cronbach alpha's separately for first nominated friend and second nominated friend. For the accommodation/compromise strategies, Cronbach alphas were 0.39 and 0.56, for friend 1 and friend 2 respectively. Given these low reliability estimates, separate Cronbach alphas were run for the accommodation

strategies only and the compromise strategies only across the four stories. Cronbach alphas for the four accommodation strategies were 0.47 and 0.61, for friend 1 and friend 2 respectively. Further examination of the four accommodation strategies revealed that eliminating the item “*I would work with my friend and the other kids*” would raise the alpha to 0.53 for friend 1 and 0.57 for friend 2. Eliminating additional items did not improve the reliability of the accommodation scale, so the final accommodation subscale contained three items. Cronbach alphas for the four compromise strategies were 0.49 and 0.53, for friend 1 and friend 2 respectively. Eliminating any of the four compromise strategies reduced the reliability below these values, so the decision was made to keep the four compromise strategies for this subscale and to discuss unreliability as a problem in the *Discussion*. For the hostile strategies, Cronbach alphas were 0.77 and 0.89, for friend 1 and friend 2 respectively. Finally, for the self-interest strategies, Cronbach alphas were 0.45 and 0.63, for friend 1 and friend 2 respectively. Further examination of the four self-interest strategies revealed that eliminating the item “*I would keep doing my library project*” would raise the alpha to 0.51 for friend 1 and 0.65 for friend 2. The final self-interest subscale comprised the remaining three items. Examples of all the goals and resolution strategy choices, along with the conflict scenarios, are in Appendix D.

### **Power Analysis**

An a priori power analyses was conducted in order to determine the necessary sample size to conduct the original proposed analyses in which mutual friend dyads would be used. Based on the number of regression and path analyses proposed for the mutual dyad analyses, a Bonferroni correction was applied to the standard

significance level of 0.05 so that all results would be compared to a significance level of 0.001. Using the criteria of a power level of 0.80, which Cohen (1992) described as an adequate power level, and a conservative effect size of 0.15, it was estimated that the sample size would need to be 139 participants. However, the analyses using mutual friend dyads would require that this sample size be doubled, resulting in a minimum of 278 participants who could be identified in a unique mutual dyad. Only 29 unique mutual dyads could be identified in the collected data from the 198 participating adolescents. Therefore, an alternative set of analyses was proposed in which adolescents' self-report data were used for all variables of interest for all analyses. These alternative analyses allowed data from all 198 participants to be used while still addressing the gaps in the existing research and the research questions proposed. This follows the same procedure used by Dwyer et al., (2010).

A post-hoc power analysis was conducted in order to determine whether the alternative analyses with a final sample size of 198 would be sufficient to detect effects with a minimum power level of 0.80. The alternative analyses proposed the same number of regression and path analyses, so a Bonferroni correction was applied to the standard significance level of 0.05, so that results were compared to a significance level of 0.001. Using a conservative effect size of 0.15, which is considered to be a small effect size, a significance level of 0.001, and the final sample size of 198, it was estimated that the power level for this study was 0.95. This exceeds the desired minimum power level of 0.80, suggesting that the alternative proposed analyses conducted on a sample size of 198 had enough power to detect an effect when there is an effect to be detected.

## **Data Analysis Plan**

**Descriptive and factor analyses.** Means standard deviations, skewness, and kurtosis for all subscales were computed and presented in a series of tables below. In addition, intercorrelations among all the subscales were calculated and are presented for both nominated friendships. Intercorrelations among all subscales were also calculated separately by gender and are presented in separate tables for first and second nominated friends.

A careful examination of the correlations within each measure (e.g., Friendship Quality Scale) were conducted in order to identify whether certain variables could be combined to create larger composite variables, particularly for the outcome measure of friendship quality in order to reduce the number of regression and path analyses (described below). However, it is acknowledged that different factors or subscales may emerge depending on the data.

**Outliers and missing data procedures.** Several steps were taken to identify and address any outliers in the data. First, the aforementioned frequencies were examined for any univariate outliers that were out of range or represented an impossible value (e.g., a value of 7 on a 5-point scale). Any out of range or impossible values were verified with the original data to determine if a data entry error occurred which was subsequently fixed.

The prevalence of missing data was examined for all independent and dependent variables. All subscales were an average of relevant items and were created by summing and dividing by the number of completed items. For example, the exchange orientation subscale comprised five items, but if a participant has

missing data on one of the items, his or her exchange orientation would be computed by summing the items and dividing by four. Computing subscales in this manner does account for missing data without having to go through single-item imputation, which statisticians do not recommend using (Graham, 2009). As a way of assessing how many participants were missing items for each independent and dependent variable, frequencies were run to determine how many participants had more than one item missing in the calculation of their subscales.

For the overall total positive friendship quality scale, 13 participants (6%) were missing up to three items out of a possible 19 items. For the relationship orientation scales, four participants (2%) were missing a single item for the exchange scale and five participants (3%) were missing a single item for the communal scale. For the social goals and resolution strategies, there was male 6<sup>th</sup> grade participant who responded to just a single goal and a single strategy for each of the four stories. Subscales could not be reliably computed for this individual, so he was excluded from all mediation analyses (i.e., research questions 3, 4, and 5). However, he did have complete data for the remaining measures, so he was not excluded from the regression analyses for research questions 1 and 2. For the remaining participants in regards to the social goals scales, one participant (0.5%) was missing a single item for the relationship maintenance goals, one participant (0.9%) was missing a single item for the instrumental/control goals, and three participants (2%) were missing a single item for the revenge goals. For the resolution strategies, two participants (1%) were missing a single item for the accommodation strategies, five participants (3%) were missing a single item for the compromise strategies, ten participants (5%) were



missing a single item for the hostile strategies, and three participants (2%) were missing a single item for the self-interest strategies. Given that all of the percentages of missing data for the individual subscales were less than 5%, no other participants were excluded from analyses for missing data, other than the previously mentioned 6<sup>th</sup> grade male.

Whereas the missing data were low for all subscales, it was imperative to examine whether a multivariate combination of missing data or outlier responses were also associated with the results of the study (Franklin, Thomas, & Brodeur, 2000). Three sets of Mahalanobis distances were calculated to identify any participants who would be considered multivariate outliers and subsequently removed from analyses. In the first set, Mahalanobis distances were calculated using gender, exchange orientation, and communal orientation and needed to exceed a critical value of 16.27 to be considered an outlier; all Mahalanobis distances were less than 12.84. The second set of Mahalanobis distances were computed using gender, exchange orientation, communal orientation, and all three SIP goals and needed to exceed a critical value of 22.46 to be considered an outlier; all Mahalanobis were less than 16.99. The final set of Mahalanobis distances were computed using gender, exchange orientation, communal orientation, and all three SIP resolution strategies; all Mahalanobis were less than 20.43. No multivariate outliers were revealed in this sample.

Finally, for the mediation models, missing data were handled through estimation procedures available in Mplus (Muthén & Muthén, 2007). Full information maximum likelihood (FIML) is an estimation procedure which estimates

a likelihood function for missing values based on all the variables that are present for each individual (Schafer & Graham, 2002). In comparison to listwise deletion, in which an individual case is removed from analyses if one data point is missing, FIML utilizes an iterative process which evaluates model fit information, including fit indices and statistical parameters for a mediation path model, based on the likelihood functions that are derived for each individual case.

**Research questions 1 and 2.** For the primary research questions, only data from the first nominated friend was used. To address the first two research questions, two hierarchical linear regressions were run. There was one dependent variable, overall positive friendship quality, which was derived from the companionship, help, and closeness scales from the FQS and two independent predictors: exchange and communal relationship orientations. To examine the specific effects associated with each of the relationship orientations, one model was run in which the main effect of exchange orientation was examined (i.e., research question 1a) and a second model examined communal orientation as a main effect (i.e., research question 1b). For research questions looking at gender as a moderator (e.g., questions 2a and 2b), interactions were computed following the procedures outlined by Aiken and West (1991). Notably, all variables were standardized (i.e., mean = 0, standard deviation = 1) before used to create interaction terms.

For example, to assess *research questions 1a and 2a* simultaneously, on step 1, gender was entered. On step 2, exchange orientation was entered. On step 3, the two-way interaction between gender and exchange orientation was entered. Research question 1a was addressed by examining the main effect of exchange orientation on

step 2 while research question 2a was addressed by examining whether gender moderates the association between exchange orientation and friendship quality by examining the interaction term on step 3.

To examine *research question 1b and 2b*, on step 1, gender was entered. On step 2, communal orientation was entered. On step 3, the two-way interaction between gender and communal orientation was entered. Research question 1b was addressed by examining the main effect of communal orientation on step 2 while research question 2b was addressed by examining whether gender moderates the association between communal orientation and friendship quality by examining the interaction term on step 3.

**Research questions 3 and 4.** To address the third and fourth research questions, a series of basic mediation path analyses (see Figure 1) were conducted using Mplus software (Muthén & Muthén, 2007) to examine whether any of the three social goals (e.g., relationship maintenance, instrumental/control, and revenge) or any of the four resolution strategies (e.g., accommodation, compromise, hostile, and self-interest) were associated with and/ mediated the association between relationship orientations and overall positive friendship quality. Based on the procedures outlined by MacKinnon (2008), mediation can be examined by the product of coefficients method, which does not require that a significant direct effect be present from the predictor to the outcome variable (path c in Figure 1). Results of several analyses suggest that the requirement of a significant direct effect from the predictor to the outcome reduces power to detect mediation (Fritz & MacKinnon, 2007; MacKinnon, Fairchild, & Fritz, 2007; MacKinnon, Krull, & Lockwood, 2000; Shrout & Bolger,

2002). Therefore, the product of coefficient method involves estimating two paths in the mediated model. The first path tested whether the predictor (exchange or communal orientation) significantly predicted the mediator (social goal or resolution strategy), as illustrated by path a in Figure 1. The second path tested whether the mediator significantly predicted the outcome (overall positive friendship quality), as illustrated by path b in Figure 1.

Mplus software provides the unstandardized as well as standardized coefficients for each of the paths in the mediated models. The unstandardized coefficient estimates that are calculated for each of the two paths described above were multiplied together to create an estimate of the mediated effect, or the indirect effect, that was tested for significance. The product of the coefficient is evaluated for significance by dividing the product of the coefficient by the standard error of the product using the Aroian (1944) method for computing the standard error. The resulting test statistic was compared to critical values that are available online (<http://www.public.asu.edu/~davidpm/ripl/freqdist.pdf>), which represent the critical values suggested be used to evaluate the significance of the product of the coefficient mediation test (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). The resulting test statistics and significance values depict whether there was a significant mediated effect.

Based on the number of variables assessed, 14 mediated models were run to examine research questions 3 and 4. This number included examining whether each of the relationship orientations (e.g., exchange and communal) predicted each of the mediators, which includes three social goals (e.g., relationship maintenance,

instrumental control, and revenge) and four resolution strategies (e.g., accommodation, compromise, hostile, and self-interest) while simultaneously predicting whether each of the seven mediators predicted overall positive friendship quality.

**Research questions 5.** To examine whether moderated-mediation by gender existed for any of the direct or indirect paths in the basic mediation models described above (MacKinnon et al., 2007), a series of regression analyses and bootstrapping procedures were run. In this method, regression analyses were run to obtain coefficients for each of the simple effects, including from the predictor to the mediator (path a), from the mediator to the outcome (path b) and from the predictor to the outcome (path c). These coefficients are then used for the bootstrapping procedure (Edwards & Lambert, 2007). Bootstrapping is a resampling procedure in which many iterations (e.g. 1000 or more) are run to create estimates in multiple samples of the existing dataset. These iterations are then used to create confidence intervals by which the coefficients can be examined for statistical significance. In particular, bootstrapping is becoming more often used for assessing indirect effects in mediation models, but more importantly it can be used for assessing moderation in mediation models (Edwards & Lambert, 2007; Preacher, Rucker, & Hayes, 2007).

Edwards and Lambert (2007) provided the necessary equations and step-by-step instructions on how to examine moderated-mediation by gender, such as those examined in the current study. Using this process, two sets of regression analyses were run to ascertain coefficients for the direct and indirect paths of each mediation model. The first regression included the predictor (exchange or communal

orientation), the moderator (gender), and the interaction between the predictor and the moderator with the outcome variable being the mediator (one of the social goals or resolution strategies). This first regression model identified coefficients for path a and whether gender moderated path a. The second regression analyses also included the predictor, moderator, and interaction between the predictor and moderator, but added the mediator and interaction between the mediator and the moderator with the outcome variable being overall positive friendship quality. The second regression model identified coefficients for path b and whether gender moderated path b, as well as for the direct effect, or path c and whether gender moderated path c. These coefficients from the whole sample were used to create coefficients for direct and indirect effects separately for males and females, using the equations provided by Edwards and Lambert (2007). These coefficients from the regression analyses were also used in the bootstrapping procedures to make estimates of all direct and indirect effects multiple times (e.g., 1000), which were used to create confidence intervals by which the significance of paths could be determined. Any confidence interval that did not include 0 was considered significant. By examining the confidence intervals, it was possible to determine which paths were significant just for males, which paths were significant just for females, and which paths were significantly different from males and females.

### **Summary**

The current study provided an adequate sample of adolescent participants to examine the associations between exchange and communal relationship orientations and overall positive friendship quality, and whether social goals and resolution

strategies act as mediators between relationship orientations and perceptions of friendship quality. Adolescents provided data on both of their nominated friendships, however, the primary analyses used data from just the first nominated friend for a parsimonious set of analyses. The exchange and communal orientation scales had strong reliabilities (all above 0.72), even with fewer items for each scale than originally planned. The individual subscales for the friendship quality measure also had strong reliabilities, with the exception of the companionship scale. Therefore the decision to focus on the overall total positive friendship quality scale as the outcome variable uses the most reliable assessment of self-reported friendship quality with alphas above 0.88. As for the mediators, the reliability for all three types of social goals were good, but reliabilities for the resolution strategies were mixed. The hostile resolution strategies had strong reliability, but the accommodation, compromise, and self-interest strategies had lower than desired Cronbach alphas. After examining items to exclude, the final scales for these three resolution strategies had alphas ranging from 0.49 to 0.53, suggesting some caution interpreting results as they may be a reflection of poor measurement of these strategies. Additional consideration of all the subscales is presented in the *Discussion* section.

The collection of self-report data on two mutual friends from each respondent attempted to maximize the number of unique mutual dyads. However, the lower than anticipated participation rate at each school yielded only 29 unique dyads, providing insufficient power for the original analyses. However, using all self-report data instead of the ratings by friends enabled the use of all 198 participants and provided enough power to detect effects in the analyses. The decision to use adolescents' self-

report data for just their first nominated friend was made in light of previous research suggesting that adolescents' first friend nominations tend to be their closest friend (Kiesner et al., 2005) as well as the data in the current study. Basic analyses presented in the *Results* section will cover both first and second nominated friend data, including descriptives and correlations. However to maintain a parsimonious presentation of the current study, self-report data for the first nominated friend only will be presented in the primary analyses. The self-report data for the second nominated friend could be used at a later date, perhaps with a reduced set of variables or reduced set of research questions or as a cross-validation.



## Chapter IV: Results

### Preliminary Analyses

**Factor analyses.** Given that several changes were made to the wording of items on the ROS as well as asking participants to think about a specific friend when answering each item, it was necessary to determine the underlying factor structure of the revised ROS. A series of confirmatory factor analyses (CFA) with a promax rotation, which allowed factors to correlated with one another, were conducted on all 19 items of the ROS using Mplus software (Muthén & Muthén, 2007). Separate CFAs were run for the first nominated friend data and the second nominated friend data.

In the first set of CFAs, two factors were modeled such that items from the original exchange scale were modeled onto one factor and items from the original communal scale were modeled onto a second factor. All models terminated normally. Fit indices for the first nominated friend data suggested a poor fit with the data (Chi-square (151) = 436.58,  $p = .001$ ; CFI = .64, RMSEA = .10, and SRMR = .12). The two factors accounted for total of 34.91% of the variance, with the exchange factor accounting for 19.06% and the communal factor accounting for 15.85%. An examination of the standardized factor loadings revealed that several of the items had low factor loadings ( $<.38$ ) or items that loaded on both the exchange and communal factors.

A similar pattern of results came out for the second nominated friend data. The CFA for the second nominated friend data revealed similarly poor indices with the data (Chi-square (151) = 396.66,  $p = .001$ ; CFI = .66, RMSEA = .09, and SRMR =

.11). The two factors accounted for a total of 34.00% of the variance, with the exchange factor accounting for 19.65% and the communal factor accounting for 14.35%. The standardized factor loadings for the second friend data also revealed low factor loadings ( $<.44$ ) for several items or items that loaded on both the exchange and communal factors. Following the fit index criteria outlined by Hu and Bentler (1999), the fit indices for this first series of CFA did not represent adequate fit, as the CFI were less than 0.95, the RMSEA was greater than 0.06 and the SRMR was greater than 0.08. Therefore, a second round of CFAs were run, eliminating items with low loadings or cross-loadings on both factors.

In the second series of CFAs, six items were retained for the exchange factor and five items were retained for the communal factor. Fit indices for the first nominated friend data revealed a more adequate fit with the data (Chi-square (43) = 107.17,  $p = .001$ ; CFI = .86, RMSEA = .08, and SRMR = .07). The two factors accounted for total of 47.97% of the variance, with the exchange factor accounting for 24.55% and the communal factor accounting for 23.42%. All standardized factor loadings for the exchange factor were greater than 0.51, with all cross-loadings less than 0.18. All factor loadings for the communal factor were greater than 0.54, with all cross-loadings less than 0.26. A similar pattern of results came out for the second nominated friend data using the reduced number of items. The CFA for the second nominated friend data revealed a TLI of 0.89, a RMSEA of 0.07, and a SRMR of 0.06. The two factors accounted for a total of 46.40% of the variance, with the exchange factor accounting for 24.27% and the communal factor accounting for 22.12%. All standardized factor loadings for the exchange factor were greater than

0.47, with all cross-loadings less than 0.15. All factor loadings for the communal factor were greater than 0.57, with all cross-loadings less than 0.23.

Based on the better fit indices with the second set of CFAs along with the higher factor loadings and low cross-loadings, it was decided to retain six items for the exchange factor and five items for the communal factor. The original items and retained items for each factor are displayed in Table 1. Factor loadings for the final exchange and communal scales for both the first and second nominated friend data are displayed in Table 2.

**Descriptive analyses.** Descriptive analyses were conducted on all subscales, both predictors and outcomes, for both first and second nominated friends and are presented in Table 3. An examination of these descriptive analyses showed that the revenge goals and hostile solution subscales from the SIP conflict vignettes had high skewness and kurtosis. Inverse transformations were conducted on both of these subscales, which yielded more acceptable values for skewness and kurtosis. The revenge goals and hostile solution subscales were first subjected to an inverse transformation and then the transformed scores were reverse scored. This ensured that the transformed scores would be in the same direction as the original subscale, but the transformation would lead to more normally distributed scales for analyses. For the revenge goals, the skewness dropped to -0.43 and -0.71 whereas the kurtosis dropped to -1.17 and -1.12, for friend 1 and friend 2 respectively. For the hostile solutions, the skewness dropped to -0.98 and -1.24 whereas the kurtosis dropped to -0.04 and -0.20, for friend 1 and friend 2 respectively. These transformed subscales were used in for all correlational analyses and those for the specific research aims.

However, the original, non-transformed variables are presented in the table of the means (Table 3) to show the original scale. However, t-tests for gender differences among all the subscales presented in Table 4 did use the transformed variables

An examination of the descriptives presented in Table 3 showed that the means for the subscales of friendship quality were relatively high. The highest score possible was a 5, and the lowest subscale average for the first nominated friend was 3.66 for the security scale. Furthermore, the ratings for all the friendship quality scales were higher for the first nominated friend than the second nominated friend. This suggests that the adolescents followed the instructions when they were asked to list their top friend first.

In contrast to the friendship quality ratings, the average ratings for the exchange and communal orientation scales were lower. The highest possible score was a 5 for both relationship orientation scales. As expected, the average exchange orientation ratings were lower than the communal, but the communal orientation ratings were still just above the mid-range.

Finally, the ratings for the social goals and resolution strategies were more variable. With the highest possible rating for all goals and strategies also being a 5, the lowest ratings were for the revenge goals and the hostile strategies. The highest rated scale was the relationship maintenance goals.

Means and standard deviations for all the subscales of interest are presented separately for males and females in Table 4. Upon examination, the results show that adolescent females' ratings for all the subscales of friendship quality (e.g., companionship, help, security, and closeness) as well as the overall positive

friendship quality scale, communal orientation, and relationship maintenance social goals were higher than the ratings given by adolescent males. Gender differences for ratings for exchange orientation, instrumental and revenge goals, and all resolution strategies were non-significant.

**Correlational analyses.** Intercorrelations among all subscales for the whole sample are presented in Table 5, with correlations for first nominated friend below the diagonal and for the second nominated friend above the diagonal. Correlations along the diagonal that are in bold represent are those between the first and second nominated friend for all of the subscales. Tables 5 and 6 are correlations for all subscales for first and second nominated friends separated by gender, with males below the diagonal and females above the diagonal. Several points are of note in these tables.

**Friendship quality correlations.** First, the correlations among all the subscales for the FQS are moderate to high, with the lowest correlation being 0.44 and the highest being 0.74. These correlations are in line with previous work (Bukwoski et al., 1994). Given this, it was decided that the larger composite variable of overall total positive quality, which is a combination of the other four subscales, would be used for all analyses. This reduced the number of analyses needed and offered a more parsimonious set of analyses for discussion.

Whereas the overall positive friendship quality scale was for all analyses, there are some interesting patterns of correlations for the closeness subscale that are different for males and females (see Table 6). For males, closeness was significantly and negatively correlated with revenge goals ( $r = -0.40, p = .001$ ) as well as

significantly and negatively with hostile solutions ( $r = -0.31, p = .001$ ). For females, the correlations between closeness and revenge goals ( $r = -0.18, ns$ ) and hostile solutions ( $r = -0.15, ns$ ) were non-significant. The correlation difference test for the revenge goals ( $Z = -1.66, p = .09$ ) was non-significant, while for hostile solutions ( $Z = -1.16, p = .24$ ) it was non-significant. This difference in the possible meaning of closeness for the two genders will be considered in the *Discussion*.

An examination of the correlations on the diagonal suggest that participants responded to items in a similar fashion for both their first and second nominated friends, with the lowest correlation at 0.53 between the friendship quality subscale of companionship. Given these high correlations and the fact that all participants nominated and provided data on at least their first nominated friendship, all analyses for the specific research aims were conducted using just data on the first nominated friend.

***Exchange and communal orientation correlations.*** The exchange and communal orientations were not correlated with one another in the whole sample ( $r = 0.04, ns$ ), nor were they correlated with one another for just the males ( $r = -0.06, ns$ ) or just the females ( $r = 0.15, ns$ ) (see Table 5). Additionally, the exchange orientation scale was not correlated with the overall positive friendship quality scale ( $r = 0.01, ns$ ) but the communal orientation was significantly correlated with overall positive rated friendship quality ( $r = 0.63, p = .001$ ). Interestingly, there was a significant difference for males and females for the correlations between communal orientation and overall positive friendship quality. Males had a significantly higher correlation ( $r = 0.66, p = .001$ ) than did females ( $r = 0.46, p = .001$ ) suggesting that the

association between communal orientation and rated positive friendship quality was stronger for males than females ( $Z=2.08, p=.02$ ).

Correlations between the exchange and communal orientations and the social goals and resolution strategies revealed an interesting pattern in Table 5. Specifically, even though the exchange and communal orientations were not correlated with one another, they did show patterns of results for the social goals and resolution strategies that were contrasting in several respects. For example, exchange orientation was significantly and positively correlated with instrumental/control and revenge goals, but not correlated with relationship maintenance goals. In contrast, communal orientation was significantly and positively correlated with relationship maintenance goals, negatively correlated with revenge goals, and not correlated with instrumental/control goals. A similar inverse pattern of correlations was also revealed for the resolution strategies. Exchange orientation was significantly and *positively* correlated with compromise, hostile, and self-interest strategies whereas communal orientation was significantly and *negatively* correlated with hostile and self-interest strategies. The fact that exchange and communal orientations were not correlated with one another and that they had different associations with social goals and resolution strategies suggests that the two orientations are distinct. Therefore, rather than being two ends of a single continuum, the correlations suggest that exchange and communal orientations are separate continuums.

Correlations were also run separately for the younger participants (ages 11-12;  $N=125$ ) and the older participants (ages 13-15;  $N=56$ ). Most of the comparisons between the two age groups were non-significant; however there were a few.

Specifically, the correlation between communal orientation and hostile strategies was negative and significantly stronger for older adolescents ( $r = -.34, p=.01$ ) than the same association for younger adolescents ( $r = -.01, ns; Z=2.09, p=.04$ ). In addition, the correlation between communal orientation and accommodation strategies was positive and significantly stronger for older adolescents ( $r = .49, p=.001$ ) than the same association for younger adolescents ( $r = .19, ns; Z=2.14, p=.03$ ).

More surprising were the gender differences in the correlations between relationship orientations and social goals and resolution strategies. The overall correlation between exchange orientation and revenge goals was significant ( $r= 0.23, p=.01$ ). However when examined separately for males and females for the first friend data, the correlation between exchange orientation and revenge goals was significantly higher for females ( $r= 0.33, p=.001$ ) than males ( $r= 0.09, ns; Z=1.74, p=.041$ ; see Table 6). Similarly, the overall correlation between exchange orientation and self-interest strategies was significant ( $r= 0.19, p=.01$ ), but closer examination showed that the same correlation was significantly higher for females ( $r= 0.32, p=.001$ ) than males for the first friend data ( $r= 0.04, ns; Z=-2.00, p=.022$ ; see Table 6). In both of these cases, the significance of the association was only significant for females and also significantly higher for females than males. These differences suggest that females who have a higher exchange orientation tend to also endorse more negative goals and strategies than males when dealing with conflict with a close friend.

The overall correlation between communal orientation and relationship maintenance goals for the first friend data was positive and significant ( $r= .32,$



$p=.001$ ), which is not surprising. However, further examination of the same correlation separately for males and females revealed that it was only significant for males, and was significantly higher for males ( $r= 0.42, p=.001$ ) than females ( $r= 0.09, ns; Z=2.45, p=.007$ ). A similar pattern was revealed for the correlation between communal orientation and accommodation strategies. Overall, the correlation was significant ( $r= 0.28, p=.001$ ), but when looked at separately for males and females, it was marginally significantly higher for males ( $r= 0.37, p=.001$ ) than females ( $r= 0.18, ns; Z=1.42, p=.077$ ). In both of these cases, the significance of the association was only significant for males and also significantly higher for males than females. These differences suggest that males who have a higher communal orientation tend to also endorse more relationship promoting goals and strategies than females when dealing with conflict with a close friend.

***Social goals and resolution strategies correlations.*** Finally, correlations among the social goals and resolution strategies suggest that there are some associations within the social goals or within the resolution strategies, as well as across goals and strategies. Within the three types of social goals, instrumental/control goals were positively and significantly associated with both the relationship maintenance ( $r= .32, p=.001$ ) and revenge goals ( $r= .33, p=.001$ ), but the relationship maintenance and revenge goals were correlated negatively with one another ( $r= -.18, p=.01$ ). Within the resolution strategies, the accommodation strategies were negatively and significantly associated with hostile ( $r= -.44, p=.001$ ) and self-interest strategies ( $r= -.47, p=.001$ ). The self-interest strategies were also significantly and positively associated with the compromise ( $r= .20, p=.001$ ) and

hostile solutions ( $r = .48, p = .001$ ). These correlations suggest that the social goals and resolution strategies are related to one another, but not in a way that would suggest they should be combined into a larger subscale, as was done with the friendship quality measure. In addition, a close examination of the correlations between compromise strategies and the other subscales in Table 5 reveal that they are the lowest correlations for all the goals and strategies. The compromise strategies did have a low reliability estimate as well, suggesting that improvements should be made to the items to attain better measurement in a sample of adolescents. Additional discussion of this particular subscale of resolution strategies is also offered in the *Discussion* section.

Correlations for the social goals and resolution strategies also suggest that there are different patterns of responses for males and females. In addition to the gender differences for the correlations with relationship orientations and social goals and resolution strategies presented above, there was a pattern of gender differences with overall positive rated friendship quality. The correlation between revenge goals and overall positive friendship quality was significantly higher and negative for males ( $r = -0.31, p = .001$ ) than for females for the first friend data ( $r = -0.07, ns; Z = 1.72, p = .04$ ; see Table 6). This suggests that adolescent males who more strongly endorse revenge goals also report lower friendship quality while individual differences in the pursuit of revenge goals are irrelevant to friendship quality for females.

### **Primary Analyses in Relation to Research Questions**

Although the previous section indicates considerable differences in the patterns and therefore the meaning of these goals and strategies for males and

females, the next section follows the original plan laid out by the research questions in that the role of gender is considered for each specific research aim (e.g., research questions 2 and 5). The analyses presented for the primary research questions focus on data just for the first nominated friend.

**Research questions 1 and 2: Relationship orientations predicting friendship quality.** Research questions 1 and 2 examined the extent to which relationship orientations predicted friendship quality (research question 1) and whether gender moderated the association (research question 2). Separate hierarchical regression models were run for each relationship orientation subscale, one for exchange orientations and one for communal orientations.

Results for exchange orientation showed that gender was a significant predictor of overall friendship quality ( $t(193) = 5.80, \beta = .39, p = .001$ ), with females reporting higher overall positive friendship quality than males. The main effect for exchange orientation ( $t(193) = 0.34, \beta = .02, p = .74$ ) on Step 2 and the interaction between gender and exchange orientation ( $t(193) = 0.61, \beta = .04, p = .55$ ) on Step 3 were both non-significant (see Table 8).

Results for adolescents' communal orientations predicting to overall positive friendship quality showed gender was a significant predictor of overall friendship quality ( $t(193) = 3.59, \beta = .20, p = .001$ ), with females reporting higher overall positive friendship quality than males. The main effect of communal orientation was significant on Step 2 ( $t(193) = 9.30, \beta = .53, p = .001$ ), suggesting that a higher communal orientation was associated with higher overall positive friendship quality. However, this main effect was qualified by a significant interaction between gender

and communal orientation on Step 3 ( $t(193) = -3.25, \beta = -.18, p=.001$ ; see Table 9). Follow-up simple slope analyses revealed that the association between communal orientation and overall friendship quality was significant for males ( $t(193)=9.58, p=.001; b=0.51$ ) and females ( $t(193)=4.53, p=.001; b=0.25$ ), suggesting that for both genders, as communal orientations increased so did overall positive friendship quality (see Figure 2). However, the association was stronger for males than females as evidenced by a standardized coefficient that was double for males than that for females.

**Research question 3a: Social goals as mediator between exchange orientation and friendship quality.** Research question 3a examined whether any adolescents' ratings of the three social goals mediated the associations between exchange orientation and overall rated positive friendship quality. Figure 3 depicts each of the three models examined for research question 3a. For the model examining relationship maintenance goals as a mediator, there was a significant effect from relationship maintenance goals to overall positive friendship quality, (standardized coefficient = 0.21,  $p=.001$ ), which suggests that higher endorsement of relationship maintenance goals with one's first nominated friend was associated with higher overall positive friendship quality. The standardized paths from exchange orientation to relationship maintenance goals (standardized coefficient = 0.02,  $p=.84$ ) and the direct effect from exchange orientation to overall positive friendship quality (standardized coefficient = 0.02,  $p=.82$ ) were non-significant. The test for mediation effect was non-significant (Aroian test for significance = 0.19,  $p=0.85$ ).

For the model examining instrumental/control goals as a mediator, there was a significant effect from exchange orientation to instrumental/control goals (standardized coefficient = 0.29,  $p=.001$ ), which suggests that a higher exchange orientation was associated with a higher endorsement of instrumental/control social goals. The standardized path from instrumental/control goals to overall rated positive friendship quality was non-significant (standardized coefficient = -0.02,  $p=.84$ ) as was the direct effect from exchange orientation to overall positive friendship quality (standardized coefficient = 0.02,  $p=.76$ ), which was shown in the previous analysis. The test for mediation effect was non-significant (Aroian test for significance = -0.20,  $p=0.84$ ).

The final mediation model for research question 3a examined whether revenge goals mediated between exchange orientation and overall positive friendship quality. There was a significant effect from exchange orientation to revenge goals (standardized coefficient = 0.21,  $p=.001$ ), which suggests that a higher exchange orientation was associated with a higher endorsement of revenge social goals. There was also a significant effect from revenge goals to overall positive friendship quality (standardized coefficient = -0.22,  $p=.001$ ), suggesting that a higher endorsement of revenge was associated with lower overall positive friendship quality. The direct effect from exchange orientation to overall positive friendship quality (standardized coefficient = 0.07,  $p=.36$ ) was non-significant, as shown in the previously discussed models in this section. The test for mediation effect was significant (Aroian test for significance = -2.08,  $p=0.03$ ). This indirect effect suggests that adolescents who have a higher exchange orientation towards their friends are more likely to endorse revenge

goals, and in turn a higher endorsement of revenge goals was associated with lower overall rated positive friendship quality. In other words, the effect of exchange orientation on friendship quality was through its effect on adolescents endorsing revenge goals in response to a hypothetical conflict with a close friend.

**Research question 3b: Social goals as mediator between communal orientation and friendship quality.** Research question 3b examined whether any adolescents' ratings of the three social goals mediated the associations between communal orientation and overall rated positive friendship quality. Figure 4 depicts each of the three models examined for research question 3b. For the model examining relationship maintenance goals as a mediator, there was a significant effect from communal orientation to relationship maintenance goals (standardized coefficient = 0.32,  $p=.001$ ), which suggests that a higher communal orientation towards one's first nominated friend was associated with a higher endorsement of relationship maintenance goals. There was also a significant direct effect from communal orientation to overall positive friendship quality (standardized coefficient = 0.63,  $p=.001$ ), which suggests that adolescents with a higher communal orientation report a higher overall positive friendship quality. The effect from relationship maintenance goals to overall positive friendship quality (standardized coefficient = 0.01,  $p=.87$ ) was non-significant. The test for mediation effect was non-significant (Aroian test for significance = 0.17,  $p=0.87$ ), but unlike exchange orientation, there was a direct effect between communal orientation and overall positive friendship quality.

For the model examining instrumental/control goals as a mediator, there was a significant direct effect from communal orientation to overall positive friendship quality (standardized coefficient = 0.63,  $p=.001$ ), as seen in the previous analysis, which suggests that a higher communal orientation was associated with a higher overall rated positive friendship quality. The standardized paths from communal orientation to instrumental/control goals (standardized coefficient = -0.01,  $p=.89$ ) and from instrumental/control goals to overall positive friendship quality (standardized coefficient = -0.00,  $p=.96$ ) were non-significant. The test for mediation effect was non-significant (Aroian test for significance = 0.01,  $p=0.99$ ).

The final mediation model for research question 3b examined whether revenge goals mediated associations between communal orientation and overall positive friendship quality. There was a significant effect from communal orientation to revenge goals (standardized coefficient = -0.25,  $p=.001$ ), which suggests that a higher communal orientation was associated with a lower endorsement of revenge goals. There was also a significant direct effect from communal orientation to overall positive friendship quality (standardized coefficient = 0.62,  $p=.001$ ), as seen in the previous analyses, suggesting that a higher communal orientation was associated with higher overall positive friendship quality. The path from revenge goals to overall positive friendship quality (standardized coefficient = -0.06,  $p=.32$ ) was non-significant. The test for mediation effect was non-significant (Aroian test for significance = 0.92,  $p=0.36$ ). Communal orientation is associated with friendship quality and also associated with a number of social goals.

**Research question 4a: Resolution strategies as mediator between exchange orientation and friendship quality.** Research question 4a examined whether any adolescents' ratings of the four resolution strategies mediated the associations between exchange orientation and overall rated positive friendship quality. Figure 5 depicts each of the three models examined for research question 4a. For the model examining accommodation strategies as a mediator, there was a significant effect from exchange orientation to accommodation strategies relationship (standardized coefficient = -0.16,  $p=.03$ ), which suggests that a higher exchange orientation was associated with a lower endorsement of accommodation strategies. There was also a significant effect from accommodation strategies to overall positive friendship quality, (standardized coefficient = 0.22,  $p=.001$ ), which suggests that higher endorsement of accommodation strategies was associated with higher overall positive friendship quality. The standardized direct effect from exchange orientation to overall positive friendship quality (standardized coefficient = 0.05,  $p=.44$ ) was non-significant. The test for mediation effect was non-significant (Aroian test for significance = -1.75,  $p=0.08$ ).

For the model examining compromise strategies as a mediator, there was a significant effect from exchange orientation to compromise strategies (standardized coefficient = 0.18,  $p=.01$ ), which suggests that a higher exchange orientation was associated with a higher endorsement of compromise resolution strategies. The standardized path from compromise strategies to overall positive friendship quality (standardized coefficient = 0.14,  $p=.06$ ) was non-significant as was the direct effect from exchange orientation to overall positive friendship quality (standardized



coefficient = -0.01,  $p=.94$ ), as shown in the previous analysis. The test for mediation effect was non-significant (Aroian test for significance = 1.44,  $p=0.15$ ).

For the model examining hostile strategies as a mediator, there was a significant effect from exchange orientation to hostile strategies (standardized coefficient = 0.23,  $p=.001$ ), which suggests that a higher exchange orientation was associated with a higher endorsement of hostile resolution strategies. The standardized path from hostile strategies to overall positive friendship quality was non-significant (standardized coefficient = -0.11,  $p=.13$ ) as was the direct effect from exchange orientation to overall positive friendship quality (standardized coefficient = 0.04,  $p=.54$ ), which was shown in the previous analyses in this section. The test for mediation effect was non-significant (Aroian test for significance = -1.34,  $p=0.18$ ).

The final mediation model for research question 4a examined whether self-interest strategies mediated associations between exchange orientation and overall positive friendship quality. There was a significant effect from exchange orientation to self-interest strategies (standardized coefficient = 0.16,  $p=.008$ ), which suggests that a higher exchange orientation was associated with a higher endorsement of self-interest resolution strategies. The effect from self-interest resolution strategies to overall positive friendship quality was non-significant (standardized coefficient = -0.04,  $p=.35$ ) as was the direct effect from exchange orientation to overall positive friendship quality (standardized coefficient = 0.02,  $p=.67$ ), as shown in the other mediation models for exchange orientation and resolution strategies. The test for mediation effect was non-significant (Aroian test for significance = -0.83,  $p=0.40$ ).

**Research question 4b: Resolution strategies as mediator between communal orientation and friendship quality.** Research question 4a examined whether any adolescents' ratings of the four resolution strategies mediated the associations between communal orientation and overall rated positive friendship quality. Figure 6 depicts each of the three models examined for research question 4a. For the model examining accommodation strategies as a mediator, there was a significant effect from communal orientation to accommodation strategies relationship (standardized coefficient = 0.28,  $p=.001$ ), which suggests that a communal exchange orientation towards one's first nominated friend was associated with a higher endorsement of accommodation strategies. There was also a significant direct effect from communal orientation to overall positive friendship quality (standardized coefficient = 0.62,  $p=.001$ ), which was also shown in the mediation models involving communal orientation and social goals. This significant association suggests that a higher communal orientation was associated with higher overall positive friendship quality. The effect from accommodation strategies to overall positive friendship quality (standardized coefficient = 0.04,  $p=.45$ ) was non-significant. The test for mediation effect was non-significant (Aroian test for significance = 0.72,  $p=0.47$ ).

For the model examining compromise strategies as a mediator, there was a significant direct effect from communal orientation to overall positive friendship quality (standardized coefficient = 0.62,  $p=.001$ ), as shown in the previous analysis, which suggests that a higher communal orientation was associated with a higher overall positive friendship quality. The effects from communal orientation to

compromise strategies (standardized coefficient = 0.07,  $p=.36$ ) and from compromise strategies to overall positive friendship quality (standardized coefficient = 0.09,  $p=.09$ ) were non-significant. The test for mediation effect was non-significant (Aroian test for significance = 0.71,  $p=0.48$ ).

For the model examining hostile strategies as a mediator, there was a significant effect from communal orientation to hostile strategies (standardized coefficient = -0.21,  $p=.001$ ), which suggests that a higher communal orientation was associated with a lower endorsement of hostile resolution strategies. The direct effect from communal orientation to overall positive friendship quality was significant (standardized coefficient = 0.64,  $p=.001$ ), as shown in the previous analyses in this section, which suggests that a higher communal orientation was associated with higher overall positive friendship quality. The standardized path from hostile strategies to overall positive friendship quality was non-significant (standardized coefficient = 0.03,  $p=.55$ ). The test for mediation effect was non-significant (Aroian test for significance = -0.57,  $p=0.57$ ).

The final mediation model for research question 4a examined whether self-interest strategies mediated associations between communal orientation and overall positive friendship quality. The effect from communal orientation to self-interest strategies was significant (standardized coefficient = -0.16,  $p=.008$ ), which suggests that a higher communal orientation was associated with a lower endorsement of self-interest resolution strategies. There was a significant direct effect from communal orientation to overall positive friendship quality (standardized coefficient = 0.64,  $p=.001$ ), as shown in the previous analyses in this section, which suggests that a

higher communal orientation was associated with higher overall positive friendship quality. The effect from self-interest resolution strategies to overall positive friendship quality was non-significant (standardized coefficient = 0.04,  $p=.46$ ). The test for mediation effect was non-significant (Aroian test for significance = -0.64,  $p=.52$ ).

**Research question 5a: Gender differences in mediation models involving social goals.** Research question 5a examined whether any moderated-mediation by gender existed in the mediation models involving social goals. Coefficients were estimated for all mediation models involving exchange and communal orientations and each of the three social goals. For the mediation model examining exchange orientation and relationship maintenance goals, none of the direct or indirect paths were significant for males or females. Furthermore, there were no significant differences between males and females for any of the effects (see Figure 7). The lack of significant differences between males and females for any of the direct, indirect, or total effects shows that gender did not moderate any of the associations between exchange orientation, relationship maintenance goals, and friendship quality.

For the mediation model for exchange orientation and instrumental/control goals, for both males (coefficient = .24,  $p<.01$ ) and females (coefficient = .33,  $p<.01$ ), there was a significant path from exchange orientation to instrumental/control goals (see Figure 8). However, the separate paths for males and females were not significantly different. This suggests that for both males and females, a higher exchange orientation was associated with a higher endorsement of instrumental/control goals. All other direct, indirect, and total effects were non-

significant for both genders separately and were not significantly different between males and females. The lack of significant differences between males and females for any of the direct, indirect, or total effects shows that gender did not moderate the associations between exchange orientation, instrumental/control goals, and friendship quality.

For the mediation model for exchange orientation and revenge goals, for both males (coefficient = .05,  $p < .01$ ) and females (coefficient = .09,  $p < .01$ ) there was a significant path from exchange orientation to revenge goals (see Figure 9). However, the separate paths for males and females were not significantly different from one another. This suggests that for both males and females a higher exchange orientation was associated with a higher endorsement of revenge goals. In addition, there was a significant negative path from revenge goals to friendship quality, but just for males (coefficient = -.12,  $p < .01$ ). Even though the female path was non-significant, there still was not a significant difference between males and females for the path from revenge to friendship quality, therefore no gender moderation. Finally, the indirect effect was significant just for males. This effect can be explained in the same way as the mediation model presented above in which the whole sample was analyzed. Male adolescents who have a higher exchange orientation towards their close friend are more likely to endorse revenge goals, and in turn a higher endorsement of revenge goals was associated with lower overall rated positive friendship quality. In other words, just for males the effect of exchange orientation on friendship quality was through its effect on adolescents endorsing revenge goals in response to a hypothetical conflict with a close friend. All other direct, indirect, and total effects

were non-significant. The lack of significant differences between males and females for any of the direct, indirect, or total effects shows that gender did not moderate any of the associations between exchange orientation, revenge goals, and friendship quality.

For the mediation models involving communal orientation and relationship maintenance goals, the path from communal orientation to relationship maintenance goals was significant for males (coefficient = .18,  $p < .01$ ) but non-significant for females (coefficient = .05, *ns*; see Figure 10). Furthermore, the difference between the coefficients was significant, suggesting that gender moderated this particular path. Higher communal orientations were associated with a higher endorsement of relationship maintenance goals, but only for males. In addition the direct effect from communal orientation to friendship quality was significant for both males (coefficient = .33,  $p < .01$ ) and females (coefficient = .21,  $p < .01$ ), but males were significantly higher than females. Therefore, both males and females who reported a higher communal orientation also reported greater overall friendship quality. However the association was significantly stronger for males, suggesting that gender moderated the path from communal orientation to friendship quality. Finally the overall total effect was significant for males (coefficient = .32,  $p < .01$ ) and females (coefficient = .21,  $p < .01$ ), with males have a significantly stronger effect than females. This finding suggests that the combination of the direct effect (communal to friendship quality) and the indirect effect (communal to relationship maintenance to friendship quality) was stronger for males than females. Put another way, gender was a moderator of the total effect for the mediation model involving communal orientation and relationship

maintenance goals. The strong association between communal orientation and friendship quality may be the reason why the total effect is also significantly stronger for males than females. Further interpretation of this fact is offered in the *Discussion*. It is noted here that the significant direct effect from communal orientation to friendship quality and the significant total effect were replicated for the other two social goals presented below.

For the mediation models involving communal orientation and instrumental/control goals, the only paths that were significant were the direct path from communal orientation to friendship quality and the total effects (see Figure 11). As shown in the previous model, communal orientations were significantly associated with friendship quality, but the association was stronger for males. Similarly, the total effects of the model were significant for both males and females, but the association was stronger for males. All other direct and indirect effects were non-significant for males and females and were not significantly different between males and females. Therefore, gender only moderated the effect from communal orientation to friendship quality and the total effect.

For the mediation models involving communal orientation and revenge goals, the previously mentioned effects for the paths from communal orientation to friendship quality and the total effect were replicated (see Figure 12). In addition, there was a significant association between communal orientation and revenge goals, but just for males (coefficient =  $-.06$ ,  $p < .05$ ). Even though the path for females was non-significant, there was not a significant difference between males and females, therefore no moderation. All other direct and indirect effects were non-significant.

**Research question 5b: Gender differences in mediation models involving resolution strategies.** Research question 5b examined whether any moderated-mediation by gender existed in the mediation models involving exchange and communal orientations and each of the four resolution strategies. For the model involving exchange orientation and accommodation strategies, all direct and indirect paths and the total effect were non-significant for both males and females (see Figure 13). In addition, these paths were not significantly different between males and females. Gender did not moderate any of the paths of association between exchange orientation, accommodation strategies, and friendship quality.

For the model involving exchange orientation and compromise strategies, the association between exchange orientation and compromise was significant for males (coefficient = .15,  $p < .01$ ), but non-significant for females (coefficient = .14, *ns*; see Figure 14). There was not a significant difference between these coefficients, so gender did not moderate this path. All other direct and indirect paths and the total effect were non-significant for both males and females. In addition, these paths were not significantly different between males and females. Gender did not moderate any of the associations between exchange orientation, compromise strategies, and friendship quality.

For the model involving exchange orientation and hostile strategies, the association between exchange orientation and compromise was significant for males (coefficient = .04,  $p < .01$ ) and females (coefficient = .06,  $p < .01$ ; see Figure 15). There was not a significant difference between these coefficients, so gender did not moderate this path. All other direct and indirect paths and the total effect were non-



significant for both males and females. In addition, these paths were not significantly different between males and females. Gender did not moderate any of the associations between exchange orientation, hostile strategies, and friendship quality.

For the model involving exchange orientation and self-interest strategies, the association between exchange orientation and compromise was significant for males (coefficient = .15,  $p < .05$ ) and females (coefficient = .29,  $p < .01$ ; see Figure 16). In addition, gender significantly moderated this path such that the association between exchange orientation and self-interest strategies was higher for females than males. All other direct and indirect paths and the total effect were non-significant for both males and females. In addition, these paths were not significantly different between males and females.

For the mediation models involving communal orientation and accommodation strategies, the path from communal orientation to strategies was significant for males (coefficient = .23,  $p < .01$ ) but non-significant for females (coefficient = .16, *ns*; see Figure 17). However, the difference between males and females was non-significant, suggesting that gender did not moderate this path. As with the models above for communal orientation and social goals, the direct effect from communal orientation to friendship quality was significant for both males (coefficient = .31,  $p < .01$ ) and females (coefficient = .20,  $p < .01$ ), but males were significantly higher than females. Therefore, both males and females who reported a higher communal orientation also reported greater overall friendship quality. However the association was significantly stronger for males, suggesting that gender moderated the path from communal orientation to friendship quality. Finally the

overall total effect was significant for males (coefficient = .31,  $p < .01$ ) and females (coefficient = .21,  $p < .01$ ), with males have a significantly stronger effect than females. This finding suggests that the combination of the direct effect (communal to friendship quality) and the indirect effect (communal to accommodation to friendship quality) was stronger for males than females. Put another way, gender was a moderator of the total effect for the mediation model involving communal orientation and accommodation strategies. As stated previously, the strong association between communal orientation and friendship quality may be the reason why the total effect is also significantly stronger for males than females. This point is addressed further in the *Discussion*. It is noted here that the significant direct effect from communal orientation to friendship quality and the significant total effect were replicated for the other three resolution strategies presented below.

For the mediation models involving communal orientation and compromise strategies, the only paths that were significant were the direct path from communal orientation to friendship quality and the total effect (see Figure 18). As shown in the previous model, communal orientations were significantly associated with friendship quality, but the association was stronger for males. Similarly, the total effects of the model were significant for both males and females, but the association was stronger for males. All other direct and indirect effects were non-significant for males and females and were not significantly different between males and females. Therefore, gender only moderated the effect from communal orientation to friendship quality and the total effect.

For the mediation models involving communal orientation and hostile strategies, the path from communal orientation to hostile strategies was significant for males (coefficient =  $-.04$ ,  $p < .05$ ), but non-significant for females (coefficient =  $-.03$ ,  $ns$ ; see Figure 19). However, these paths were not significantly different between males and females, so gender did not moderate this path. As shown previously, communal orientations were significantly associated with friendship quality, but the association was stronger for males. Similarly, the total effects of the model were significant for both males and females, but the association was stronger for males. All other direct and indirect effects were non-significant for males and females and were not significantly different between males and females.

For the mediation models involving communal orientation and self-interest strategies, the path from communal orientation to self-interest strategies was significant for males (coefficient =  $-.15$ ,  $p < .05$ ), but non-significant for females (coefficient =  $-.19$ ,  $ns$ ; see Figure 20). However, these paths were not significantly different between males and females, so gender did not moderate this path. As shown previously, communal orientations were significantly associated with friendship quality, but the association was stronger for males. Similarly, the total effects of the model were significant for both males and females, but the association was stronger for males. All other direct and indirect effects were non-significant for males and females and were not significantly different between males and females.

### **Summary of Results**

In summary, the results suggest that adolescents' exchange and communal orientations can be reliably assessed, have different associations with overall positive

friendship quality, and are associated with different social goals and resolution strategies for males and females. Exchange and communal orientations were not significantly correlated with one another (even with the use of an oblique rotation in the factor analysis), suggesting that they can be conceptualized as continuums rather than opposite ends of the same continuum. While the exchange and communal orientation scales as well as the overall positive friendship quality scale were found to have strong internal consistency, a number of the resolution strategies had poor internal consistency. There are a number of reasons why this might have occurred, which are discussed below, however the results for these strategies should be interpreted with caution.

Exchange orientations were not significantly associated with adolescents' perceptions of the overall positive quality of their friendship, either in the correlational analyses or the mediation models. This suggests that adolescents' tendency to expect exchanges in a tit-for-tat fashion is not associated with how they perceive the quality of the friendship. However, adolescents' exchange orientations were significantly associated with goals and strategies that were negative or hostile as well as those that put the needs of the individual over those of the friend. Closer examination of gender differences in these associations revealed that the patterns were significantly stronger for females than males. This suggests that females with a higher exchange orientation tend to choose more instrumental, negative, and self-interested goals and strategies than do males with a higher exchange orientation.

In contrast to exchange orientations, adolescents' communal orientations were significantly associated with their perceptions of friendship quality in all analyses.

This association was particularly strong, which suggests that adolescents who focus on meeting the needs of their friends view the same friendship in a positive way. When examining associations with the conflict strategies, adolescents' communal orientations were positively associated with goals and resolution strategies that focused on maintaining the friendship and negatively associated with those strategies that were negative or hostile. However, these associations were found to be significantly stronger for males than females. Males with a higher communal orientation tend to have a higher endorsement of goals and strategies that focus on maintaining their friendship than do females with a higher communal orientation.

Finally, the analyses involving the mediation models suggest that, for the most part, adolescents' goals and strategies do not act as mediators between their relationship orientations and perceptions of positive friendship quality. Many of the direct effects (e.g., between predictor and mediator or mediator and outcome or predictor and outcome) followed the same pattern as the correlational analyses. The only model with a significant indirect effect was with exchange orientation and revenge goals. This indirect effect suggests adolescents with a higher exchange orientation are more likely to choose revenge goals which in turn are associated with lower positive friendship quality. Examination of gender differences in each of the mediation models further revealed that this indirect effect was significant only for males.

The results of the current study suggest that understanding adolescents' expectations for reciprocity provides additional information about friendship involvement. In addition, the gender differences highlight the importance of

considering gender as a variable of interest rather than simply controlling for it. A closer discussion of the results is offered in the next chapter, with a focus on exchange and communal orientations as central constructs in adolescents' friendships and the meaning of the gender differences.

## Chapter V: Discussion

There has been extensive research on friendship throughout the lifespan, ranging from the benefits of having friends to how friendship buffers individuals from negative peer group experiences. Two of the central features of friendships that have been reported across individuals of all ages are the constructs of reciprocity and conflict (Selman, 1980; Youniss, 1980; Youniss & Haynie, 1992). Individuals' use of rules governing reciprocity, or the exchange of resources or favors, as well as instances of conflict occur in all friendships, regardless of their quality. These two constructs, presumed to be influential in the ways that individual process and understand social information, are particularly important during adolescence. In particular, research suggests adolescence is the time in which changes occur in understanding reciprocity and reacting to conflict. However, the associations between social cognitions about reciprocity and friendship quality as well as associations between social cognitions about conflict and friendship quality are not clear from past research. In addition, it appears that no one to date has examined both of these constructs simultaneously, even though arguments have been made that social cognitions are important to understanding transgressions within the personal domain (Arsenio & Lemerise, 2004; Nucci, 2004). The current study sought to fill this gap by examining adolescents' social cognitions about reciprocity and conflict situations over personal transgressions with their close friend. This could advance our understanding of how these two constructs are associated with overall positive friendship quality.

Two research aims were the primary focus of the current study. The first research aim focused on whether adolescents' tendencies to approach friendships with an exchange and/or a communal orientation predicted their perceptions of friendship quality. Within this first research aim, there were two research questions that examined associations between exchange and communal orientations and friendship quality (research question 1) and whether gender moderated any of these associations (research question 2). The second research aim focused on adolescents' endorsements of three social goals and four resolution strategies in response to conflict scenarios involving a close friend. This second aim examined whether these social goals or resolution strategies were associated with and/or mediators of the associations between exchange and communal orientations and perceptions of positive friendship quality. To address this second research aim, three specific research questions were examined. Social goals were examined as mediators of associations between exchange and communal orientations and friendship quality (research question 3) while resolution strategies were examined as a mediator of exchange and communal orientations and friendship quality (research question 4). Finally, gender was examined as a moderator of the paths in each of the mediation models for research questions 3 and 4.

Looking generally, the findings in relation to the research questions were somewhat disappointing. Out of the 28 mediation models, only one revealed a significant indirect effect, which suggests that this single indirect effect should be interpreted with caution. However, the simple correlations and associations revealed a fuller picture of friendship in young adolescents, particularly with regard to their



exchange and communal orientations. In particular, several gender differences are of note and will be discussed.

The two constructs on which particular emphasis was placed in the planned analyses were exchange and communal orientations as facets of how adolescents think about reciprocity. Therefore, the following sections are organized by each of these relationship orientations separately. In addition, a discussion of gender differences is offered. In each section, a summary and interpretation of the results is presented. Finally a series of limitations will be presented followed by future directions, implications and conclusions.

### **Exchange Orientation as a Central Construct**

A factor analysis with an oblique rotation was run on the exchange and communal items to examine whether the original factor structure derived from studies of adults (Clark et al., 1987; Murstein & Azar, 1986; Murstein et al., 1987) was replicated. Analyses with both the first nominated friend and second nominated friend data revealed very poor fitting factors for the items originally identified for the exchange and communal orientation scales. However, these analyses also identified weak items and items that cross-loaded on factors that could be deleted. This justified the use of a smaller number of items for each factor. The smaller number of items yielded a better fit for both the exchange and communal orientation scales. It is of note, however, that the fit indices for the final factor solution did not quite meet the standards set forth by Hu and Bentler (1999), but they were close. However, the reliabilities for the final exchange and communal orientation scales for both the first and second nominated friends were above 0.72, which suggests that even with the

smaller number of items, the relationship orientations could be measured reliably. This can be particularly helpful for future researchers who want to assess relationship orientations, but are concerned about survey fatigue or have a limited time to administer the surveys. The combined scale of 11 eleven items could be administered quickly and represents an advance in conceptualizing the meaning of reciprocity among adolescents.

**Exchange orientations and friendship quality.** The results from the correlations and the regression models in the first two research questions suggest that variations in adolescents' exchange orientations are not associated with variations in how they perceive the quality of their friendships. This same pattern was revealed for both males and females. Previous work by Jones and Costin (1995) revealed that adolescents who expect more tit-for-tat exchanges with their friends had lower friendship satisfaction; this pattern was not revealed in the current study. One explanation for the discrepancy with past research is that Jones and Costin focused on a single dimension of satisfaction in friendship whereas the current study focused on multiple dimensions aggregated into a single measure of quality, which was richer in meaning. The fact that adolescents' exchange orientations were not directly associated with overall positive quality of their friendship reinforces the importance of specifically examining multiple dimensions of friendship quality in future research.

Furthermore the non-significant results for exchange orientation suggest that during adolescence it may be acceptable to have some tit-for-tat approaches to friendship with a close friend. In other words, the tendency to approach friendship

with a high or low exchange orientation does not necessarily indicate a that poor quality relationship will result.

Adolescence is a time in which Selman (1980) and Youniss (1980) theorized that individuals start to change how they think about reciprocity, moving from tit-for-tat expectations to more communal ones. As this shift is underway, some adolescents may adopt a more communal orientation sooner than others or may combine the two orientations. Over time, many adolescents will move away from tit-for-tat expectations and may even chastise their friends for having higher exchange orientations. Once communal orientations become the norm, in a group (at least according to Selman and Youniss), holding on to a more exchange orientation might be associated with poorer quality friendships. A more developmental study that included a wider age range than this study or employed interviews with specific questions about adolescents' exchange and communal orientations could help elaborate this shift in thinking about reciprocity and its associations with friendship quality. In addition, it would be important to consider other factors or processes that may facilitate adolescents' development of reciprocity expectations. There is extensive theory and empirical evidence that other important factors, such as parent-child and sibling relationships, as well as peer group functioning all play a role in adolescents' development (Berlin, Cassidy, & Appleyard, 2008; Youniss & Smollar, 1985). Future research should focus on how these other close relationships may influence the developmental trajectory of adolescents' expectations for reciprocity.

Clearer evidence might have been obtained if it had been possible to obtain a mutual friend's perceptions of the quality of the friendship. Adolescents who are

higher in exchange orientation may place unreasonable demands or expectations on their friends, who would in turn report a lower overall friendship quality. This question could not be answered in the current study given the small sample size of mutual dyads. However, it does suggest that future research should focus on using a dyadic framework to further understand the associations between exchange orientations and ratings of friendship quality.

Conducting dyadic research could reveal potentially important information about how friends' relationship orientations influence each other's perceptions of friendship quality. For example, it is possible that adolescents who have *similar* levels of exchange (or communal) orientations may report high friendship quality. This would be in line with the "birds of a feather" hypothesis, or that friends are drawn to those who are similar to themselves (Rubin, Lynch, Coplan, Rose-Krasnor, & Booth, 1994). However, choosing a friend with a predominantly different orientation could represent complementarity. Hinde (1997) argued that close relationships are not characterized by either similarity or complementarity, but rather a combination of the two. The extent to which adolescents differ in their relationship orientations could be detrimental to the relationship. For example, a relationship in which one member of the dyad had a high exchange orientation while the other member had a high communal orientation could be characterized by a high degree of disagreement, conflict, and low friendship quality. In this case, each person has extremely different expectations for how favors are to be returned or needs met, so each person would feel unsatisfied. These are empirical questions that warrant future attention.

There is a lot of research on similarity in friendship, but very little on complementarity; however, neither has been examined in regards to relationship orientations, for example. Dyadic analyses are designed such that both similarity and complementarity can be estimated statistically (Kenny, Kashy & Cook, 2006). These analyses would further advance the understanding of the influence adolescents' relationship orientations have on their friendships. Further, the norms within the larger peer group for exchange and communality may also be important in influencing the enactment of these orientations in a particular friendship.

Even though the correlations and regression analyses revealed a non-significant association between exchange orientation and friendship quality, it was anticipated that an indirect effect might exist. Therefore, the second research aim was to examine whether the association between relationship orientations and friendship quality was through the indirect path of social goals or resolution strategies. Under the framework of the social information processing model and social domain theory, adolescents' relationship orientations could be associated with the type of goals and strategies selected following a conflict, which in turn could be associated with the quality of adolescents' friendships (Arsenio & Lemerise, 2004; Crick & Dodge, 1994; Nucci, 2004). Of the 28 mediational models for the whole sample, only one returned a significant indirect effect. This significant model was the one which included exchange orientation as a predictor and revenge goals as the mediator.

In this significant mediation model, the direct effect from exchange orientation to friendship quality was non-significant, which corresponds to results from the correlational and regression analyses. However, the path from exchange

orientation to revenge goals was positive and significant, such that adolescents with a higher exchange orientation expressed a desire to get back at their close friend after a conflict. In addition, the path from revenge goals to friendship quality was negative and significant, such that adolescents who wanted to get back at their friend following a conflict also reported that their friendship was of lower quality. Finally, the test of the indirect effect was significant. This suggests that adolescents with an exchange orientation will not experience poorer quality relationships, unless the exchange orientation is accompanied by a desire to seek revenge on a close friend. This significant indirect effect supports the idea that constructs in an adolescents' social information processing database (exchange orientation) facilitate the type of goals they endorse (revenge goals) which in turn are indicative of the overall quality of the friendship.

This particular pattern has been shown in previous cross-sectional work involving the social information processing model, and in particular the database. Dwyer and colleagues (2010) found that early adolescents' level of anger following a provocation was a significant mediator between attachment to their mother and friendship quality. Adolescents with a less secure attachment who also expressed anger in response to a provocation with a friend felt that the friendship was of poor quality. The significance of the mediation model in the current study highlights an important point -- that there can be a significant indirect effect without a significant direct effect. When examining social cognitions about friendship, looking only for direct effects can mean losing information about how adolescents think about friendship. The effect of the exchange orientation operating through revenge goals

suggests that there is a more nuanced process. Individuals who have exchange orientations but do not express them in this especially negative way (by wanting to “get back at a friend”) do not suffer a diminution in friendship quality. Future research should consider a broader range of aspects of adolescents’ social cognitions about friendship. Some of these should have a negative tone (such as less extreme types of revenge). This is discussed further later in the Discussion. Adolescents’ views about how to develop and maintain trust with one another even in the presence of exchange orientations should also be considered.

Some caution should be exercised when interpreting this single significant mediation model. Given that it was the only significant model, and that the test of indirect effect did not meet the Bonferroni correction resulting in a p-value of less than .001, there is an issue with Type I error due to multiple mediational models. To look further at this issue, a mediation model was run in which revenge goals were used as the predictor and exchange orientation was the mediator. In this case, the coefficients remained the same for all paths, but the Aroian test of the indirect effect was non-significant ( $t=0.90$ , ns). Even though the data is cross-sectional and the model with exchange orientation and revenge goals revealed only one significant indirect effect, the direction of the effect does seem to be from exchange orientation to revenge goals and then to friendship quality.

This analysis provides some corroboration of previous work in which the steps of the social information processing model were found to take place in a particular order (Crick & Dodge, 1994). However, the social information processing model also suggests that the associations between components of the database and

individual steps are bi-directional. This means that relationship orientations can influence social goals or resolution strategies at the same time as social goals and resolution strategies influence relationship orientations. Unfortunately, all the studies to date are cross-sectional. Since the components of the database tend to change over time, including relationship orientations, future longitudinal research could reveal whether the social information processing database can influence as well as be influenced by social goals and resolution strategies.

Another reason for caution with this particular mediation model is that the revenge goals were highly skewed. Most adolescents rated the likelihood of choosing this goal very low. One of the reasons for this may be due to the wording of the item, which was “*I would be trying to get back at my friend.*” This item is strongly negative and indicates a desire for obvious revenge. However a negative, albeit more socially desirable, worded item in future research might elicit more variability in responses. For example, “*I will remember how badly he has treated me the next time my friend wants something*” is also negatively worded, but leaves the interpretation of what kind of negative action up to the participant.

Finally, the lack of significant indirect effects for the mediational models suggests that exchange orientations are not relevant to adolescents’ perceptions of friendship quality except as they operate through revenge goals. Adolescents who expect their friends to return every favor in kind and also desire to seek revenge on their close friends will likely have poor quality friendships. The other non-significant models suggest that the remaining social goals and resolution strategies are less relevant to perceptions of friendship quality. However, there may be additional



processes or mediators not measured here through which adolescents' exchange orientations are associated with friendship quality. For example, adolescents who perceive their school to be less supportive of conflict resolution tend to use more aggressive behaviors when responding to their own conflicts (LaRusso & Selman, 2011). This suggests that school climate plays a role in how adolescents react to negative peer experiences, but school climate could also be associated with adolescents' development of relationship orientations. These processes and contexts should be a focus of future research.

**Exchange orientations and conflict strategies.** The bi-variate correlational results help to clarify the meaning of these processes. These analyses suggest that adolescents' exchange orientations are associated with some goals and strategies and not others, but the results vary by gender. First, for the sample as a whole, adolescents' exchange orientations were significantly and positively associated with the goals focused on revenge and control as well as resolution strategies that were hostile, or focused on compromise and self-interests of the participants. However, when looking at the correlations separately by gender, the associations were only significant for females. Females with a higher exchange orientation wanted to be more controlling, thought of getting back at their friend, chose resolution strategies that were hostile or put their needs above those of their friend. This encompasses all the goals and strategies with a negative or self-assertive tone. These results are in line with recent work by McDonald and Lochman (2012) on the trajectories of revenge goals during childhood and early adolescence. While they did not report gender differences, these authors reported that adolescents who believe that they will obtain

their desired outcome by using aggressive and hostile behaviors also reported increasing levels of revenge goals over a three year period. Female adolescents with a high exchange orientation have a high expectation that all favors and offers of help will be returned in kind. It may be that in order to achieve this outcome of tit-for-tat exchanges, females choose more vengeful and hostile goals and strategies. Although exchange orientations do not appear to be directly associated with friendship quality, exchange orientations do appear to be an important aspect of a negative approach used by some females.

In previous research, having a higher exchange orientation has been associated with negative characteristics such as being forceful, assertive, or dominant, particularly for females and not males (Jones & Costin, 1995). In the current results, the goals and strategies that are more positively associated with exchange orientation represent aggressive, controlling, or assertive approaches that either put the needs of the individual above those of the friend or reflect a desire to be in control. Therefore, these correlational analyses are congruent with past research in that these associations were significant for females and not males.

The fact that this pattern of correlations was found to be significant only for females and suggests that in short, keeping track of what each person has put into the relationship may be particularly detrimental for females and not males. When presented with a conflict or disagreement, females with a higher exchange orientation choose controlling, hostile and self-assertive goals and resolution strategies. Researchers are often interested in individual differences that will explain why some adolescents choose negative strategies for dealing with conflict. The extent to which

females keep track of how much they and their friends put into the relationship appears to be an individual difference that helps to explain females' choices of social goals and resolution strategies.

There may be additional factors that future researchers should consider as potential goals and strategies females prefer. For example, some females with a higher exchange orientation may also be higher in relational aggression, which means they would have a tendency to engage in behaviors that are damaging to close friendships (Murray-Close, Ostrov, & Crick, 2007). This tendency towards relational aggression may moderate the association between exchange orientation and the negative goals and strategies for female adolescents. In addition, the conflicts depicted in the current study represent transgressions in the personal domain (Nucci, 1981). Thus, individual differences in how adolescents justify the use of certain goals and strategies would also be important to consider. It may be that males and females differ in their use of domain rules to justify whether it is acceptable to seek revenge on a close friend over a personal disagreement.

Finally, the emotion concomitants of conflict are important in the process but have received very little attention in this area. There is recent evidence that the emotions of individuals involved in a provocation situation influence the types of attributions, goals, and strategies that are selected (Harper et al., 2010; Lemerise et al., 2006). The gender differences revealed in the current study may be due to individual differences in emotional experiences or emotion regulation.

In contrast to females, males with a higher exchange orientation do not appear to be especially likely to choose controlling, hostile, or self-assertive goals and

resolution strategies with their friends. One explanation is that males may choose to ignore some conflicts with friends in favor of continuing an activity. The conflict scenarios used in the current study were relatively benign and may be ones males are likely to ignore. Rubin, Bukowski, and Parker (2006) offer another suggestion in that males tend to socialize more within larger peer networks, and as such conflict resolution “may be aided by third party mediators and allies in the larger group context” (Rubin et al., 2006, p.597). Future researchers should examine whether the associations between exchange orientation and goals and strategies for males differs based on the type of conflict as well as the availability of other friends or allies during the conflict.

### **Communal Orientation as a Central Construct**

**Communal orientations and friendship quality.** In contrast to the results for exchange orientations, there was a significant association between communal orientation and friendship quality. Adolescents with a higher communal orientation also reported higher positive friendship quality. These results are in contrast to the single previous study on adolescents’ relationship orientations, which showed a non-significant correlation or association between communal orientations and friendship quality (Jones & Costin, 1995). There are several explanations for the discrepancies in the findings.

First, the differences in the findings for communal orientation and friendship quality could be explained by the varying assessments of *friendship quality*. As mentioned in the previous section, Jones and Costin (1995) had adolescents respond to a single dimension of friendship quality, satisfaction. Results from the current

study suggest that adolescents' expectations of wanting to meet the needs of their close friend are associated with a richer assessment of friendship quality that included *multiple* positive dimensions rather than a single dimension.

Second, the difference in findings for communal orientations and friendship quality could be attributed to the methodological innovation in the current study. Adolescents were asked to think about a *specific* friend when answering all survey items. The previous non-significant results were obtained in studies where adolescents were asked to think about their friendships in broad, general ways rather than about a specific friend. Adolescents not only have diverse experiences with separate friends, but they also use different rules and process ambiguous provocation situations in unique ways for specific friends (Burgess et al., 2006; Kiesner et al., 2005). Therefore, the results of the current study add to this existing literature by suggesting that it is imperative to ask adolescents to think about a specific friend when responding to items about friendship.

There are a few caveats to mention in regards to these findings. First, adolescents were asked to think about a specific friendship, but it could not be established whether all the friendships were mutual (due to a low participation rate and few mutual dyads). There is evidence which suggests that mutual and non-mutual friendships are different from one another (Newcomb & Bagwell, 1995). Therefore, some caution should be urged when interpreting these specific effects. The results might be different for relationship orientations and friendship quality for mutual and non-mutual friendship. Second, with the increase in opposite-sex friendships during adolescence (Connolly, Furman, & Konarski, 2000), the findings

of the current study might be different had participants been permitted to nominate friends of the opposite gender. Opposite-sex friendships during adolescence tend to be less stable than same-sex friendships (Chan & Poulin, 2007), therefore it would be interesting to examine how associations between relationship orientations and goals and strategies might be different for same-sex compared to opposite-sex friendships.

Finally, the high correlations between ratings of communal orientations with the friend as a focus and ratings of quality of the friendship in the whole sample and separately by gender (discussed below) suggest that these two constructs might not be distinct but two ways of asking about the same feelings or attitudes.

The evidence for this includes the following. An examination of the items on the final communal orientation scale revealed that the words “*help*” and “*needs*” were used frequently. The central thesis of communal orientation is to help those when they need it, so this is reasonable. However, “*help*” and “*needs*” also appear in several items on the friendship quality scale. In fact, one of the subscales used in the composite for positive friendship quality in the current study focuses specifically on giving help and aid to friends, as suggested by Bukowski and colleagues (1994). This suggests that adolescents respond similarly to items for communal orientations and to items about friendship quality (especially when both are stated to reference the same friendship) because these are not distinct constructs. The high correlation between communal orientation and positive friendship quality may be the result of shared-method variance from relying on all self-report data. To obtain a clearer understanding of the association between communal orientation and positive friendship quality, future research should obtain large enough samples to make it

possible to use friends' reports of friendship quality. This research should also include cognitive interviewing of subsamples about the ways in questions are being interpreted and answered. This approach of dyadic research and qualitative methods could indicate whether and how adolescents' communal orientations (viewed as a general approach to relationships) influence how they and their friends perceive the quality of a specific mutual friendship.

It is also possible that adolescents' communal orientations may be context-specific. In other words, adolescents with a high communal orientation have a desire to help their close relationship partners. However, whether they actually do engage in helping their friends will depend on the situation. It is plausible that adolescents may demonstrate varying levels of communal (or even exchange) orientations depending on the context of the situation, such as transgressions of social-conventions that may embarrass a friend (Turiel, 1983). In the current study, adolescents completed surveys in the following order: friendship quality, relationship orientations, and responses to conflicts. However, it would be interesting to present adolescents with a conflict scenario first and then assess relationship orientations as well as social goals and resolution strategies in relation to this context. The experimental studies conducted by Mills and Clark provide evidence that individuals can be led to desire a more exchange or communal relationship with an unknown person (Clark, 1986; Clark & Mills, 1979; Clark & Waddell, 1985). It might be possible to use two differently contextualized versions of a conflict that are from the same social domain. Specifically, adolescents could be given one of two scenarios: deciding whether to help a friend with his or her homework when the adolescent is (or is not) competing

to get the best grade in the class, or when other peers are (or are not) available to help, or when the teacher has encouraged (or forbidden) collaborative work. Depending on the context of the conflict, adolescents may choose different goals and strategies, or even report different levels of communal orientation. However, this is a question for future research.

In addition to the significant main effect, results also revealed a significant interaction between gender and communal orientation in predictions of friendship quality. Specifically, for both males and females, as communal orientations increased, so did ratings of overall positive friendship quality. However, the association was stronger for males than females, as revealed by the higher correlation between communal orientation and friendship quality for males. Previous research and results of the current study have shown that males tend to give lower average ratings to their friendships' quality than females (Rose & Rudolph, 2006). However, the significant interaction between communal orientation and gender suggests that at higher levels of communal orientations, males and females report similar levels of friendship quality. Previous researchers have only looked at main effects of gender and communal orientation on friendship quality (e.g., Jones & Costin, 1995). This significant gender moderation extends the existing literature on both friendship quality and relationship orientations. It suggests that researchers should consider gender not only as a main effect, but also as a potential moderator.

To summarize, it is common for researchers to put gender into their analyses as a control variable and argue that this is necessary given the strong, consistent gender differences in friendship and even relationship orientations. Yet, rather than



simply controlling for gender differences, this study showed the value of including analyses separately by gender to uncover specific mechanisms or processes that might shed light on the consistent gender differences in friendship quality (Rose & Rudolph, 2006 for review). The current results suggest considering relationship orientations as one mechanism through which to explain gender differences in this aspect of social behavior.

Specifically individual differences in communal orientations appear to be especially important to males' perceptions of the quality of their friendships. The previously discussed findings in the current study that males report lower communal orientations than females suggest that males may not place as much importance on meeting the needs of a close relationship partner as do females. However, these patterns represent overall mean differences for all males and neglect individual differences in communal orientations. The significant interaction between gender and communal orientations suggests that males with higher communal orientations perceive the quality of their friendship differently than males with lower communal orientations. It is possible that males with a higher communal orientation are more attentive to the needs of their friends as well as the qualities that make a high quality friendship. In contrast, females with a higher communal orientation perceived the quality of their friendships to be higher than those with low communal orientations; however the difference was not as strong as it was for males. This suggests that there may be other social cognitive factors which are more important in adolescent females' perceptions of friendship quality, including exchange orientations, the context of the conflict, and even emotions of the individuals involved in the conflict.

Selman (1980) and Youniss (1980) reported that reciprocity was a consistent theme in friendships across the lifespan for both males and females. The current study lends support to relationship orientations being one mechanism through which to understand gender differences in friendship quality. However, future research should focus on how mutual friends perceive one another's level of communal orientation, moving beyond mutual friends' perceptions of quality in the friendship. Even without mutual friend data, breaking down the measure of friendship quality into separate subscales and relating each to the communal orientation could provide valuable insight.

As stated previously, none of the mediation models involving communal orientation revealed a significant indirect effect for goals or strategies. It is not appropriate to interpret the non-significant indirect effects as evidence that the mediation does not hold; however, there are plausible explanations. First, the strong association between communal orientations and overall positive friendship quality was reflected not only in the correlational analyses, but also the standardized coefficient paths in the communal mediation models. This direct path from communal orientation to friendship quality accounted for a large proportion of the variance (41%) in each of the mediation models involving communal orientation. The remaining paths in the model, even those that were significant, did not account for a significant additional amount of variance. This strong association between communal orientation and friendship quality made it difficult to detect a significant indirect effect.

A second reason for the findings in the mediation models for communal orientation could be the result of shared method variance from the use of self-reports. The use of mutual friends' ratings of friendship quality as the outcome variable, which was the proposed design for this study, could have reduced these concerns. Additionally, using mutual friends' ratings of friendship quality would add to our understanding of whether social goals and resolution strategies mediate the associations between communal orientation and friendship quality.

**Communal orientations and conflict strategies.** Adolescents' communal orientations were correlated positively with relationship maintenance goals and accommodation strategies and correlated negatively with revenge goals and hostile and self-interest solutions. These associations are in line with the hypothesis that adolescents who tend to focus on meeting the needs of their close friends choose goals and strategies that will solve the conflict in positive ways without using hostile or vengeful strategies that are damaging to the friendship.

When these correlations were examined separately by gender, it was revealed that the significant associations between communal orientations and goals and strategies were stronger for males than females. Males with a higher communal orientation reported a higher endorsement for relationship maintenance goals and accommodation strategies as well as lower endorsement for revenge goals and hostile strategies than did males with a lower communal orientation. These correlations ranged from 0.42 to 0.25 for males. In contrast, for females, the same correlations were below 0.18 and non-significant. This suggests that males with higher communal orientations are likely to pursue relationship-promoting goals and

strategies. In contrast, individual differences in communal orientation within this group of females are not as important in relation to goals and strategies. Perhaps there is a kind of threshold effect. Most females have sufficient communal orientation to build strong friendships. There may be some males who do not reach this threshold level of reciprocity, and they are the ones whose friendship quality suffers.

### **Associations between Goals and Resolution Strategies and Friendship Quality**

#### **Associations between and within social goals and resolution strategies.**

Particular emphasis was placed on the exchange and communal orientation scales in the current study, however there are additional results that warrant further attention. First, that the subscales for the revenge goals and hostile resolution strategies were heavily skewed is not surprising. These particular items are typically rated lower than all others (e.g., Lemerise et al., 2006) and are associated with greater conflict among friends (e.g., Rose & Asher, 1999). The variability around the mean ratings for each of the subscales for social goals and resolution strategies suggests that adolescents did distinguish between the different categories of responses. However, the low reliabilities for the accommodation, compromise, and self-interest strategies suggest that some caution should be used when interpreting the results from these scales.

In respect to the low reliabilities, the compromise strategy subscale in particular was problematic as it had the lowest internal consistency ( $\alpha = .49$ ) and was only correlated with the instrumental/control goals and the self-interest strategies. Upon further examination of the wording of the compromise items, they were found to be phrased so that for one scenario the adolescent's own desires were put before those of their friend (e.g., *I would tell him I was going to finish my library project,*

*and then I would help him with his homework*). For the next scenario, the order was reversed so that the friend's desires were put before those of the respondent (e.g., *I would say that I would go to his movie this time if I could pick the movie next time*). Similarly, each compromise item had two clauses, which survey research specialists argue makes it difficult to know whether the respondent understands the question and to which clause the respondent is answering (Tourangeau, Rips, & Rasinki, 2000). The low reliability and few significant associations with other goals and strategies may be due to adolescents not understanding the items or realizing that the compromise strategies were not always putting their own needs first.

Correlations across social goals and resolution strategies suggest that there are three sets of goals and strategies that represent similar reactions to conflicts with friends. First, there was a set of goals and strategies that focused on maintaining or promoting the friendship. These were strongly correlated with one another, and included relationship maintenance goals and accommodation strategies. Next, the strong correlations between the revenge goals and hostile strategies suggest that these exemplify negative reactions to a conflict with a close friend. And finally, the strong correlation between instrumental/control goals and self-interest strategies point to a set of reactions that put the needs of the individual above those of the friend or the friendship. These three themes represent several dimensions of friendship that have been examined throughout the history of friendship research. In addition, they offer a broad range of aspects of social information processing that have been shown to be differentially associated with friendship quality (e.g., Lemerise et al., 2006; Rose & Asher, 1999). The next section will examine whether the results of the current study

offer any information as to how adolescents' goals and strategies in regards to a conflict are associated with their perceptions of friendship quality.

**Associations between social goals and resolution strategies and friendship quality.** It was hypothesized that higher ratings of relationship-promoting goals and strategies, such as relationship maintenance goals and accommodation and compromise strategies would be positively associated with friendship quality. In contrast, it could be expected that higher ratings for instrumental/control or revenge goals and hostile or self-interest strategies would be negatively associated with friendship quality. Results lend some support to these expectations in that adolescents who had the goal to maintain their relationship or resolve the conflict with accommodating strategies also reported having higher quality friendships. In contrast, adolescents who conveyed a desire to get back at their friends following a conflict reported lower friendship quality. The remaining non-significant associations with instrumental/control goals and the compromise, hostile, and self-interest resolution strategies suggest that these particular goals and strategies appear not to be associated with how adolescents view the overall *positive* qualities of their friendship.

These results are a little different than those reported by Rose and Asher (1999), who only found a significant negative association between revenge goals and positive friendship quality. An explanation for these differences is that in the current study adolescents thought about a specific friend when reporting about their goals, strategies and friendship quality. Thinking about a specific friend may prompt adolescents to draw upon specific memories of conflicts and how they were resolved. This helps explain the additional significant correlations for relationship maintenance

goals and accommodation strategies. It is also possible that certain norms and expectations regarding friendships may have changed since the mid-1990s when the Rose and Asher study was conducted.

### **Gender as a Moderator of the Mediation Models**

The second research aim was to examine whether adolescents' endorsements of specific social goals and strategies mediated the association between relationship orientations and overall positive friendship quality. Only one of the mediation models revealed a significant indirect effect, which has been discussed previously. However, the pattern of gender differences in how relationship orientations were associated with social goals and resolution strategies suggests that moderated-mediation by gender for the individual paths in the mediation models. Researchers have pointed out that a significant moderation is possible without a significant main effect (Carte & Russell, 2003). Therefore, it is possible for gender to act as a moderator of the direct effects in the mediation models (e.g., predictor to mediator, and mediator to outcome) as well as the indirect effect.

**Exchange orientations.** When examining gender differences in models using exchange orientation as the predictor, consideration should be given to the direct and indirect effects separately. First, the results of gender differences on the direct effects reveal similar patterns as the previously presented correlational results. For both male and female adolescents, having a higher exchange orientation was associated with greater endorsement of instrumental/control goals, revenge goals, and hostile solutions. In contrast to the correlational analyses, these paths were not significantly different between males and females when examined in the mediation models. In the

correlational analyses, females with a higher exchange orientation more strongly endorsed these negative goals and strategies than did males. One explanation for the difference in these two sets of analyses is that the mediation models simultaneously take into account all the associations of the models (e.g., all direct and indirect effects) whereas the correlations only account for the bi-variate association. In addition, the direct paths in the mediation models from exchange orientation to compromise strategies and from revenge goals to friendship quality were significant for males, but not females. However, these paths in the mediation models were not significantly different between males and females. This is the same pattern previously discussed in the correlational analyses.

Finally, there were significant gender differences between males and females for the path from exchange orientation to self-interest strategies. Specifically, females with a higher exchange orientation more strongly endorsed strategies that put their needs above those of a friend than did males. This pattern of results was discussed previously in regards to correlational gender differences and suggests that females with a higher exchange orientation tend to focus on their own needs over those of a friend in response to a conflict.

Gender differences were also examined in regards to the indirect effects for the mediation models involving exchange orientations as a predictor. Similar to the mediation analyses on the whole sample, when run separately for males and females, the only model that revealed a significant indirect effect was the one in which revenge was the mediator. Specifically, the indirect effect was significant for males, but not females; however the difference between males and females was not significant.



Even though the indirect effect was not significantly different between males and females, it does raise an interesting point in regards to this particular model. The previously discussed correlational differences revealed that females with a higher exchange orientation reported a greater likelihood of choosing vengeful goals than did males; this is the path a in the moderated-mediation model. Yet, the indirect effect was significant for males and not females. This can be explained by the association between revenge goals and overall friendship quality, or path b in the moderated-mediation model. A closer examination revealed that males who chose revenge goals perceived the quality of their friendship to be lower ( $r = -.31, p=.01$ ). The same association was non-significant for females ( $r = -.07, ns$ ) and significantly different from males ( $Z=2.69, p=.007$ ). The difference between males and females in path b could explain why the moderated-mediation effect was significant for males and not females. However, as stated previously, the significant indirect effect for the sample as a whole suggests that for *both* male and female adolescents, having an exchange orientation does not mean that adolescents will not have poorer quality relationships, unless the exchange orientation is accompanied by a strong desire to seek revenge on a close friend.

The fact that one path in the mediation models involving exchange orientations was significantly moderated by gender suggests that some caution should be used when interpreting the result. Several of the paths in the mediation models were stronger for males or females, but they were not significantly different from one another. This suggests that there needs to be more work focusing on what these constructs mean. Do males and females think about exchange orientations in the

same way? How do they choose to use them when reacting to conflict scenarios? When do males and females consider using strategies that put their needs over those of their friend in dealing with a conflict with a close friend? Future research could include interviewing or videotaping adolescents as they engage in a computer simulated conflict with one another. Recent research has used the “cyberball paradigm” in which individuals play a virtual game of catch and assess how individuals feel when they are left out and do not receive a turn to play (Williams & Jarvis, 2006). A similar methodology could be applied in which adolescents engage in a virtual conflict with a close friend. In the conflict, adolescents would be faced with deciding whether their needs were more important than those of their friend. Adolescents could be stopped at several points during the virtual conflict to assess relationship orientations, goals and strategies, and friendship quality so that gender differences could be examined.

**Communal orientations.** Gender differences in the mediation models involving communal orientation revealed a similar pattern as those described previously in the correlational analyses. First, the direct effect from communal orientation to friendship quality was significant for both males and females. However, the association was significantly stronger for males. This same pattern was found for all seven moderated mediation models involving communal orientation. The replication of the previous correlational differences for males and females lends further support to the idea that communal orientations are more important to the quality of male friendships than they are for female friendships.

There were additional direct paths that were significant in the models involving communal orientation, but most were not different between males and females. Specifically, the paths from communal orientation to accommodation, hostile, and self-interest strategies were significant for males, but were not significantly different than those for females. This suggests that when considering how adolescents' social goals and resolution strategies mediate their communal orientations and perceptions of friendship quality, males and females do not appear to differ. The path from communal orientation to relationship-maintenance goals was significant only for males and was significantly stronger than the same path for females. This also coincides with the previously described gender difference that males and females with a high communal orientation more strongly endorse goals that will maintain the relationship, but the association is stronger for males than females.

**A synthesis of gender differences.** As mentioned previously, the gender differences from this study underscore the importance of considering gender as a construct of interest in studies of adolescent friendships rather than controlling for the differences. There were no a priori hypotheses regarding gender differences for this study, yet the results revealed interesting patterns that varied for males and females.

Specifically, the patterns of correlations suggest that communal orientations may be particularly important for maintaining high quality friendships among adolescent males. In contrast, exchange orientations seem to be particularly relevant to how females approach conflict with their close friends. These differences were unexpected and not clear in previous work on gender differences in adolescent friendships. Therefore, the interpretations offered here are broad and speculative.

However, it is apparent that there needs to be more work in the area of gender differences in relationship orientations and conflict. It may be that the attitudes of the larger peer group may serve as a context for both genders. Or it may be that when thinking about goals and strategies following a conflict, other individual difference factors play a larger role for girls. The correlations found in the current study underscore that not *all* males will endorse revengeful or self-interest strategies just as not *all* females will endorse relationship promoting goals and strategies. Rather it seems as if the ways in which adolescents think about reciprocity with a close friend is associated with the types of goals and strategies that they endorse.

### **Contributions**

While there are a number of limitations of the current study (which are discussed below), there are a number of contributions that should be noted. First, this seems to be the first study that asked adolescents to think about a *specific* friend when reporting on their relationship orientations. Research suggests that adolescents perceive even their closest friends to be different in terms of friendship quality (Kiesner et al., 2005) and also report using different rules to get along with close friends compared to other friends (Biegelow et al., 1992). Therefore, it is possible that adolescents have different levels of exchange and relationship orientations with each of their close friends. The results of the current study have the potential to further our understanding of how adolescents think about reciprocity in their close friendships rather than friendships in general.

Adolescents were also asked to think about the same friend when they reported on their perceptions of friendship quality and goals and strategies. Previous

researchers have shown that adolescents' social information processing varies when they are asked to think about a specific friend compared to an unidentified peer for hypothetical provocation situations (e.g., Burgess et al., 2006). This suggests that adolescents' social cognitions vary depending on the context in which they are assessed. The results of the current study help expand the existing literature on adolescent conflict by suggesting that adolescents endorse social goals and strategies based on the relationship orientations they have for their close friend.

The current study also contributes to the literature by further explaining how males and females differ in their friendships. Specifically, several associations between relationship orientations and social goals and strategies were different for males and females. This underscores the importance of considering gender differences rather than controlling for them, and advances the literature on the differences in male and female friendships.

Finally, the data collected has a number of possibilities for future analysis – comparing first friend to second chosen friend, looking at age differences (which may interact with gender differences), considering exchange and communal orientation in the same analyses as well as an interaction between the two, looking at clusters of individuals sharing common orientations, goals, and strategies, and examining curvilinear associations between features of friendship and friendship quality.

### **Limitations**

There are several limitations to the current study. The first limitation was the inability to identify a sufficient number of mutual friends due to the low participation rate. The participation rate of this study was low compared to other studies focused

on mutual friendships of early adolescents (e.g., Wojslawowicz Bowker et al., 2006). Much of the previous work on relationship orientations either used relationships that were contrived through experimental instructions or simply asked participants respond to items about their friendships in general. There is a body of literature suggesting that there are differences between mutual and non-mutual friends, particularly during the adolescent period (Newcomb & Bagwell, 1995). It had been a goal of the current study to examine the specific research questions with mutual friends so that this gap in the literature could be addressed. Fortunately, the research questions could still be addressed without the identification of mutual friend, but it is a limitation that this gap in the literature could not be addressed. Also, limiting adolescents to only same-sex friend nominations limits the generalizability of the current findings. Allowing same- and opposite-sex nominations in a future study could reveal important differences in how adolescents approach these two types of friendships. In addition with the low participation rate, the final sample size of 198 might be too small to detect significant effects, particularly when looking at gender as a moderator.

Because of the lack of mutual friend pairs, the second limitation was the reliance on self-report data for all measures. Adolescents are reliable reporters of their own social cognitions (Crick & Dodge, 1994), which is why the original analyses used adolescents' own reports of their relationship orientations, social goals, and resolution strategies. However, the use of a mutual friend's perceptions of the quality of the friendship as the outcome variable would have strengthened this study and reduced the likelihood of shared method variance. As discussed previously, the

strong association between communal orientation and perceptions of positive friendship quality was difficult to interpret because similar wording was used in the self-report instruments for the two scales that were supposed to be measuring distinct constructs.

Third, the reliabilities for some of the subscales were low. The overall positive friendship quality scale was used for all the analyses and had an acceptable reliability estimate. However, the companionship scale and the security scale (which were used to create the overall positive quality scale) had lower reliabilities than previous work (Bowker & Rubin, 2009; Bukowski et al, 1994). It is unclear why these two scales had such poor internal consistency. Companionship is one of the features of friendship that is found on every measure of friendship quality (see Furman, 1996 for a review). The security scale on the measure in the current study focused on being able to talk to a friend about problems and also having security in that the friendship will continue even when faced with disagreements or conflict. These are dimensions of friendship that both children and adolescents say are important (Selman, 1980; Youniss, 1980; Youniss & Haynie, 1992), yet there was poor consistency in how adolescents responded to the items for the companionship and security scales. On the positive side, these were used here as part of a larger scale. If in the future it appears desirable to consider these components of friendship quality separately, these scales will have to be reexamined.

In addition to the friendship quality scales, reliabilities for several of the subscales for the resolution strategies were very low. Specifically, the accommodation, compromise, and self-interest resolution strategies had reliability

estimates lower than 0.53. One explanation for these low reliability estimates is that only four scenarios were used due to time constraints. Previous researchers reported reliabilities were all above 0.92, but they used 30 scenarios (Rose & Asher, 1999). Based on the low estimates in the current study, caution should be taken when interpreting the results. At least as likely is that the wording of some items was complex (including two clauses) and may have been difficult for this age group to read and understand. Similarly, the few findings relevant to social goals can be attributed to poor item wording that did not address social goals as the arousal states Crick and Dodge (1994) proposed. Careful consideration of the wording and response formats for these items should be undertaken in future research.

Along with the goals and strategies, the fourth limitation has to do with the use of hypothetical scenarios. The use of scenarios to assess individual differences in social information processing has been effective over the years, particularly in the specific context of conflict scenarios (Chung & Asher, 1996; Rose & Asher, 1999, 2004). More importantly, individual differences in social information processing have been replicated by different researchers and different methodologies (e.g., scenarios depicted in videos versus stories; see Orobio de Castro et al., 2002 for review). However, the responses and ratings that adolescents give for the goals and strategies might vary depending whether the conflict had taken place in real life between two friends. In addition, the findings from the current study can only be generalized to a narrow category of adolescent social experiences, that is benign conflict scenarios. The scenarios covered mild disagreements over maintaining reciprocity, a friend in need, disagreeing over resources, and exclusivity. These



represent the type of conflicts that can happen on a daily basis among friends (Collins & Laursen, 1992), but limit the generalizability of the findings. There are other types of disagreements that adolescents can have with a close friend which may be more severe in nature, such as sharing an intimate secret with others, and could cause more damage to a friendship.

Finally, since this was a cross-sectional study, the directionality of the associations cannot be inferred. Put another way, it is unclear and untestable from the current data, whether relationship orientations cause adolescents to endorse specific social goals and resolution strategies which then cause adolescents to have varying perceptions of friendship quality. The evidence supporting the social information processing model (Crick & Dodge, 1994) suggests that the order of the steps is invariant, so that the social goals would influence the resolution strategies which would influence friendship quality. However, the structure of the database also includes multidirectional feedback loops to and from each of the steps in the model. In the context of the current study, this suggests that relationship orientations could influence social goals just as social goals could influence relationship orientations. When the only significant mediation model was switched around so that the direction tested was social goals “affecting” relationship orientations, the previously significant indirect effect was no longer significant. In fact a model such as this is very difficult to test.

This alternate mediation analysis does suggest that the directionality of associations tested in the current study was appropriate. However, the developmental and social-domain theories suggest that over time components within the database,

such as relationship orientations, can be altered as adolescents try out new social goals or resolution strategies and see how effective they are in confronting different types of situations. It could be argued that an adolescent who has a high exchange orientation and uses more self-interested or assertive goals and strategies may over time learn that these are ineffective in handling conflict with a friend. As a result, the adolescent would start endorsing more relationship promoting strategies. This change could, in theory, lead to a decrease in exchange orientation. This is something for future researchers to examine.

### **Future Directions**

Several future directions have been suggested throughout this discussion, so it is important to summarize them at this point. One of the primary future steps would be to conduct a similar using mutual friend dyads. The rationale for this is that it would be the first step in examining whether adolescents' relationship orientations towards a specific friend influence how the friend perceives the quality of the relationship. In order to have a sufficient number of mutual dyads given a similar response rate, it is estimated that future researchers would need to have at least 450-500 participants to achieve the necessary power for the analyses. Losing one of the schools that was originally recruited for the current study was one of the factors that made it difficult to obtain the necessary number of participants. A similar one-time study with a sufficient number of mutual dyads could help to identify associations that would warrant further longitudinal research before allocating the time and resources for the complex process of following students over time.

Second, researchers should consider alternative patterns of associations for the constructs examined herein. The social information processing model which guided the current study also supported the direction of effects proposed in the research questions. The largely disappointing results in the current study can be the result of placing emphasis on overall orientations in searching for predictors of friendship quality. Social goals and resolution strategies were examined as mediators when in fact they have quite interesting associations on their own, specifically when one considers the gender differences.

It is possible that there are other processes or constructs that were not included in the measures that could shed light on how relationship orientations are associated with friendship quality. For example, it was mentioned previously that the gender differences for exchange orientations and goals and strategies might be explained by females' level of relational aggression. In the social information processing framework, there are individual differences that have been consistently associated with specific processing patterns, including aggressive and prosocial behavioral tendencies.

In addition, there are steps in the social information processing model that were not measured in the current study, such as adolescents' tendency to attribute hostile intent as well as other processes in the friendship literature that could be examined. For example, a recent study revealed that mutual friends who *differ* in their use of vengeful solutions report that the friendship is of higher quality, suggesting that complementary resolution strategies may be beneficial to adolescent friendships (Spencer, Bowker, Rubin, Booth-LaForce, & Laursen, in press).

Understanding whether friends use similar or complementary goals and resolution strategies in conflict with a mutual friend could add to our understanding of the associations between conflict and friendship quality. Additionally, the extent to which adolescents have similar or complementary relationship orientations may add to our understanding of the types of social goals and resolution strategies they endorse. Therefore, future researchers should consider how associations between relationship orientations, social goals and resolution strategies, and friendship quality differ based on other individual differences and processes. In particular, younger students or less popular students may employ different strategies in maintaining friendship.

Another step for future research would be to consider age differences, particularly given the theoretical perspectives that propose that reciprocity changes from early to middle to late adolescence. Furthermore, adolescents' conceptions of moral, social-conventional, and personal transgressions vary depending on the cognitive and moral maturity of the individual (Nucci, 2004). A larger sample comprised of adolescents varying in age could provide additional information on age differences and on individual differences (e.g., gender) that may be associated with developmental trajectories of changes in reciprocity and responses to conflict.

In addition to considering individual differences and other friendship processes, another future direction would be to consider a person-centered approach to analyzing the data. The variable-centered approach in the current study was designed to reveal associations between predictors and outcomes. However, the interesting patterns of correlations revealed in the current study suggest that a person-

centered approach would be especially appropriate. In person-centered analyses, the goal is to identify groups, or “clusters” of individuals who are similar to one another on a set of variables and dissimilar from individuals in the other groups or “clusters” (Muthén & Muthén, 2000). The current dataset offers a rich set of data and variables, including data on two friendships for the majority of the sample. These analyses could reveal patterns of relationship orientations that may be associated with higher quality friendships or lower quality relationships. It may be possible that there are adolescents who are high in exchange orientation and primarily choose negative goals or strategies when dealing with a conflict with a friend. In contrast, there may be adolescents who are high in exchange orientation and choose more positive or relationship-promoting goals and strategies to address the conflict. Therefore, it may be the combination of a particular relationship orientation and certain goals and strategies that would be associated with varying friendship quality. The separate aspects of friendship quality could also be explored in such an analysis rather than using a summed score. In addition, person-centered analyses could further help to disentangle how males and females differ in their exchange and communal orientations.

In addition to a cluster analysis, future researchers might consider looking at whether adolescents have the same type of relationship orientations towards their friends. It could be the case that adolescents approach each of their friendships with the same “global” relationship orientation, such as more exchange with friends or more communal with friends. In this example, it could be expected that adolescents would report similar levels of friendship quality for both friends. An alternative

hypothesis would be that adolescents have different relationship orientations for each of their friends. Perhaps they adopt a more communal orientation with one friend and more a more exchange orientation with another. In this example, adolescents with different relationship orientations may report varying levels of friendship quality for each of their friendships. While beyond the scope of the current research, the current study would lend itself to examining these questions since adolescents provided perceptions of relationship orientation and friendship quality for their two closest friends. A future direction would be to examine the data for each of these friendships more closely to establish whether adolescents use the same or varying relationship orientations with different close friends.

Future researchers should consider taking a closer look at the overlap among communal orientations and friendship quality, both the constructs and the associated measures. The consistently high associations in the correlational, regression, and mediational analyses in the current study suggest that adolescents may not differentiate between their expectations for meeting the needs of a close friend and their perceptions of the quality of the friendship. While theoretical and empirical evidence for both relationship orientations and friendship quality have some overlap, future studies are needed to shed light on whether they overlap to the point of being difficult to disentangle in a survey. Furthermore, the current study focused only on positive qualities of friendship. Adding in assessments of negative qualities of friendship, such as competition, would help to establish whether communal orientations are highly associated with both positive and negative dimensions of friendship quality.

Although this study was conducted in an ethnically mixed school, the authorities did not agree to release information about the ethnicity of the individual respondents. Thus an analysis could not be conducted comparing friendship pairs by ethnicity. This is an important aspect of the context for friendship development, and the lack of this information was a limitation. This was disappointing since so much of the previous research has been done on samples that were homogeneous in ethnic group membership but this study could not add except in a very general way to understanding friendship processes in multi-ethnic schools. In addition, the current sample was drawn from a lower-income rural area which differed from the more middle-class samples of the previous research on relationship orientations. Therefore, the results of the current study are limited in generalizability to other areas of the country or to higher income communities. Future research should try to assess whether associations in the current study vary based on ethnicity as well as income and location.

Finally, with the rise in social media communication, future research should definitely consider whether most conflicts with friends are experienced face-to-face or in an on-line atmosphere. Recent research suggests that there is a large overlap in the individuals with whom adolescents spend time online and offline (Reich, Subrahmanyam, & Espinoza, 2012). As cyber victimization increases (e.g., Rigby & Smith, 2011), it is possible that conflicts with friends also move to the online world. Future research should examine the extent to which adolescents engage in conflict with their close friends through social networking sites (e.g., Facebook), text messaging, or even video sources such as YouTube.

## **Implications and Conclusions**

In summary, the current study examined adolescents' social cognitions about reciprocity, a key feature of friendships throughout the lifespan. More specifically, adolescents reported on the extent to which they expect their close friends to return favors, assistance, or help in a tit-for-tat manner, referred to as an exchange orientation. In addition, adolescents reported on the extent to which they expect their close friends to respond to their needs as they arise, referred to as a communal orientation. These relationship orientations were further examined within the specific context of hypothetical conflict scenarios to investigate whether social cognitions about reciprocity are associated with the types of goals and resolution strategies that adolescents use. The results of this study lend support to the idea that social cognitions are important constructs to use in understanding individual differences in key features of friendship, such as reciprocity and responses to conflict.

To date, this study seems to be the first to examine adolescent relationship orientations and social information processing together using conflict scenarios. The results of this study further our understanding of the role of what is called the database in the social information processing model. Components of the database, such as relationship orientations, reflect individual differences that are associated with the types of social goals and resolution strategies that adolescents endorse. There has been some work looking at components of the database (e.g., attachment style), but cognitions about reciprocity have been generally ignored. As a key feature of friendships, reciprocity, or relationship orientations, have the potential to uncover



individual differences that may help to explain how adolescents can successfully navigate conflicts with their close friends.

This study revealed noteworthy patterns of results for reciprocity, conflict, and friendship quality, particularly with differences between males and females. And given the limitations stated above, future research should focus on replicating and expanding this research in several ways (including those noted above). However, even considering the limitations of these results, they do offer some implications for researchers, school counselors, teachers, and school administrators who may have to mediate difficulties among adolescent friends. First, it is important to consider the patterns of results that were revealed for males and females. Several findings were consistent with past research, such as females being higher on communal orientation and all subscales of friendship quality. However, the instances in which gender moderated associations between relationship orientations and goals and strategies provide evidence that gender should not simply be considered as a control variable. Further, interventions are designed they should address the specific nature of challenges in females' and males' friendships.

Today's society is full of difficult and negative experiences for adolescents. With peer victimization on the rise, particularly in the form of cyber bullying (Rigby & Smith, 2011), as well as social media changing how friendships are formed, maintained, and dissolved (van Cleemput, 2010), the results of the current study could help professionals identify potential processing biases that would lead adolescents to misinterpret conflict situations with a close friend or choose negative goals or strategies that might damage the friendship. More importantly, given that

adolescents were asked to think about a *specific* friend for all assessments, these results suggest that interventions designed to help adolescents develop successful conflict resolution strategies should focus on specific problems or biases. General or broad skills may not be effective for a specific friendship or in a particular context.

Finally, school administrators are seeing the world of friendship and conflict changing before their eyes. In order to effectively mediate or lend assistance to adolescents who are having difficulties with their friends, the results of the current study could teachers and administrators understand the complexity of this area. These individuals are often seen as a resource by adolescents. Enabling teachers and administrators to understand how some social cognitions can stand in the way of adolescents solving their conflicts with their friends could open avenues to deal with adolescents' difficulties.

Adolescence is time during which friendships become more and more important, not only as a source of fun and companionship, but also as a context through which adolescents can develop more intimate relationships. Understanding some of the processes through which these changes take place and through which adolescents can develop strong friendships are important. Social cognitions about reciprocity as well as social cognitions about how to respond to conflicts with a friend are some processes examined in the current study. The results offer evidence that considering these social cognitions of reciprocity and social goals and resolution strategies can provide important insights into how male and female adolescents perceive the quality of their friendships.

Table 1: Items for Final Exchange and Communal Orientation Scales

Item	Original Exchange	Original Communal	Final Exchange	Final Communal
1. I believe I should go out of my way to be helpful to my friend.		X		X
2. If I tell my friend my secrets, I expect my friend to tell me his or her secrets.	X		X	
3. When making a decision, I take my friend's needs and feelings into account.		X		X
4. If I show up on time to meet my friend, I become upset if he or she shows up late.	X			
5. It bothers me when my friend neglects my needs.		X		
6. I don't consider myself to be a particularly helpful person to my friend. (reverse scored)		X		
7. When buying a present for my friend, I often try to remember how much he or she has spent on me in the past.	X			
8. I like doing favors for my friend as long as I know he or she will return the favor sometime.	X			
9. When my friend gets emotionally upset, I tend to avoid him or her. (reverse scored)		X		
10. I expect my friend to be responsive to my needs and feelings.		X		
11. I will not send a second message (text message, IM, email) to my friend unless I have received a message in response from him or her.	X			
12. When I feel that I have been hurt in some way by my friend I find it hard to forgive even when he or she apologizes.	X		X	
13. I often go out of my way to help my friend.		X		X
14. It upsets me when my friend	X		X	

does less for me than I do for him or her.				
15. When I have a need, I turn to my friend for help.		X		X
16. If I praise my friend for his or her accomplishments, I expect my friend to praise me for mine as well.	X		X	
17. When my friend and I are hanging out, if I pay for my friend (ex: movie, coffee, bowling), I expect him or her to do the same for me sometime.	X		X	
18. When I have a need that my friend ignores, I'm hurt.		X		X
19. I am fine with letting my friend borrow something of mine as long as I know I'll be able to borrow something of theirs in return.	X		X	

Table 2: Factor Loadings for Final Exchange and Communal Orientation Scales

Item	Exchange Scale Factor Loadings Friend 1	Communal Scale Factor Loadings Friend 1	Exchange Scale Factor Loadings Friend 2	Communal Scale Factor Loadings Friend 2
2. If I tell my friend my secrets, I expect my friend to tell me his or her secrets.	<b>0.58</b>	.18	<b>.57</b>	.15
12. When I feel that I have been hurt in some way by my friend I find it hard to forgive even when he or she apologizes.	<b>0.51</b>	-.01	<b>.47</b>	-.07
14. It upsets me when my friend does less for me than I do for him or her.	<b>0.60</b>	-.05	<b>.59</b>	.01
16. If I praise my friend for his or her accomplishments, I expect my friend to praise me for mine as well.	<b>0.73</b>	.04	<b>.75</b>	.09
17. When my friend and I are hanging out, if I pay for my friend (ex: movie, coffee, bowling), I expect him or her to do the same for me sometime.	<b>0.74</b>	-.16	<b>.75</b>	-.02
19. I am fine with letting my friend borrow something of mine as long as I know I'll be able to borrow something of theirs in return.	<b>0.69</b>	-.07	<b>.73</b>	-.03
1. I believe I should go out of my way to be helpful to my friend.	-.11	<b>0.80</b>	-.08	<b>.76</b>
3. When making a decision, I take my friend's needs and feelings into account.	-.12	<b>0.72</b>	-.12	<b>.66</b>
13. I often go out of my way to help my friend.	-.07	<b>0.81</b>	.01	<b>.77</b>
15. When I have a need, I turn to my friend for help.	.05	<b>0.71</b>	.11	<b>.72</b>
18. When I have a need that my friend ignores, I'm hurt.	.26	<b>0.54</b>	.23	<b>.57</b>

Table 3: Descriptive Statistics for all Subscales from FQS, ROS, and Conflict

Strategies

Subscales	Friend 1 (N = 198)				Friend 2 (N = 195)			
	M	SD	Skew	Kurt	M	SD	Skew	Kurt
<b>Friendship Quality Scale</b>								
Companionship	3.77	0.77	-0.43	-0.15	3.39	0.89	-0.24	-0.41
Help	4.33	0.71	-1.31	1.36	4.08	0.88	-1.24	1.33
Security	3.66	0.68	-1.27	1.67	3.44	0.76	-0.93	-0.49
Closeness	4.28	0.76	-1.39	1.95	4.09	0.81	-1.09	0.86
Overall Positive Quality	4.03	0.60	-1.25	1.76	3.77	0.70	-1.14	1.45
<b>Relationship Orientation</b>								
Exchange	2.83	1.07	-0.03	-0.97	2.76	1.05	0.03	-1.07
Communal	3.84	0.85	-0.75	0.33	3.72	0.86	-0.59	-0.03
<b>Conflict Strategies</b>								
Relationship goals	4.10	0.74	-0.85	0.25	4.06	0.84	-0.70	-0.35
Instrumental goals	3.17	0.84	-0.40	-0.11	3.17	0.93	-0.27	-0.48
Revenge goals	1.66	0.89	1.78	2.96	1.59	0.92	1.77	2.69
Accommodation strategy	3.96	0.84	-0.72	0.32	3.92	0.86	-0.73	0.18
Compromise strategy	3.85	0.85	-0.90	0.92	3.82	0.92	-0.76	0.12
Hostile strategy	1.30	0.48	3.36	18.13	1.34	0.63	2.56	7.44
Self-interest strategy	2.24	0.92	0.44	-0.35	2.38	1.06	0.58	-0.35

Table 4: Descriptives for all Subscales Separated by Gender for First Nominated Friend

Subscales	Males		Females		t-value
	M	SD	M	SD	
<b>Friendship Quality Scale</b>					
Companionship	3.68	0.80	3.84	0.74	-1.47
Help	4.03	0.82	4.57	0.49	-5.41***
Security	3.35	0.78	3.91	0.46	-5.94***
Closeness	3.99	0.89	4.52	0.52	-4.92***
Overall Positive Quality	3.77	0.70	4.23	0.41	-5.47***
<b>Relationship Orientation</b>					
Exchange	2.83	1.04	2.81	1.08	0.18
Communal	3.53	0.90	4.08	0.74	-4.62***
<b>Conflict Strategies</b>					
Relationship goals	3.92	0.82	4.22	0.65	-2.73**
Instrumental goals	3.13	0.84	3.18	0.83	-0.47
Revenge goals	1.28	0.27	1.25	0.25	0.81
Accommodation strategy	3.89	0.86	4.01	0.82	-1.05
Compromise strategy	3.73	0.97	3.93	0.73	-1.58
Hostile strategy	1.17	0.20	1.16	0.18	0.29
Self-interest strategy	2.33	0.98	2.16	0.86	1.34

Note. \* p<.05; \*\* p<.01; \*\*\* p<.001

Table 5: Intercorrelations among the Final Subscales for Both Nominated Friendships

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Companionship quality	<b>.53***</b>	.55***	.56***	.49***	.75***	.15*	.29***	.10	-.09	-.09	.10	.09	-.09	.00
2. Help quality	.47***	<b>.65***</b>	.74***	.69***	.89***	.05	.50***	.13	-.11	-.23***	.19**	.11	-.28***	-.16*
3. Security quality	.44***	.73***	<b>.59***</b>	.68***	.88***	.16*	.52***	.14*	-.12	-.13	.22**	.05	-.19**	-.10
4. Closeness quality	.46***	.67***	.65***	<b>.77***</b>	.85***	.10	.60***	.12	-.20**	-.27***	.19**	-.04	-.34***	-.18*
5. Total positive quality	.69***	.88***	.86***	.86***	<b>.64***</b>	.13	.57***	.14*	-.15*	-.22**	.21**	.06	-.27***	-.13
6. Exchange orientation	.09	-.05	.04	-.04	.01	<b>.93***</b>	.07	-.01	.24***	.19**	-.14	.19**	.24***	.21**
7. Communal orientation	.34***	.57***	.53***	.62***	.63***	.04	<b>.86***</b>	.18**	-.18**	-.22**	.30***	.07	-.28***	-.23***
8. Relationship goals	.05	.21**	.17*	.22**	.20**	.03	.32***	<b>.80***</b>	.31***	-.21**	.49***	.23**	-.28***	-.18**
9. Instrumental/Control goals	-.02	.05	.00	-.08	-.02	.30***	-.01	.32***	<b>.82***</b>	.31***	-.16*	.38***	.27***	.50***
10. Revenge goals	-.10	-.15*	-.15*	-.30***	-.22**	.23***	-.24***	-.18**	.33***	<b>.66***</b>	-.27***	.05	.65***	.46***
11. Accommodation solution	.11	.18*	.20**	.22**	.22**	-.16*	.28***	.44***	-.27***	-.26***	<b>.60***</b>	.08	-.37***	-.38***
12. Compromise solution	.02	.20**	.12	.07	.13	.19**	.06	.09	.37***	.08	-.12	<b>.68***</b>	-.05	.21**
13. Hostile solution	-.04	-.04	-.03	-.24***	-.11	.26***	-.21**	-.24**	.38***	.50***	-.44***	.04	<b>.70***</b>	.48***
14. Self-interest solution	.05	-.04	-.07	-.15**	-.07	.19**	-.17*	-.27***	.45***	.40***	-.47***	.20**	.48***	<b>.67***</b>

Note. \* p<.05; \*\* p<.01; \*\*\* p<.001; Correlations below the diagonal are for Friend 1, above the diagonal for Friend 2; Correlations in bold on the diagonal are for the same subscale for Friend 1 and Friend 2.



Table 6: Intercorrelations among Final Subscales Separated by males (N=87) and Females (N=111) for First Nominated Friend

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Companionship quality		.43***	.43***	.39***	.76***	.06	.22*	-.07	-.04	.01	.01	-.10	.00	-.00
2. Help quality	.51***		.61***	.43***	.80***	.06	.35***	.08	-.02	-.10	.22*	.08	-.04	-.15
3. Security quality	.46***	.71***		.37***	.77***	.14	.33***	.02	-.05	.06	.16	.07	.07	-.21*
4. Closeness quality	.51***	.70***	.69***		.72***	-.00	.54***	.04	-.12	-.18	.18	-.02	-.15	-.14
5. Total positive quality	.71***	.88***	.86***	.89***		.09	.46***	.02	-.08	-.07	.18	.01	-.04	-.15
6. Exchange orientation	.14	-.13	-.00	-.06	-.03		.15	.03	.39***	.33***	-.19	.20*	.34***	.32***
7. Communal orientation	.42***	.62***	.55***	.60***	.66***	-.06		.09	-.05	-.14	.18	.04	-.16	-.19*
8. Relationship goals	.12	.20	.14	.24*	.21*	.03	.42***		.36***	-.03	.39***	.18	-.08	-.28**
9. Instrumental/Control goals	-.01	.09	.02	-.08	.01	.19	.02	.27**		.35***	-.28**	.47***	.41***	.44***
10. Revenge goals	-.20	-.16	-.27**	-.40***	-.31**	.09	-.33**	-.31**	.32***		-.18	.23*	.42***	.37***
11. Accommodation solution	.20	.13	.22*	.23*	.23*	-.12	.37***	.48***	-.25*	-.34**		-.08	-.40***	-.50***
12. Compromise solution	.09	.22*	.09	.07	.14	.20	.03	-.00	.28**	-.03	-.18		.10	.23*
13. Hostile solution	-.08	-.02	-.08	-.31**	-.16	.16	-.25*	-.37***	.35***	.57***	-.50***	-.01		.53***
14. Self-interest solution	.13	.11	.08	-.11	.05	.04	-.10	-.24*	.47***	.35***	-.43***	.20	.45***	

Note. \* p<.05; \*\* p<.01; \*\*\* p<.001; Correlations below the diagonal are for males, above the diagonal for females

Table 7: Intercorrelations among Final Subscales Separated by Males (N=85) and Females (N=110) for Second Nominated Friend

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Companionship quality		.54***	.59***	.49***	.79***	.11	.30***	-.02	-.17	-.08	.07	-.15	.06	.03
2. Help quality	.53***		.68***	.59***	.86***	.10	.35***	-.04	-.08	-.18	.13	-.06	-.09	-.07
3. Security quality	.51***	.75***		.56***	.85***	.14	.39***	-.00	-.15	-.09	.13	-.11	-.02	.00
4. Closeness quality	.45***	.72***	.70***		.80***	.16	.51***	-.10	-.23*	-.18	.05	-.16	-.11	-.07
5. Total positive quality	.71***	.90***	.89***	.86***		.15	.47***	-.05	-.19	-.16	.12	-.14	-.04	-.03
6. Exchange orientation	.22*	.03	.22*	.09	.16		.16	-.06	.39***	.28***	-.18	.21*	.34***	.36***
7. Communal orientation	.21	.55***	.57***	.61***	.59***	.00		.06	-.16	-.21*	.22*	.03	-.14	-.16
8. Relationship goals	.20	.22*	.22*	.24*	.26*	.07	.24*		.31***	-.09	.43***	.21*	-.10	-.14
9. Instrumental/Control goals	.05	-.08	-.04	-.13	-.07	.05	-.14	.34***		.33***	-.15	.48***	.37***	.47***
10. Revenge goals	-.07	-.24*	-.13	-.32**	-.24*	.07	-.19	-.32**	.28**		-.22*	.12	.59***	.47***
11. Accommodation solution	.08	.18	.23*	.25*	.22*	-.07	.33**	.53***	-.14	-.30**		.16	-.37**	-.28**
12. Compromise solution	.35***	.26*	.16	.03	.23*	.16	.09	.23*	.29**	-.02	-.03		.05	.25**
13. Hostile solution	-.20	-.37***	-.25*	-.45***	-.38***	.12	-.35***	-.42***	.15	.70***	-.34**	-.12		.56***
14. Self-interest solution	.00	-.21	-.15	-.24*	-.19	.02	-.29**	-.21	.52***	.45***	-.49***	.17	.45***	

Note. \* p<.05; \*\* p<.01; \*\*\* p<.001; Correlations below the diagonal are for males, above the diagonal for females

Table 8: Regression Analyses for Exchange Orientation Predicting to Positive Friendship Quality

	$\beta$	<i>t-value</i>	$\Delta R^2$
<u>Step 1</u>			.15***
Gender	.39	5.82***	
<u>Step 2</u>			.00
Gender	.39	5.81***	
Exchange orientation	.02	0.34	
<u>Step 3</u>			.00
Gender	.39	5.80***	
Exchange orientation	.02	0.34	
Gender X Exchange	.04	0.61	

*Note.* Gender : 0=male; 1=female; \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 9: Regression Analyses for Communal Orientation Predicting to Positive Friendship Quality

	$\beta$	<i>t-value</i>	$\Delta R^2$
<u>Step 1</u>			.15***
Gender	.39	5.82***	
<u>Step 2</u>			.29***
Gender	.20	3.57***	
Communal orientation	.53	9.86***	
<u>Step 3</u>			.03***
Gender	.20	3.59***	
Communal orientation	.53	9.30***	
Gender X Communal	-.18	-3.25***	

*Note.* Gender : 0=male; 1=female; \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Figure 1: Example of Path Analysis Model for Research Questions 3, 4, and 5

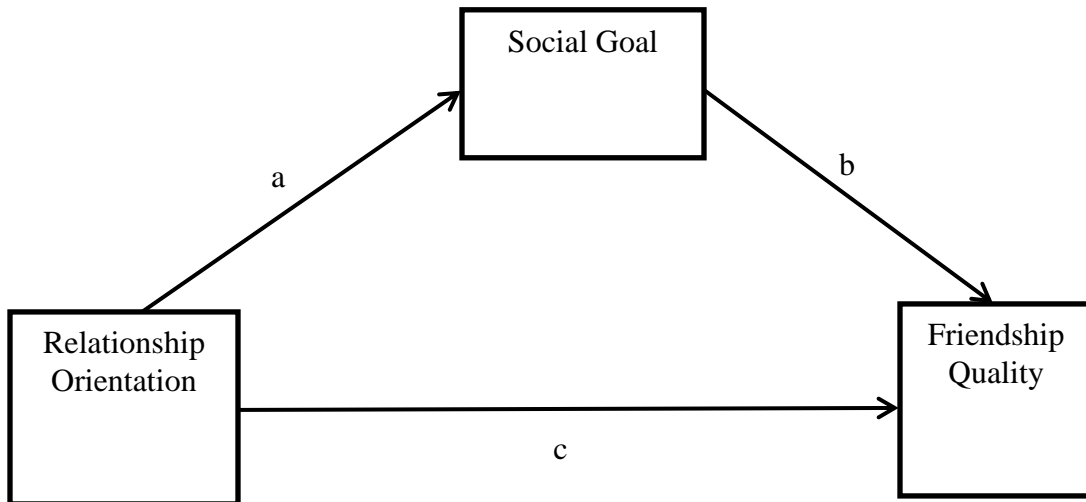
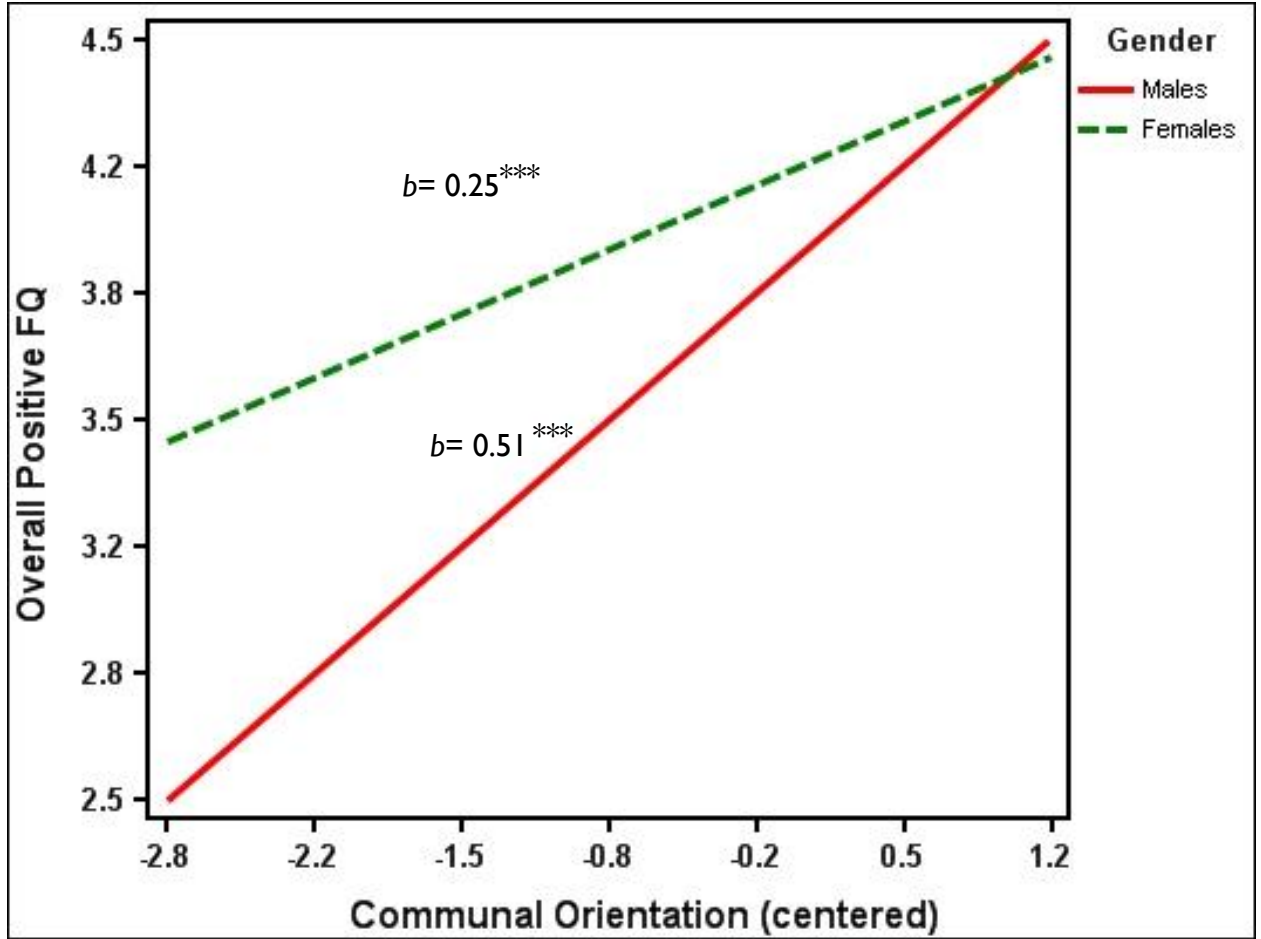


Figure 2: Social Goals as Mediator between Exchange Orientation and Friendship Quality



Note. \*\*\*  $p < .001$

Figure 3: Social Goals as Mediator between Exchange Orientation and Friendship Quality

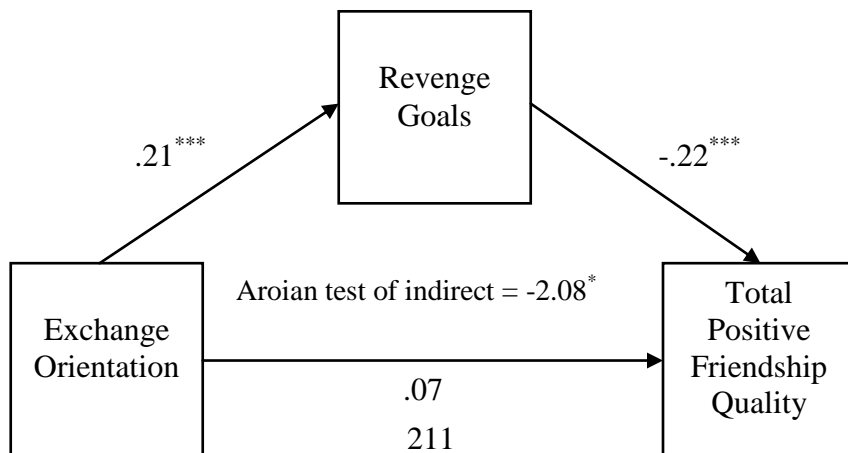
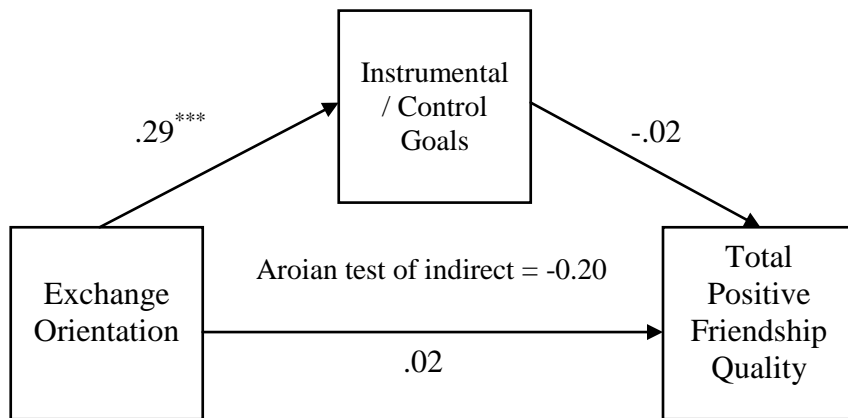
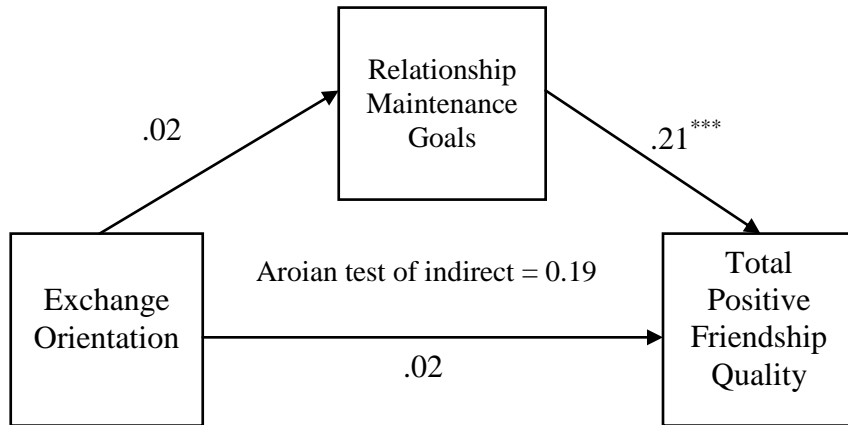


Figure 4: Social Goals as Mediator between Communal Orientation and Friendship Quality

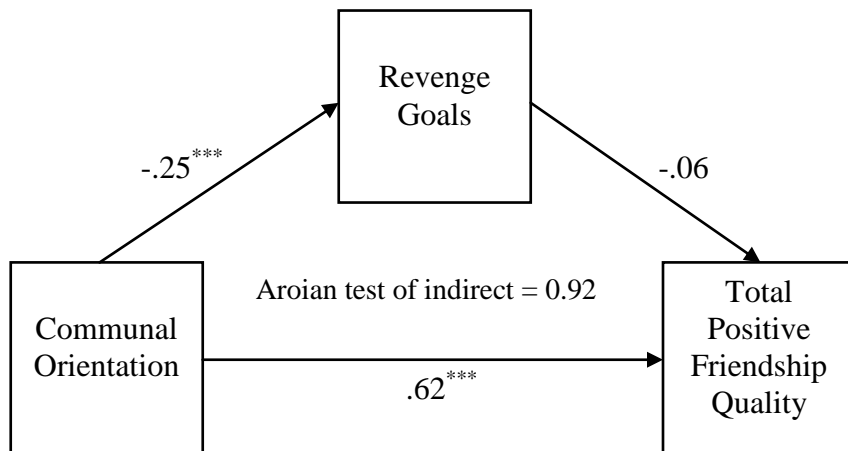
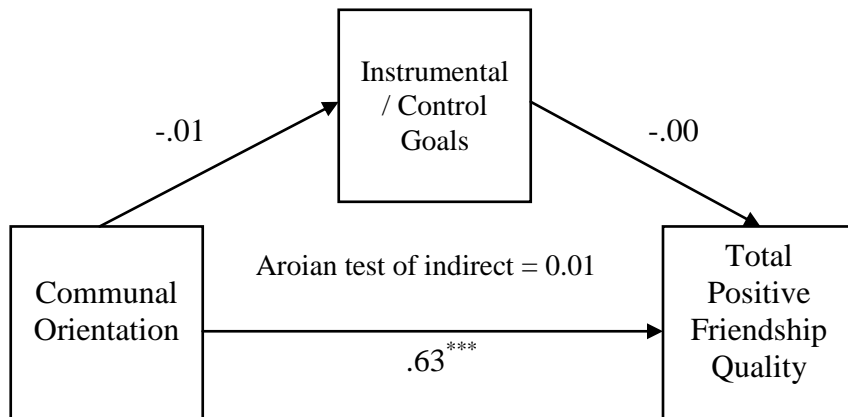
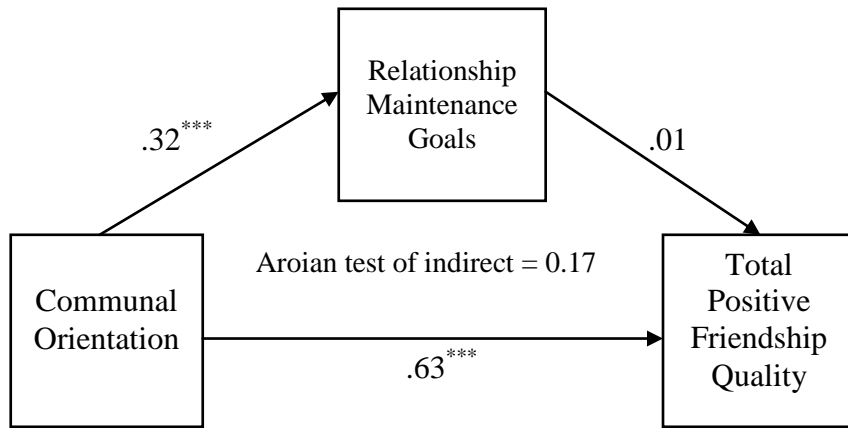




Figure 5: Resolution Strategies as Mediator between Exchange Orientation and Friendship Quality

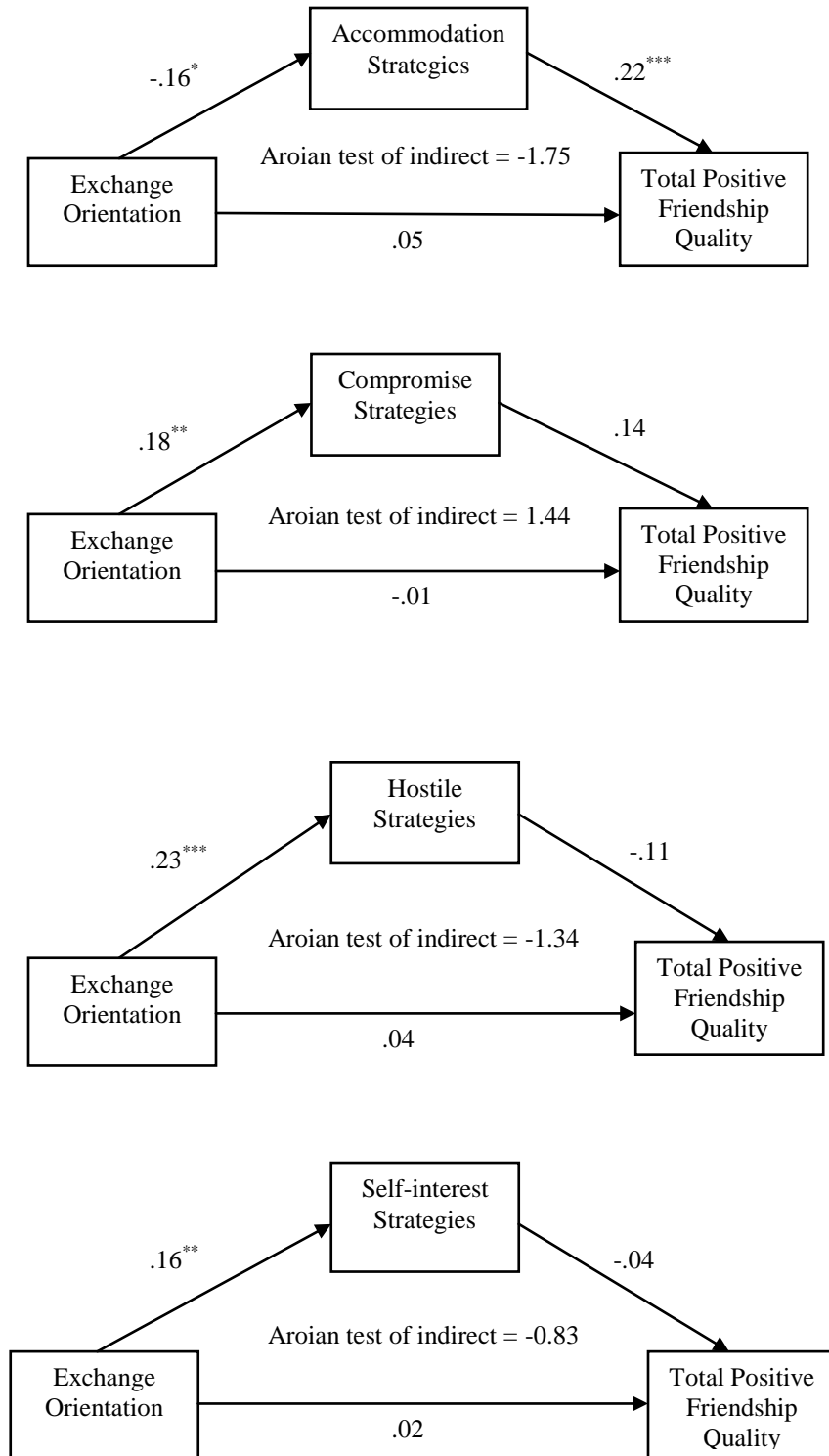


Figure 6: Resolution Strategies as Mediator between Communal Orientation and Friendship Quality

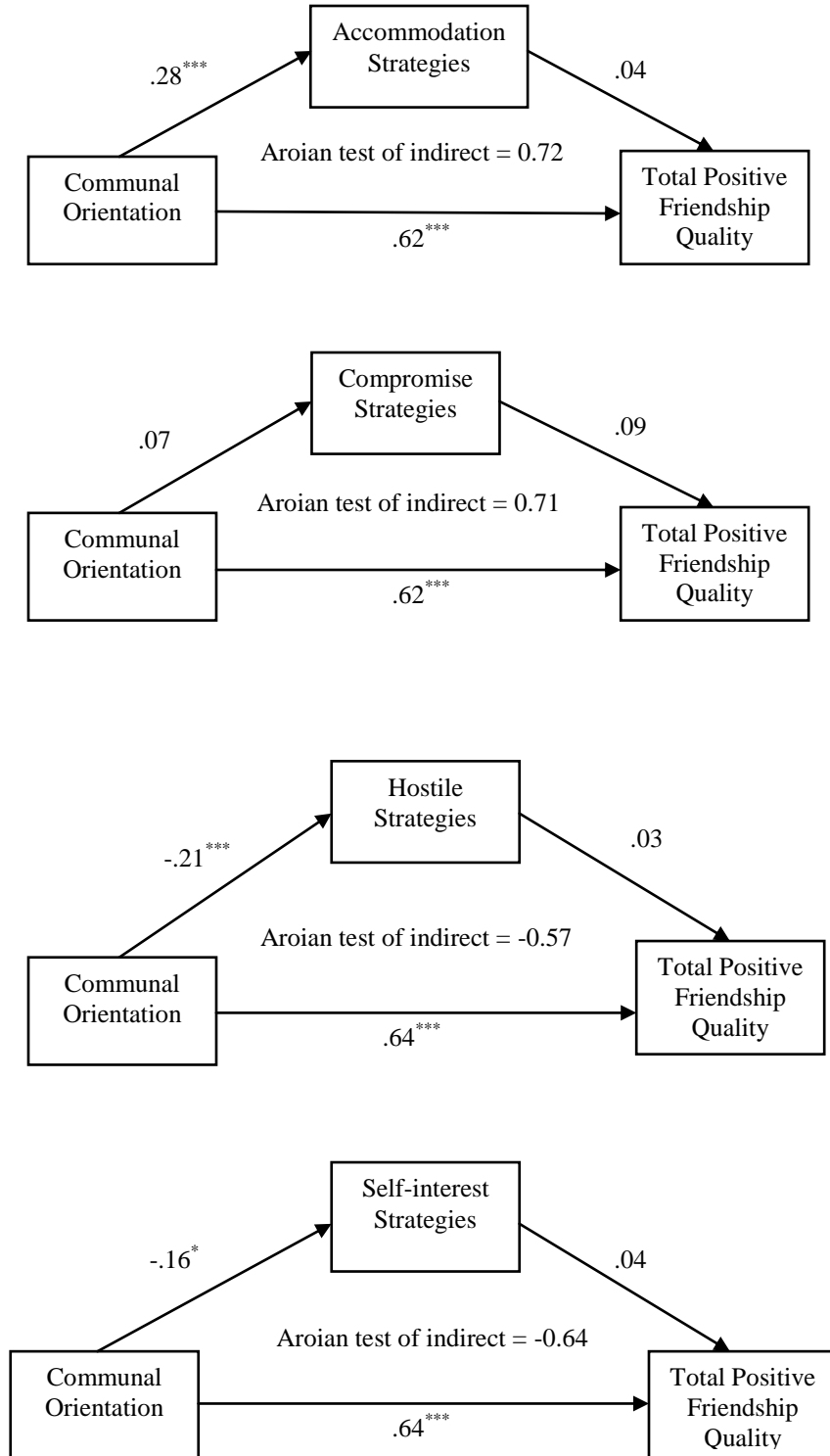
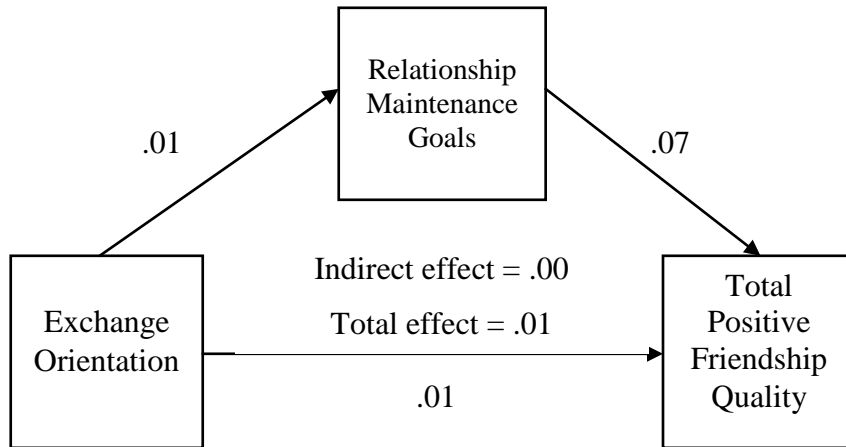
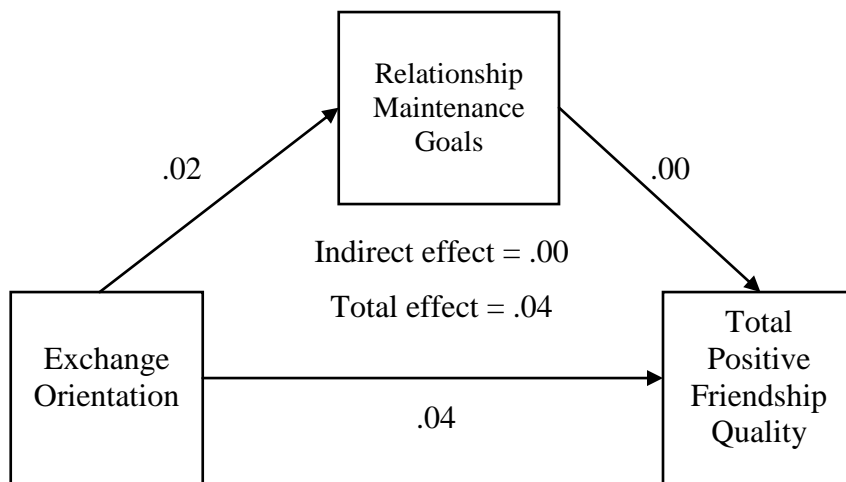


Figure 7: Gender as a Moderator of Mediation Model: Relationship Maintenance Goals as Mediator between Exchange Orientation and Friendship Quality

Males



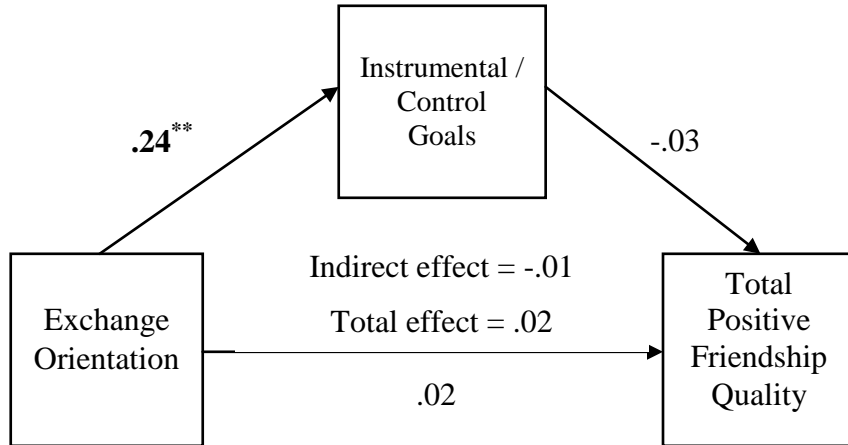
Females



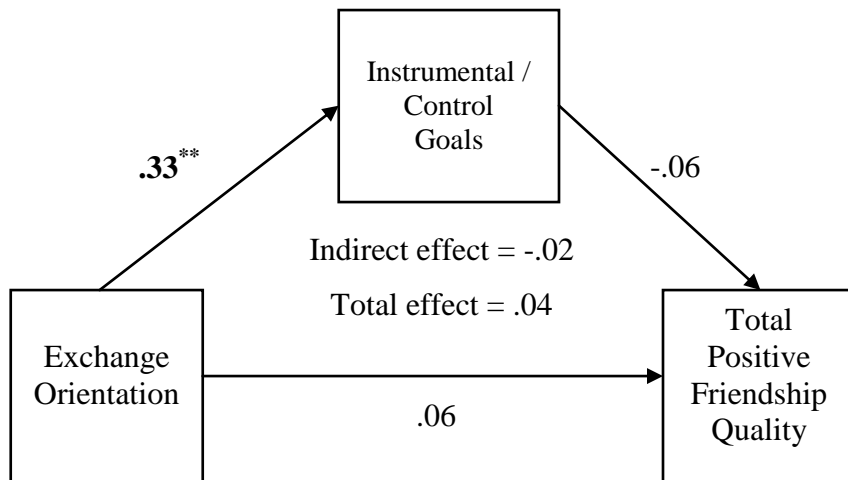
Path	Difference	Significance
a: Exchange → Relationship Maintenance	.01	<i>ns</i>
b: Relationship Maintenance → Friendship Quality	-.07	<i>ns</i>
c: Exchange → Friendship Quality	.02	<i>ns</i>
Indirect effect	-.00	<i>ns</i>
Total effect	.02	<i>ns</i>

Figure 8: Gender as a Moderator of Mediation Model: Instrumental/Control Goals as Mediator between Exchange Orientation and Friendship Quality

Males



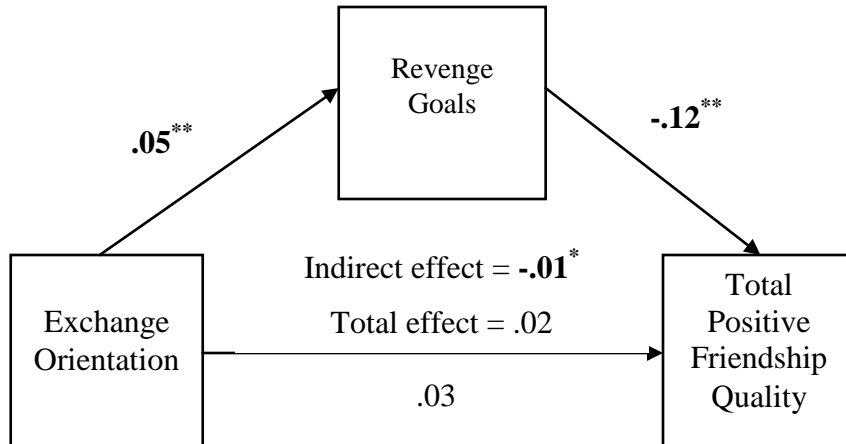
Females



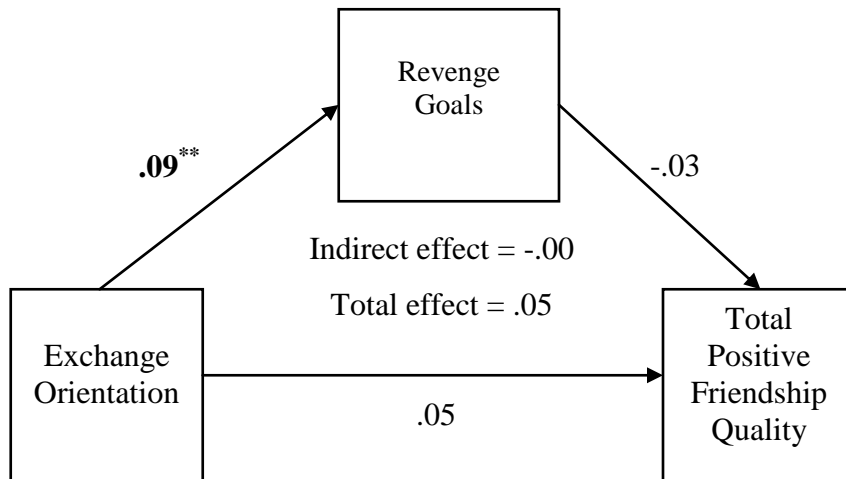
Path	Difference	Significance
a: Exchange → Instrumental / Control	.10	<i>ns</i>
b: Instrumental / Control → Friendship Quality	-.04	<i>ns</i>
c: Exchange → Friendship Quality	.04	<i>ns</i>
Indirect effect	-.01	<i>ns</i>
Total effect	.02	<i>ns</i>

Figure 9: Gender as a Moderator of Mediation Model: Revenge Goals as Mediator between Exchange Orientation and Friendship Quality

Males



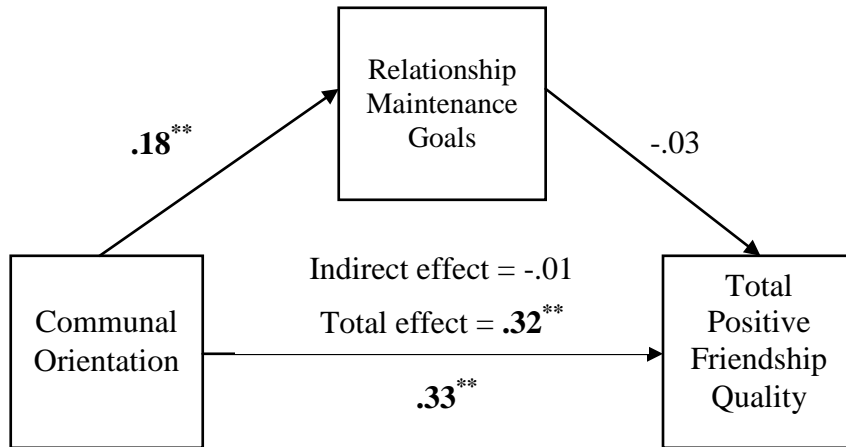
Females



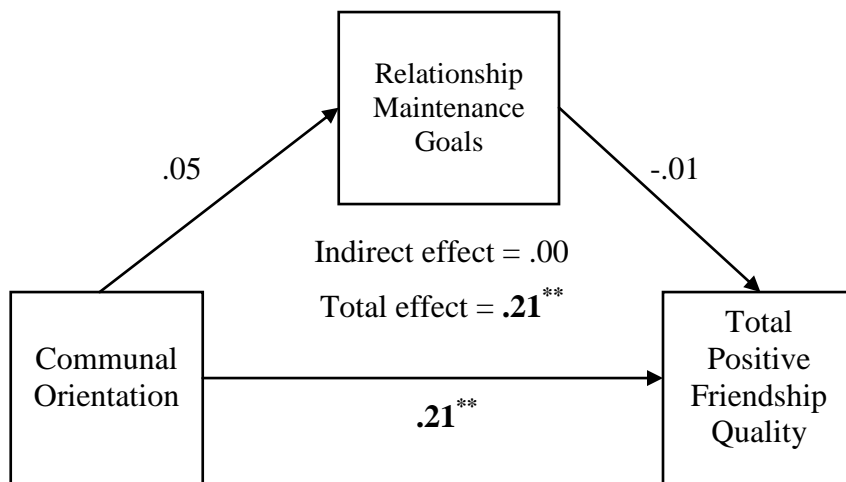
Path	Difference	Significance
a: Exchange → Revenge	.04	<i>ns</i>
b: Revenge → Friendship Quality	.08	<i>ns</i>
c: Exchange → Friendship Quality	.03	<i>ns</i>
Indirect effect	.00	<i>ns</i>
Total effect	.03	<i>ns</i>

Figure 10: Gender as a Moderator of Mediation Model: Relationship Maintenance Goals as Mediator between Communal Orientation and Friendship Quality

Males



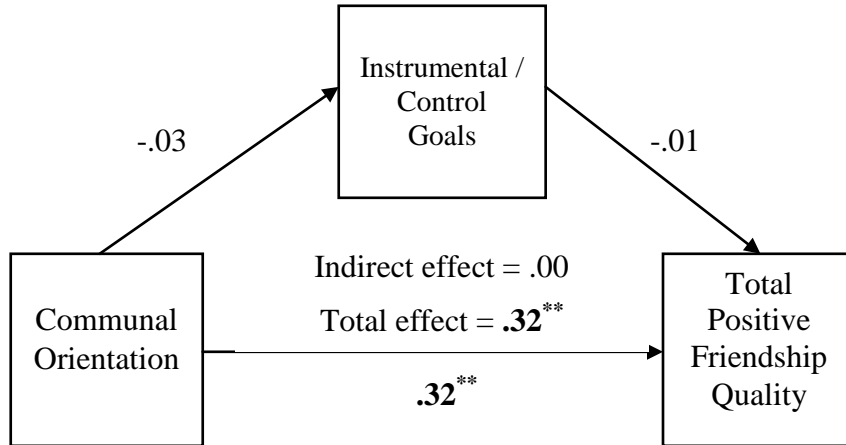
Females



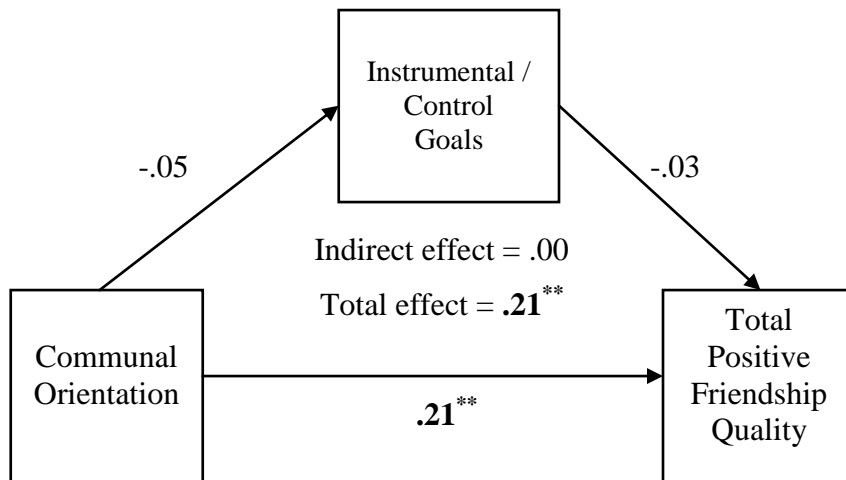
Path	Difference	Significance
a: Communal → Relationship Maintenance	$-.13$	$p < .05$
b: Relationship Maintenance → Friendship Quality	$.02$	<i>ns</i>
c: Communal → Friendship Quality	$-.12$	$p < .01$
Indirect effect	$.00$	<i>ns</i>
Total effect	$-.11$	$p < .01$

Figure 11: Gender as a Moderator of Mediation Model: Instrumental/Control Goals as Mediator between Communal Orientation and Friendship Quality

Males



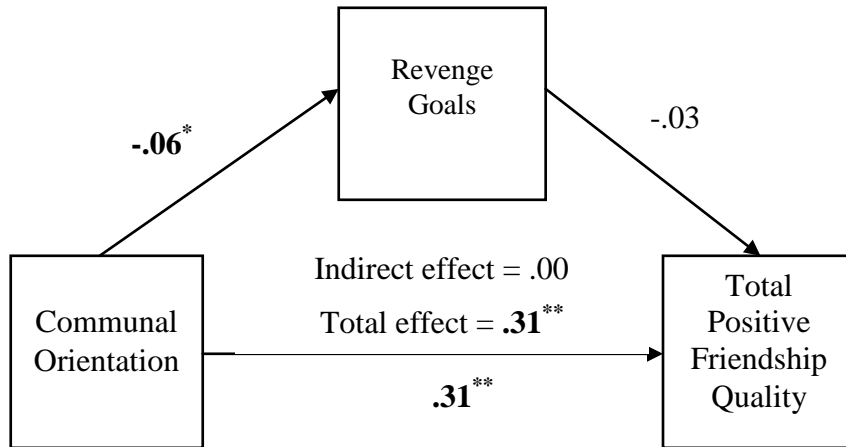
Females



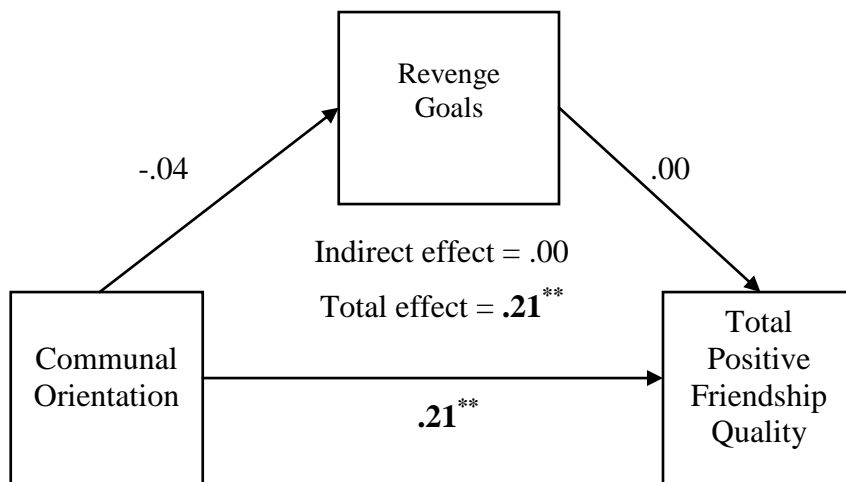
Path	Difference	Significance
a: Communal → Instrumental / Control	$-.03$	<i>ns</i>
b: Instrumental / Control → Friendship Quality	$-.02$	<i>ns</i>
c: Communal → Friendship Quality	$-.11$	$p < .05$
Indirect effect	$.00$	<i>ns</i>
Total effect	$-.11$	$p < .05$

Figure 12: Gender as a Moderator of Mediation Model: Revenge Goals as Mediator between Communal Orientation and Friendship Quality

Males



Females

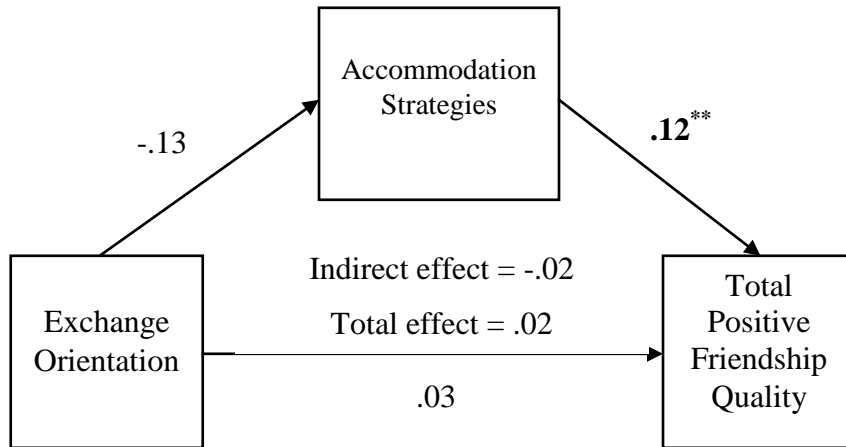


Path	Difference	Significance
a: Communal → Revenge	.02	<i>ns</i>
b: Revenge → Friendship Quality	.03	<i>ns</i>
c: Communal → Friendship Quality	-.10	$p < .05$
Indirect effect	-.00	<i>ns</i>
Total effect	-.10	$p < .05$

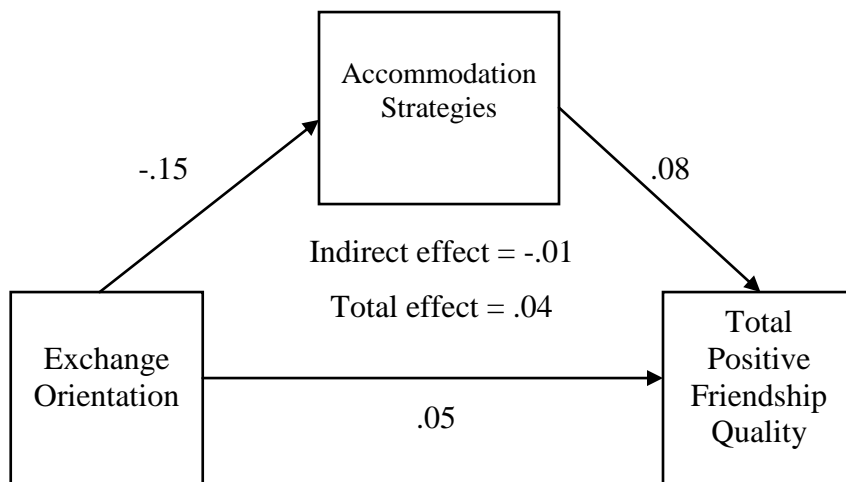


Figure 13: Gender as a Moderator of Mediation Model: Accommodation Strategies as Mediator between Exchange Orientation and Friendship Quality

Males



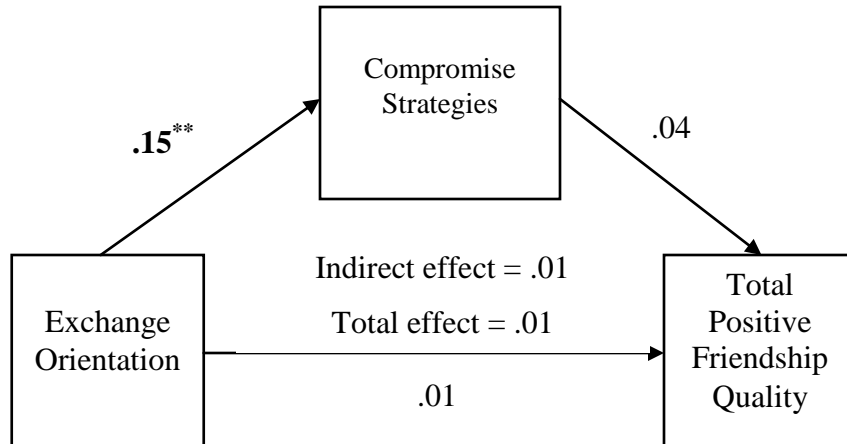
Females



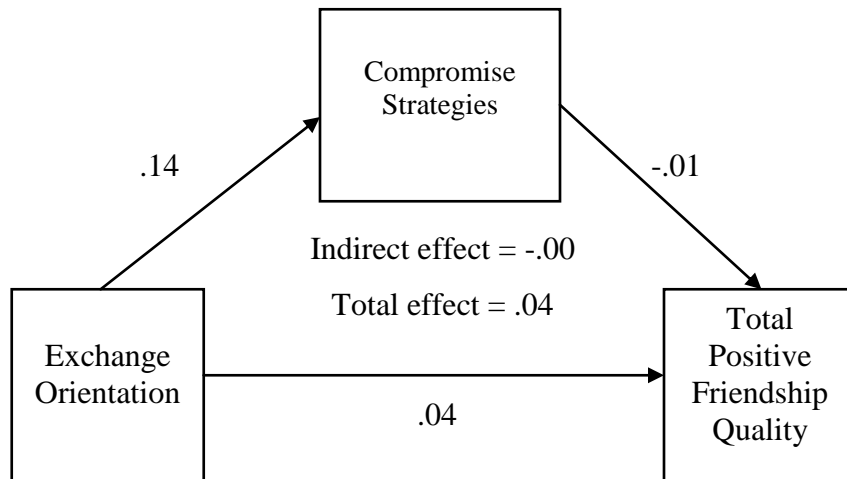
Path	Difference	Significance
a: Exchange → Accommodation	$-.02$	<i>ns</i>
b: Accommodation → Friendship Quality	$-.03$	<i>ns</i>
c: Exchange → Friendship Quality	$.02$	<i>ns</i>
Indirect effect	$.00$	<i>ns</i>
Total effect	$.03$	<i>ns</i>

Figure 14: Gender as a Moderator of Mediation Model: Compromise Strategies as Mediator between Exchange Orientation and Friendship Quality

Males



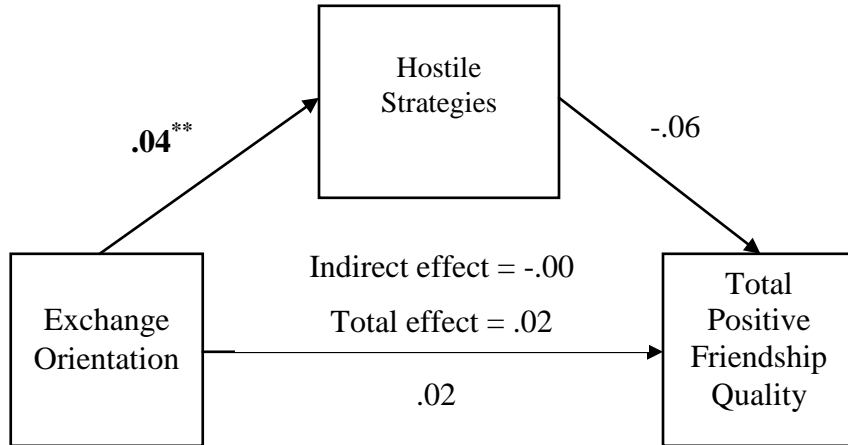
Females



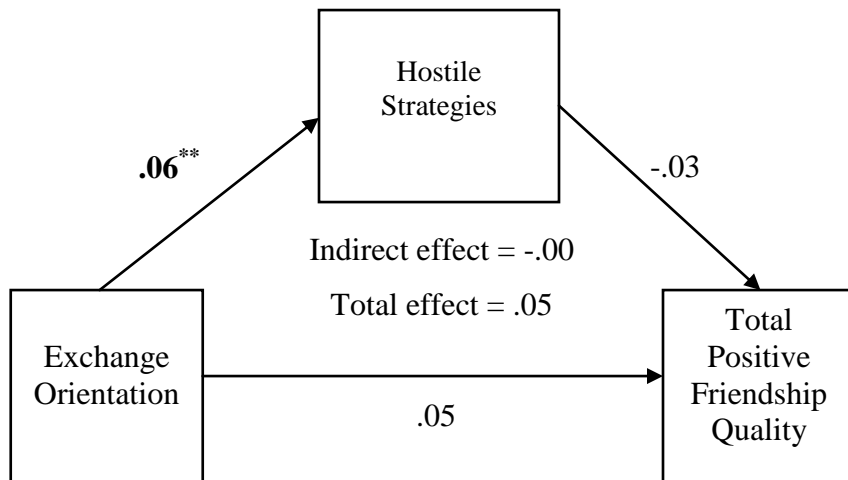
Path	Difference	Significance
a: Exchange → Compromise	-.01	<i>ns</i>
b: Compromise → Friendship Quality	-.05	<i>ns</i>
c: Exchange → Friendship Quality	.03	<i>ns</i>
Indirect effect	-.01	<i>ns</i>
Total effect	.03	<i>ns</i>

Figure 15: Gender as a Moderator of Mediation Model: Hostile Strategies as Mediator between Exchange Orientation and Friendship Quality

Males



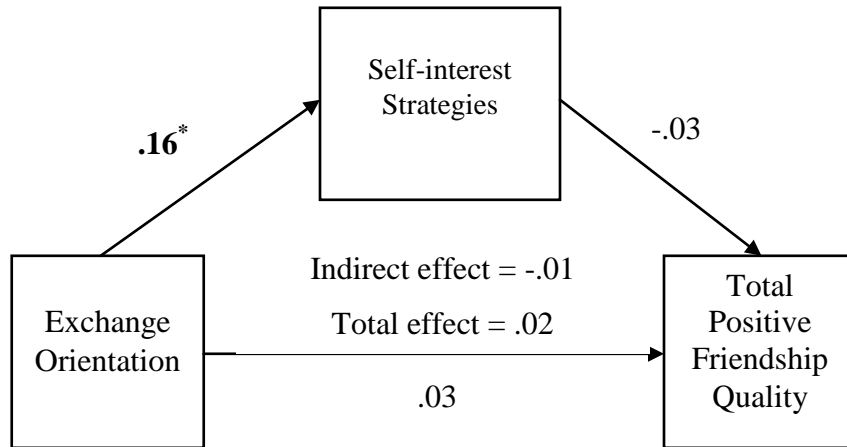
Females



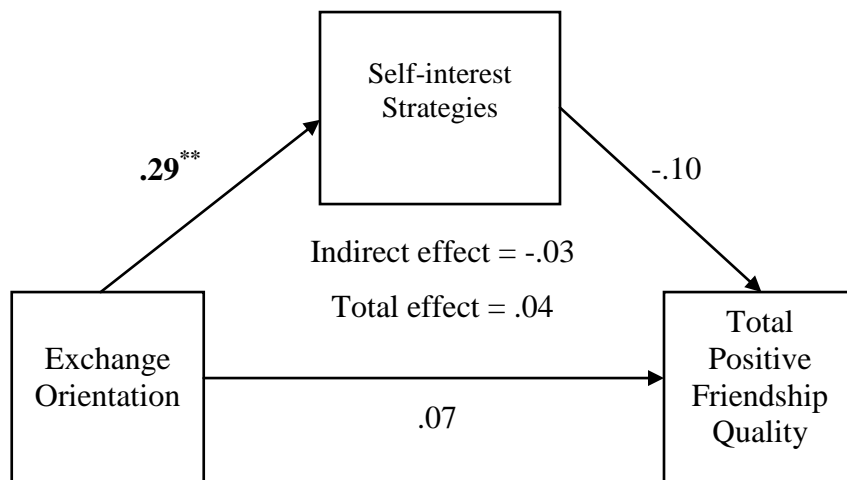
Path	Difference	Significance
a: Exchange → Hostile	.02	<i>ns</i>
b: Hostile → Friendship Quality	.04	<i>ns</i>
c: Exchange → Friendship Quality	.02	<i>ns</i>
Indirect effect	.00	<i>ns</i>
Total effect	.03	<i>ns</i>

Figure 16: Gender as a Moderator of Mediation Model: Self-interest Strategies as Mediator between Exchange Orientation and Friendship Quality

Males



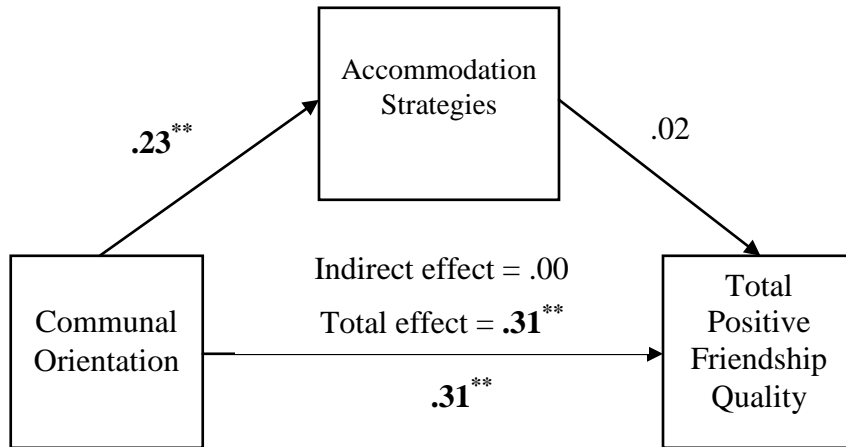
Females



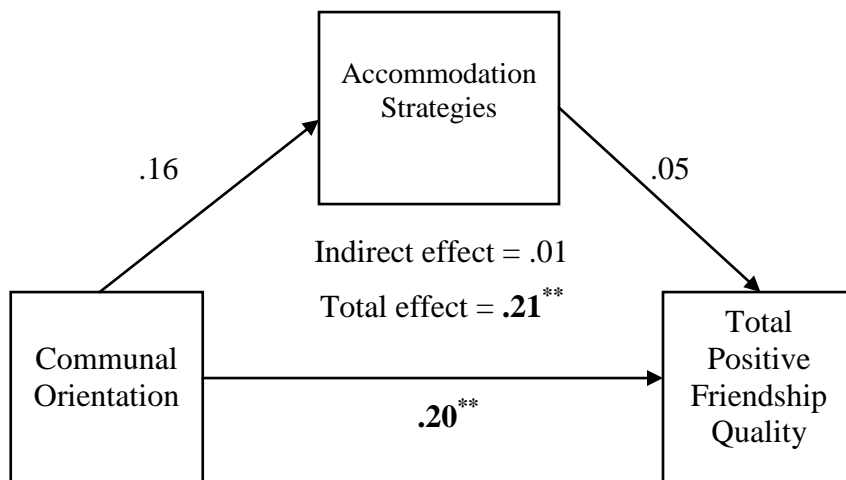
Path	Difference	Significance
a: Exchange → Self-interest	.13	$p < .05$
b: Self-interest → Friendship Quality	-.06	<i>ns</i>
c: Exchange → Friendship Quality	.04	<i>ns</i>
Indirect effect	-.02	<i>ns</i>
Total effect	.02	<i>ns</i>

Figure 17: Gender as a Moderator of Mediation Model: Accommodation Strategies as Mediator between Communal Orientation and Friendship Quality

Males



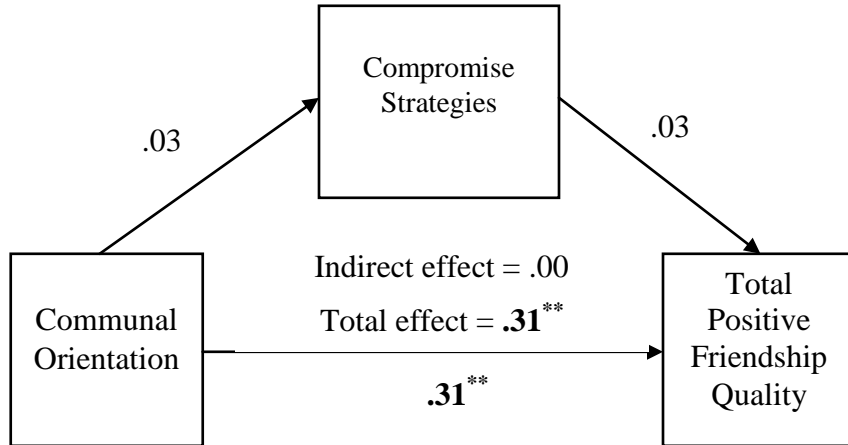
Females



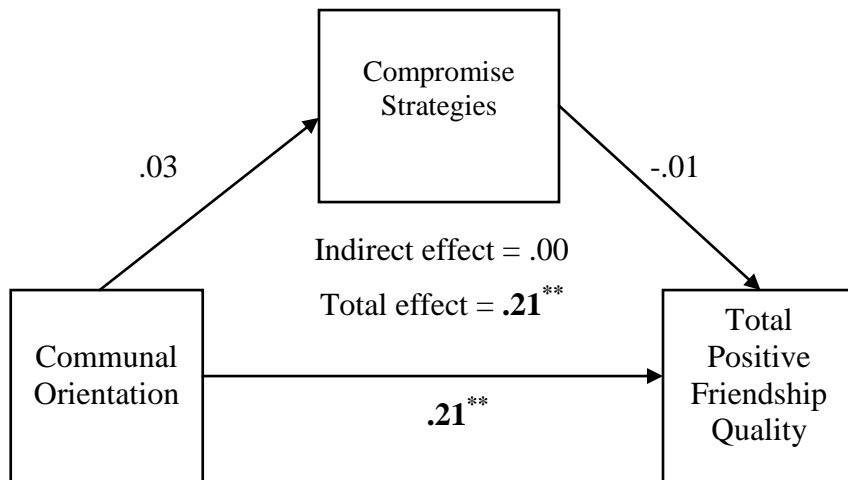
Path	Difference	Significance
a: Communal → Accommodation	-.07	<i>ns</i>
b: Accommodation → Friendship Quality	.03	<i>ns</i>
c: Communal → Friendship Quality	-.12	$p < .01$
Indirect effect	.00	<i>ns</i>
Total effect	-.11	$p < .01$

Figure 18: Gender as a Moderator of Mediation Model: Compromise Strategies as Mediator between Communal Orientation and Friendship Quality

Males



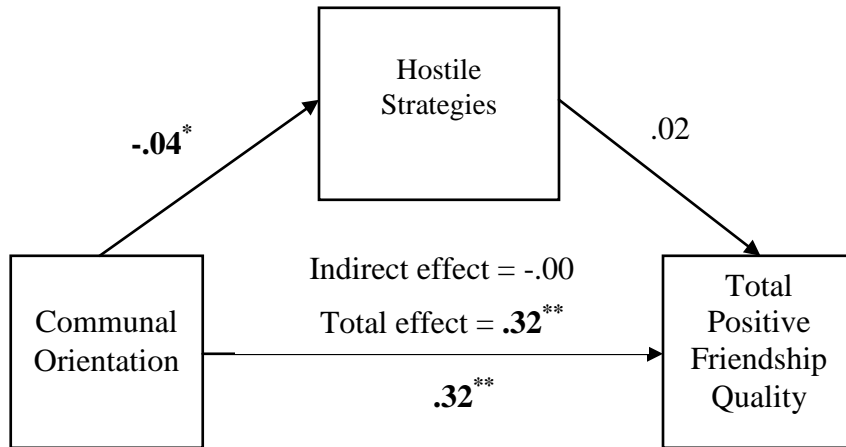
Females



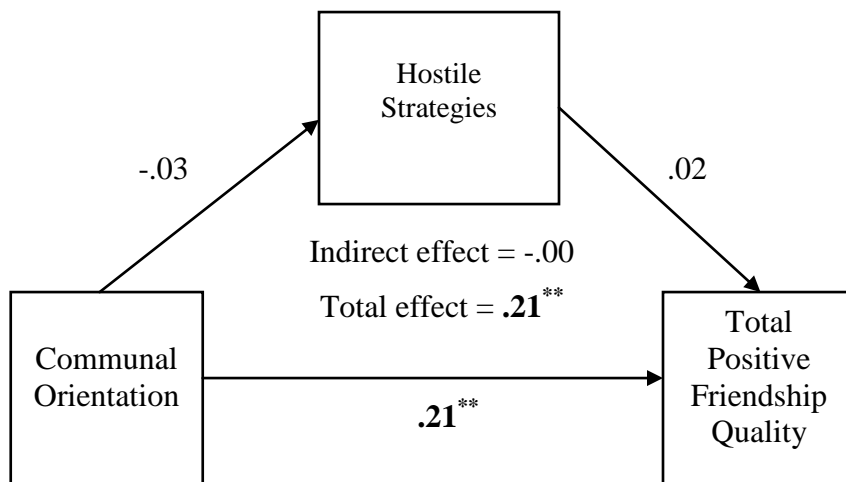
Path	Difference	Significance
a: Communal → Compromise	$.00$	<i>ns</i>
b: Compromise → Friendship Quality	$-.04$	<i>ns</i>
c: Communal → Friendship Quality	$-.11$	$p < .01$
Indirect effect	$-.00$	<i>ns</i>
Total effect	$-.11$	$p < .01$

Figure 19: Gender as a Moderator of Mediation Model: Hostile Strategies as Mediator between Communal Orientation and Friendship Quality

Males



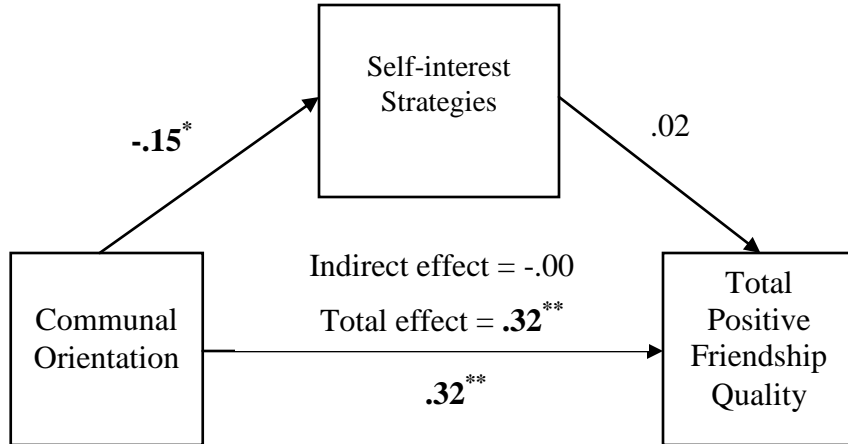
Females



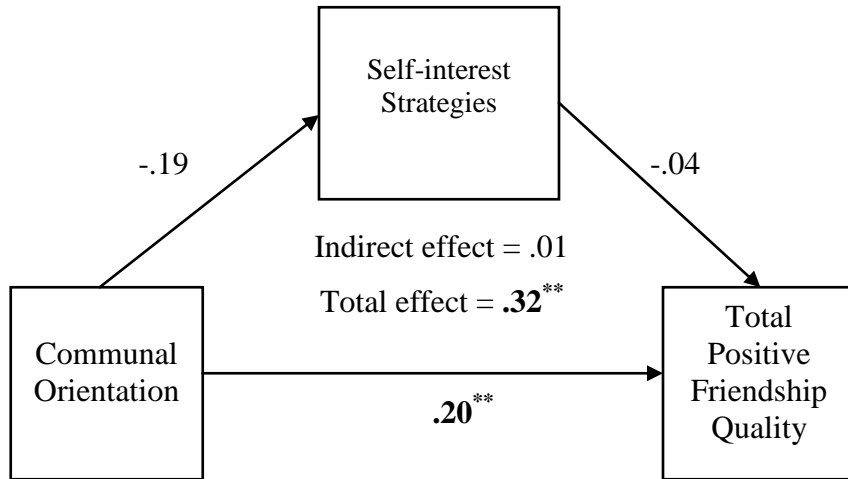
Path	Difference	Significance
a: Communal $\rightarrow$ Hostile	.01	<i>ns</i>
b: Hostile $\rightarrow$ Friendship Quality	-.00	<i>ns</i>
c: Communal $\rightarrow$ Friendship Quality	-.11	$p < .01$
Indirect effect	.00	<i>ns</i>
Total effect	-.11	$p < .01$

Figure 20: Gender as a Moderator of Mediation Model: Self-interest Strategies as Mediator between Communal Orientation and Friendship Quality

Males



Females



Path	Difference	Significance
a: Communal $\rightarrow$ Self-interest	$-.05$	<i>ns</i>
b: Self-interest $\rightarrow$ Friendship Quality	$-.06$	<i>ns</i>
c: Communal $\rightarrow$ Friendship Quality	$-.12$	$p < .01$
Indirect effect	$.01$	<i>ns</i>
Total effect	$-.11$	$p < .05$



## Appendix A: Friendship Nominations & Friendship Quality

NAME \_\_\_\_\_

BOY or GIRL

GRADE \_\_\_\_\_

AGE \_\_\_\_\_

Instructions: In the spaces below, write the name of your top 2 friends who are in the same grade as you and go to your school. Please write their first name and last name.

First Friend: \_\_\_\_\_

(If you're a girl, name a girl. If you're a boy, name a boy.)

Second Friend: \_\_\_\_\_

(If you're a girl, name a girl. If you're a boy, name a boy.)

### *Friendship Quality Scale*

These questions are about you and the 2 friends you listed above. Please answer each question for each of your 2 friends. Using the 1-5 scale below, please choose which answer best describes your relationship with each of your friends.

Not at all true 1	A little true 2	Somewhat true 3	Pretty true 4	Really true 5
-------------------------	-----------------------	-----------------------	---------------------	---------------------

1. My friend and I spend all our free time together.

1 <sup>st</sup> Best Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Best Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

2. If I forgot my lunch or needed a little money, my friend would loan it to me.

1 <sup>st</sup> Best Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Best Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

3. If I have a problem at school or at home, I can talk to my friend about it.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Not at all true	A little true	Somewhat true	Pretty true	Really true
1	2	3	4	5

4. If my friend had to move away, I would miss him/her.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

5. My friend thinks of fun things for us to do together.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

6. My friend helps me when I am having trouble with something.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

9. If there is something bothering me, I can tell my friend about it even if it is something I cannot tell to other people.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

10. I feel happy when I am with my friend.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

11. My friend and I go to each other's houses after school and on weekends.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

12. My friend would help me if I needed it.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

13. If I said I was sorry after I had a fight with my friend, he/she would still stay mad at me.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

14. I think about my friend even when my friend is not around.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Not at all true 1	A little true 2	Somewhat true 3	Pretty true 4	Really true 5
-------------------------	-----------------------	-----------------------	---------------------	---------------------

15. Sometimes my friend and I just sit around and talk about things like school, sports, and things we like.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

16. If other kids were bothering Me, my friend would help me.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

17. If my friend or I do something that bothers the other one of us, we can make up easily.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

18. When I do a good job at something, my friend is happy for me.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

19. My friend would stick up for me if another kid was causing me trouble.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

20. If my friend and I have a fight or argument, we can say "I'm sorry" and everything will be alright.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

21. Sometimes my friend does things for me, or makes me feel special.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

## Appendix B: Relationship Orientations Scale

Instructions: For these questions, we want you to answer each question for each of your 2 friends you listed earlier. Please write their names again here:

1<sup>st</sup> Friend: \_\_\_\_\_

2<sup>nd</sup> Friend: \_\_\_\_\_

Using the 1-5 scale below, please choose which number best describes best how you think about each of your relationships with your 2 friends. Please choose only one response for each friend.

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Not at all true of me	A little true of me	Somewhat true of me	Pretty true of me	Very true of me

1. I believe I should go out of my way to be helpful to my friend.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

2. If I tell my friend my secrets, I expect my friend to tell me his or her secrets.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

3. When making a decision, I take my friend's needs and feelings into account.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

4. If I show up on time to meet my friend I become upset if he or she shows up late.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

5. It bothers me when my friend neglects my needs.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

6. I don't consider myself to be a particularly helpful person to my friend.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Not at all true of me	A little true of me	Somewhat true of me	Pretty true of me	Very true of me

7. When buying a present for my friend I often try to remember how much he or she has spent on me in the past.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

8. I like doing favors for my friend as I know he or she will return the favor sometime.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

9. When my friend gets emotionally upset, I tend to avoid him or her.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

10. I expect my friend to be responsive to my needs and feelings.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

11. I will not send a second message (text message, IM, or email) to my friend unless I have received a message in response from him/her.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

12. When I feel that I have been hurt in some way by my friend I find it hard to forgive even when he or she apologizes

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

13. I often go out of my way to help my friend

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Not at all true of me	A little true of me	Somewhat true of me	Pretty true of me	Very true of me

14. It upsets me when my friend does less for me than I do for him or her.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

15. When I have a need, I turn to my friend for help.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

16. If I praise my friend for his or her accomplishments, I expect my friend to praise me for mine as well.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

17. When my friend and I are hanging out, if I pay for my friend (ex: movie, coffee, bowling), I expect him or her to do the same for me sometime.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

18. When I have a need that my friend ignores, I'm hurt.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

19. I am fine with letting my friend borrow something of mine as long as I know I'll be able to borrow something of theirs in return.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

### Appendix C: Original and Revised Items for the Relationship Orientation Scale

Item #	Original Item	Revised Item	Changes	Communal / Exchange
1	I believe people should go out of their way to be helpful.	I believe I should go out of my way to be helpful to my friend.		Communal
2	If I tell someone about my private affairs (business, family, love experiences) I expect them to tell me something about theirs.	If I tell my friend my secrets, I expect my friend to tell me his or her secrets.	Updated wording	Exchange
3	When making a decision, I take other people's needs and feelings into account.	When making a decision, I take my friend's needs and feelings into account.		Communal
4	If I show up on time for an appointment, I become upset if the person with whom I have the appointment shows up late.	If I show up on time to meet my friend, I become upset if he or she shows up late.	Updated wording	Exchange
5	It bothers me when other people neglect my needs.	It bothers me when my friend neglects my needs.		Communal
6	I don't consider myself to be a particularly helpful person. (reverse scored)	I don't consider myself to be a particularly helpful person to my friend. (reverse scored)		Communal
7	When buying a present for someone I often try to remember the value of what they have given me in the past.	When buying a present for my friend, I often try to remember how much he or she has spent on me in the past.	Updated wording	Exchange
8	I hesitate to ask favors of a friend because I don't want to take advantage of the relationship.	I like doing favors for my friend as long as I know he or she will return the favor sometime.	Changed negative wording	Exchange
9	When people get emotionally upset, I tend to avoid them. (reverse	When my friend gets emotionally upset, I tend to avoid him or her. (reverse		Communal

	scored)	scored)		
10	I expect people I know to be responsive to my needs and feelings.	I expect my friend to be responsive to my needs and feelings.		Communal
11	I will not send a second letter to a friend unless I had received a letter or phone call in response to my first letter.	I will not send a second message (text message, IM, email) to my friend unless I have received a message in response from him or her.	Updated wording	Exchange
12	When I feel I have been injured in some way by a friend, I find it hard to forgive him even when he says he is sorry.	When I feel that I have been hurt in some way by my friend I find it hard to forgive even when he or she apologizes.	Simplified wording	Exchange
13	I often go out of my way to help another person.	I often go out of my way to help my friend.		Communal
14	It matters if people I like do less for me than I do for them	It upsets me when my friend does less for me than I do for him or her.		Exchange
15	When I have a need, I turn to others I know for help.	When I have a need, I turn to my friend for help.		Communal
16	If I praise a friend for his or her accomplishments, I expect him or her to praise me for mine as well.	If I praise my friend for his or her accomplishments, I expect my friend to praise me for mine as well.		Exchange
17	If I take a friend out to dinner, I expect him or her to do the same for me sometime.	When my friend and I are hanging out, if I pay for my friend (ex: movie, coffee, bowling), I expect him or her to do the same for me sometime.	Updated wording	Exchange
18	When I have a need that others ignore, I'm hurt.	When I have a need that my friend ignores, I'm hurt.		Communal
19	I don't mind letting someone borrow something of mine as long as I know I'll be able to borrow something of theirs in return.	I am fine with letting my friend borrow something of mine as long as I know I'll be able to borrow something of theirs in return.	Changed negative wording	Exchange



## Appendix D: Hypothetical Conflict Scenarios

Instructions: Please read the stories below, and imagine that the friend in the story is your **first friend** you listed.

Write the name of your **first friend** again here \_\_\_\_\_.

After each story, you are given a set of items and asked to respond using the scale provided. Please select the response to each item that describes how you think about your relationship with your **first friend** \_\_\_\_\_. Please answer honestly about what you would think and do if you and your friend were in the situation.

Remember, for each item below, use the 1-5 scale where a 1 means “Really Disagree” and a 5 means “Really Agree”.

### STORY #1

**1. After school you are sitting in the library doing a library project. Your friend comes over to you and asks if you would help him with his homework for another subject. You tell your friend that you are trying to do your library project, but your friend still wants you to help him.**

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would your goal be?

A. I would be trying to do my library project

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would be trying to make sure that things are done fairly.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would be trying to get back at my friend

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would be trying to keep myself from getting upset.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would be trying to keep my friend from pushing me around.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would be trying to stay friends.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

**STORY #1**

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

**What would you say or do?**

A. I would help him with his homework.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would keep doing my library project.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would just go away.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would tell my friend that I won't be friends with him anymore if he keeps trying to get me to help him.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would tell him I was going to finish my library project, and then I would help him with his homework.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would tell him that he is dumb for not starting his homework earlier.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

## STORY #2

**2. You and your friend always go to the movies on Saturday. You take turns picking which movie to see. You picked the movie the last time. Today, there is another movie you really want to see, but your friend says it's his turn to pick.**

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would your goal be?

A. I would be trying to keep myself from getting upset.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would be trying to stay friends.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would be trying to go to the movie I want to see.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would be trying to get back at my friend.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would be trying to make sure that things are done fairly.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would be trying to keep my friend from pushing me around.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

## STORY #2

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would you say or do?

A. I would say that I would go to his movie this time if I could pick the movie next time.

1<sup>st</sup> Friend  1  2  3  4  5

B. I would tell my friend that I won't be friends with him unless we go to the movie that I want to see.

1<sup>st</sup> Friend  1  2  3  4  5

C. I would tell my friend that he can pick the movie.

1<sup>st</sup> Friend  1  2  3  4  5

D. I would tell him to shut up because I want to pick.

1<sup>st</sup> Friend  1  2  3  4  5

E. I would just go away.

1<sup>st</sup> Friend  1  2  3  4  5

F. I would tell my friend that we should go to the movie I want to see.

1<sup>st</sup> Friend  1  2  3  4  5

### STORY #3

**3. You and your friend are watching TV at your house one afternoon. You are watching a show you really like a lot. In the middle of the show, you friend says he doesn't like it anymore and he wants to watch something different. You tell your friend that you like the show a lot and you want to watch it. Your friend says he is getting bored and then changes the TV to a different channel**

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would your goal be?

A. I would be trying to get back at my friend.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would be trying to keep my friend from pushing me around.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would be trying to watch the show I like.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would be trying to stay friends.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would be trying to make sure that things are done fairly.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would be trying to keep myself from getting upset.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

### STORY #3

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would you say or do?

A. I would just go away.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would tell him that we should turn back and finish watching the show that we were watching and then watch a show the he wants to watch.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would tell my friend that I won't be friends with him anymore unless he changes the channel back.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would change the channel back.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would tell him that he is a jerk for changing the channel without asking.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would watch the show that he changed to.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

## STORY #4

**4. You and your friend usually work on class projects together. You want to work only with your friend. This time your friend asks some other children to work with you, also.**

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would your goal be?

A. I would be trying to make sure that things are done fairly.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would be trying to stay friends.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would be trying to keep my friend from pushing me around.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would be trying to work with only my friend.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would be trying to get back at my friend.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would be trying to keep myself from getting upset.

1 <sup>st</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

## STORY #4

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would you say or do?

A. I would work with my friend and the other children.

1<sup>st</sup> Friend    1    2    3    4    5

B. I would say that we could work with the other children this time, but next time I want to work by ourselves.

1<sup>st</sup> Friend    1    2    3    4    5

C. I would tell my friend that we should work by ourselves.

1<sup>st</sup> Friend    1    2    3    4    5

D. I would just go away.

1<sup>st</sup> Friend    1    2    3    4    5

E. I would tell my friend that he is a jerk for asking the other children to work with us.

1<sup>st</sup> Friend    1    2    3    4    5

F. I would tell my friend that I won't be friends anymore if he won't work with only me

1<sup>st</sup> Friend    1    2    3    4    5



## What I Do with My Friends – 2<sup>nd</sup> Friend

Instructions: Please read the stories below, and imagine that the friend in the story is your **second friend** you listed. Write the name of your **second friend** again here

\_\_\_\_\_.

After each story, you are given a set of items and asked to respond using the scale provided. Please select the response to each item that describes how you think about your relationship with your **second friend** \_\_\_\_\_. Please answer honestly about what you would think and do if you and your friend were in the situation.

Remember, for each item below, use the 1-5 scale where a 1 means “Really Disagree” and a 5 means “Really Agree”.

### STORY #1

**1. After school you are sitting in the library doing a library project. Your friend comes over to you and asks if you would help him with his homework for another subject. You tell your friend that you are trying to do your library project, but your friend still wants you to help him.**

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would your goal be?

A. I would be trying to do my library project

2<sup>nd</sup> Friend  1  2  3  4  5

B. I would be trying to make sure that things are done fairly.

2<sup>nd</sup> Friend  1  2  3  4  5

C. I would be trying to get back at my friend

2<sup>nd</sup> Friend  1  2  3  4  5

D. I would be trying to keep myself from getting upset.

2<sup>nd</sup> Friend  1  2  3  4  5

E. I would be trying to keep my friend from pushing me around.

2<sup>nd</sup> Friend  1  2  3  4  5

F. I would be trying to stay friends.

2<sup>nd</sup> Friend  1  2  3  4  5

**STORY #1**

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

**What would you say or do?**

A. I would help him with his homework.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would keep doing my library project.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would just go away.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would tell my friend that I won't be friends with him anymore if he keeps trying to get me to help him.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would tell him I was going to finish my library project, and then I would help him with his homework.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would tell him that he is dumb for not starting his homework earlier.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

## STORY #2

**2. You and your friend always go to the movies on Saturday. You take turns picking which movie to see. You picked the movie the last time. Today, there is another movie you really want to see, but your friend says it's his turn to pick.**

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would your goal be?

A. I would be trying to keep myself from getting upset.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would be trying to stay friends.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would be trying to go to the movie I want to see.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would be trying to get back at my friend.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would be trying to make sure that things are done fairly.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would be trying to keep my friend from pushing me around.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

## STORY #2

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would you say or do?

A. I would say that I would go to his movie this time if I could pick the movie next time.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would tell my friend that I won't be friends with him unless we go to the movie that I want to see.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would tell my friend that he can pick the movie.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would tell him to shut up because I want to pick.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would just go away.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would tell my friend that we should go to the movie I want to see.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

### STORY #3

**3. You and your friend are watching TV at your house one afternoon. You are watching a show you really like a lot. In the middle of the show, you friend says he doesn't like it anymore and he wants to watch something different. You tell your friend that you like the show a lot and you want to watch it. Your friend says he is getting bored and then changes the TV to a different channel**

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would your goal be?

A. I would be trying to get back at my friend.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would be trying to keep my friend from pushing me around.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would be trying to watch the show I like.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would be trying to stay friends.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would be trying to make sure that things are done fairly.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would be trying to keep myself from getting upset.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

### STORY #3

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would you say or do?

A. I would just go away.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would tell him that we should turn back and finish watching the show that we were watching and then watch a show the he wants to watch.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would tell my friend that I won't be friends with him anymore unless he changes the channel back.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would change the channel back.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would tell him that he is a jerk for changing the channel without asking.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would watch the show that he changed to.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

## STORY #4

**4. You and your friend usually work on class projects together. You want to work only with your friend. This time your friend asks some other children to work with you, also.**

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would your goal be?

A. I would be trying to make sure that things are done fairly.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would be trying to stay friends.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would be trying to keep my friend from pushing me around.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would be trying to work with only my friend.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would be trying to get back at my friend.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would be trying to keep myself from getting upset.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

### STORY #4

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Really Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Really Agree

### What would you say or do?

A. I would work with my friend and the other children.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

B. I would say that we could work with the other children this time, but next time I want to work by ourselves.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

C. I would tell my friend that we should work by ourselves.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

D. I would just go away.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

E. I would tell my friend that he is a jerk for asking the other children to work with us.

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

F. I would tell my friend that I won't be friends anymore if he won't work with only me

2 <sup>nd</sup> Friend	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
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## Appendix E: Institutional Review Board Approval Letter

Version Date: 8/12/2011

Sample text for an Institution with a Federalwide Assurance (FWA) to rely on the IRB/IEC of another institution  
(institutions may use this sample as a guide to develop their own agreement).

### Institutional Review Board (IRB)/Independent Ethics Committee (IEC) Authorization Agreement

Name of Institution or Organization Providing IRB Review (Institution/Organization A):  
Auburn University at Montgomery

IRB Registration#: IRB00006286 Federalwide Assurance (FWA)#, if any:  
FWA00012889

Name of Institution Relying on the Designated IRB (Institution B):  
University of Maryland, College Park

FWA#: FWA00005856

The Officials signing below agree that University of Maryland, College Park may rely on the designated IRB for review and continuing oversight of its human subjects research described below:  
(check one)

This agreement applies to all human subjects research covered by Institution B's FWA.

This agreement is limited to the following specific protocol(s):

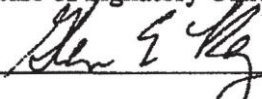
Name of Research Project: Social cognitions about friendships: How social goals and resolution strategies mediate the relationship between relationship orientation and friendship  
(#AUM-IRB 2012-13)

Name of Principal Investigator: Bridgette D. Haper, Ph.D.

Sponsor or Funding Agency: none Award Number, if any: n/a

The review performed by the designated IRB will meet the human subject protection requirements of Institution B's OHRP-approved FWA. The IRB at Institution/Organization A will follow written procedures for reporting its findings and actions to appropriate officials at Institution B. Relevant minutes of IRB meetings will be made available to Institution B upon request. Institution B remains responsible for ensuring compliance with the IRB's determinations and with the Terms of its OHRP-approved FWA. This document must be kept on file by both parties and provided to OHRP upon request.

Signature of Signatory Official (Institution/Organization A):

 Date: 4/23/12

Print Full Name: Glen E. Ray, Ph.D.

Institutional Title: \_\_\_\_\_

NOTE: The IRB of Institution A must be designated on the OHRP-approved FWA

Signature of Signatory Official (Institution B):



Date: 5/15/12

Print Full Name: James Hagberg Institutional Title: IRB Chair

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