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# Negotiation and Reorganization of Peer Relationships During Adolescence: The Emergence of Romantic Relationships and Quality of Peer Relationships

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NEGOTIATION AND REORGANIZATION OF PEER RELATIONSHIPS  
DURING ADOLESCENCE: THE EMERGENCE OF ROMANTIC  
RELATIONSHIPS AND QUALITY OF PEER RELATIONSHIPS

by

MELANIE JO ZIMMER-GEMBECK

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

DOCTOR OF PHILOSOPHY

in

SYSTEMS SCIENCE: PSYCHOLOGY


Portland State University

1998

DISSERTATION APPROVAL

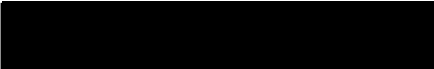
The abstract and dissertation of Melanie Jo Zimmer-Gembeck for the Doctor of Philosophy in Systems Science: Psychology were presented April 29, 1998, and accepted by the dissertation committee and the doctoral program.


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## ABSTRACT

An abstract of the dissertation of Melanie Jo Zimmer-Gembeck for the Doctor of Philosophy in Systems Science: Psychology presented April 29, 1998.

Title: Negotiation and reorganization of peer relationships during adolescence:  
The emergence of romantic relationships and quality of peer relationships.

Research suggests that, for adolescent females, the initiation of romantic relationships is a normative developmental task and a task associated with potential difficulties, including physical aggression. Most previous research treats progress in this task as a function of individual characteristics. This study assumes that when girls are negotiating romantic relationships, they have existing intimate friendships with other females, and these friendships are important to how this task is negotiated.

Females who recently graduated from high school provided retrospective and current information on the amount of leisure time spent with members of their social networks, qualities of relationships in later adolescence, and characteristics of individuals and peer relationships in ninth grade.

This study examined how peer relationships are reorganized during high school and whether girls tradeoff time with friends for time with partners. Growth curves of involvement with friends and partners were estimated. In general, the amount of

time spent with best female friends started high and remained relatively constant during high school, while time with romantic partners started low and increased substantially. Girls did trade time with best friends for time with romantic partners, but no cross-over in normative trajectories was found.

Nevertheless, there was variation in experiences. About a quarter of adolescents spent similar amounts of time with friends and partners throughout high school; and another quarter maintained time with friends, but had little involvement with partners. The remaining females showed some evidence of reorganization: They increased the amount of time with partners and reduced time with best friends.

Social and individual characteristics predicted patterns of involvement with peers. Additionally, these patterns predicted the quality of subsequent relationships with friends and partners. Adolescents who had steeper trajectories of involvement in romantic relationships reported higher positive qualities and more physical aggression in current romantic relationships, and more exposure to jealousy and physical aggression in past relationships.

Results support the notion that adding romantic relationships during adolescence is a complex task that female adolescents negotiate in different ways. Maintaining friendships with other girls may be an important part of that task, and one whose study should be included in future research.

## Dedication

I would like to dedicate this dissertation to Anthony Gembeck, my brilliant and engaging partner and friend, who was by my side long before and who has shared all.

## Acknowledgements

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## Introduction

Research suggests that the initiation of romantic relationships is a normative developmental task of adolescence; most young females experience their first relationships before the age of 18 (Cate & Koval, 1983; Hartup, 1993; Havighurst, 1972; Kirchler, Palmonari, & Pombeni, 1993). Research also suggests that the negotiation of this task is accompanied by potential difficulties. Female adolescents who have more romantic partners and accelerated involvement with partners are also more likely to experience physical and verbal aggression (Bergman, 1992; Reuterman & Burcky, 1989). In fact, early sexual involvement is sometimes considered part of a syndrome of risky behaviors, which includes delinquency, as well as alcohol and drug use (Donovan & Jessor, 1985).

Studies examining predictors of dating during adolescence typically focus on individual factors, showing, for example, that female adolescents who date earlier are also more popular, have more male friends, and mature earlier (Aro & Tiapale, 1987; Connolly, Furman, & Konarski, 1995; Connolly & Johnson, 1997; Franzoi, Davis & Vasquez-Suson, 1994; Phinney, Jensen, Olsen, & Cundick, 1990). Most research on dating or romantic relationships does not yet reflect the fact that at this age, adolescent females belong to dense social networks that almost always include intimate friendships with other girls. Qualitative studies which have included information on female adolescent friendships seem to imply that the addition of

romantic partners to these networks can lead to jealousy or conflict among friends, perhaps because friends have concerns about being devalued or replaced by new romantic relationships (Aneshensel & Gore, 1992; Garcia Werebe, 1987; Simon, Eder, & Evans, 1992; Thompson, 1994).

The current study is based on the assumption that, among adolescent females, the initiation and development of romantic relationships takes place in a context of existing close friendships with other females. In addition, it was assumed that, because friendships serve so many important and positive functions for girls during adolescence, it is likely that close friendships can also help female adolescents negotiate early romantic relationships. Female friends might especially help to buffer the most negative potential consequences of romantic relationships. In fact, because of the nature of early romantic relationships (as relatively superficial and temporary; Connolly & Johnson, 1997; Douvan & Adelson, 1966), it seems possible that romantic partners cannot fully replace the functions of close female friends in providing intimacy, validation and support at least during early or middle adolescence (from onset of puberty until at least age 18).

Friends might help young females negotiate the task of the development of romantic relationships in many ways. Some researchers have suggested that early friendships are a context in which adolescents learn about and practice intimacy, reciprocity, nurturance, conflict resolution, and power (Douvan and Adelson, 1966;

Furman & Wehner, 1994, 1997; Sullivan, 1953). In other words, qualities of early friendships may serve as a kind of template for the qualities females will search for in romantic relationships. Additionally, friends may provide concrete help with the specifics of the task of romantic relationships, such as advice on selection, feedback about choices, support during conflict and break-ups, and encouragement of dissolution of unhealthy relationships.

Other research that has focused on small groups of females in middle school has shown that these groups may promote or influence involvement in romantic relationships (Eder, 1985). However, for other females, the opposite may occur. Close friends may allow adolescent females to initiate romantic relationships when they are interested and ready, and friends may allow some adolescents to progress toward the task of forming and maintaining romantic relationships as slowly or as quickly as they like.

When seen in this way, the developmental task facing adolescent females may not be best characterized only in terms of romantic partners. Instead, the developmental task may be to find a way to become involved with romantic partners while at the same time maintaining close friendships with other females. If so, then this task involves a complex negotiation, which may result in different patterns of involvement with friends and romantic partners, and may change over time and with increasing involvement with partners. A particularly salient and

observable event in this process may be the first time that a romantic relationship takes precedence over a friendship.

Patterns of involvement with female friends and romantic partners, and the timing of the change in precedence of friends and partners may be predicted by characteristics of peer social relationships and individuals characteristics that existed prior to entering into romantic relationships. Further, patterns may also be expected to have different long-term consequences, including quality of subsequent friendships, the nature of future romantic relationships (including negative qualities), and the young women's own personality and self-development.

The current study aimed to investigate whether (and how) romantic relationships were incorporated into the existing peer social world during high school, and how the coordination of same-sex friendships and romantic relationships was accomplished. Of interest were both normative (average) patterns of involvement with romantic partners and female friends and individual variation among these patterns, as well as early predictors of patterns of involvement and consequences of these patterns for later peer relationships.

### Overview of the Literature Review

A single body of research could not be identified that was directly relevant to all of the goals of this study, so research and theory to guide this study were drawn

from six major areas. These six areas were organized into two chapters containing three sections within each chapter. In the first literature review chapter, the focus was on romantic relationships during adolescence. The first section of this chapter was designed to provide an understanding of the nature of romantic relationships during early adolescence (junior high or middle school age) and middle adolescence (about high school age). Therefore, the terms dating and romantic relationships were defined, positive and negative qualities of these relationships were described, and predictors of the developmental path of dating were summarized.

The second section of the literature review was designed to locate these romantic relationships within the existing peer mesosystem (Bronfenbrenner, 1977, 1988). To do this, a summary of changes that occur in the system of peer relationships from childhood to middle adolescence was provided. In the third section, the few studies that were important to understanding how romantic relationships influence existing same-sex friendships were summarized.

In the second literature review chapter, the emphasis was on same-sex friendships during adolescence. This chapter was provided because it was necessary to describe the important and positive functions of friends during adolescence. This literature supports the focus of this research on the positive functions that same-sex friends may play during the emergence of romantic

relationships, and why the developmental task of establishing romantic relationships might be better conceptualized as a task that also includes maintaining these friendships.

The goal of the first section of this second literature review chapter was to provide an understanding of why loss (especially early loss) of same-sex friendships may be a problem for adolescents. In this section, the nature and benefits of same-sex friendships during adolescence were summarized. In the second section of this chapter, the ways that friends might help young females negotiate the transition to romantic relationships were identified. In particular, this section included literature on associations between qualities in same-sex friendships and qualities in romantic relationships.

In the final section of this second literature review chapter, the focus was on research that provides evidence of the consequences of patterns of peer involvement for later relational and individual functioning. Specifically, literature that indicated how patterns of involvement in romantic relationships and female friendships might be important to the development of high quality relationships in the future, and to young women's personality and self development.

Overall, few empirical studies have considered the influence of the initiation of romantic relationships on adolescents' existing peer relationships, or focused on the possibility that individuals' relationships with peers may interact as part of a larger

system of peer relationships. Therefore, prior to the literature review, some basic assumptions that guided this study will be summarized to provide a context for the remaining sections. The first assumption, the systems approach, will be described in the most detail, because the origins and implications of this approach are not well known by developmental psychologists. The next two assumptions, a) dating as an ecological transition that is unique to adolescence and b) gender differences in peer relations, were discussed to provide information that supports the emphasis in this study on high school age females (middle adolescence). Following this section, literature will be reviewed, study goals will be described, and explicit hypotheses formulated.



## Assumptions and Theoretical Framework

### Assumption 1: Systems Approach

Sameroff and others (Boulding, 1956; Laszlo, 1972; Sameroff, 1982, 1983; von Bertalanffy, 1968) differentiated a systems approach from general systems theory. General Systems Theory is not a theory, but a discipline. Therefore, there is not one agreed upon approach or theory. Instead there are many different opinions about what General Systems Theory or a general systems approach should include (von Bertalanffy, 1968; Boulding, 1956; Laszlo, 1972).

The founding of General Systems Theory is usually attributed to von Bertalanffy (1968). He focused on the priority of developing an interdisciplinary field that uncovered commonalties and isomorphisms between systems in differing disciplines. He argued that if one is to understand a system one needs to understand both the elements and their interrelations. Within General Systems Theory the wholeness of systems and their organization must be recognized.

A systems approach has been described as an interactionist viewpoint in which it is recognized that the whole cannot be understood merely by understanding it's parts in isolation (Sameroff, 1982, 1983). The approach has been described as a "codeword for saying that we must begin to think more complexly" about the developing person and his or her environment (Horowitz, 1989, p.211).

Understanding the whole system means understanding both the elements of that system and how these interrelate.

A systems approach within developmental psychology has arisen from the writings of those working within the field of General Systems Theory and from psychologists and others who have recognized multiple influences and their interactions on development (Baltes, 1979; Baltes, Reese, & Lipsitt, 1980; Bronfenbrenner, 1977, 1988; Bronfenbrenner & Crouter, 1983, Lewin, 1954; Riegel, 1976; Sameroff, 1982, 1983; Thelen, 1989; Thomas, 1992). These multiple influences on development include individuals' biology, their environments, and the interactions between active individuals and their active environments.

Drawing heavily from Lewin (1954), his students, and Gestalt psychology, Bronfenbrenner (1977, 1988; Bronfenbrenner & Crouter, 1983; Bolger, Caspi, Downey, & Moorehouse, 1988; Thomas, 1992) has argued that any analysis of human behavior must consider several related “spheres” of experience. He stressed that the context is a strong force in the process of developmental change. One of the first tasks prescribed by his ecological systems theory of development is to examine the linkages between levels of environmental influences. He proposed a nested arrangement of contexts that interact and impact the development of individuals who are embedded within them. The smallest unit is the microsystem. These are the interactions that occur within the immediate settings of the

developing person (e.g., the peer group). The next unit is the mesosystem. This system contains a series of interrelated microsystems containing the developing person at a particular point in his or her life (e.g., interactions between the individuals peer group and their school setting). The exosystem is an extension of the mesosystem and includes other social structures that do not contain the person. Finally, the macrosystem refers to formal or informal prototypes in the organization of culture or society that set patterns for the structures and activities occurring at the other levels.

Others emphasizing a systems or ecological approach within developmental psychology have focused on relationships. In particular, they have particularly stressed the need to understand the process of dialectical relations between levels of different relationships, so that an integrated account of children and adolescents' social lives can be obtained (Hinde, 1992; Hinde & Stevenson-Hinde, 1987; Furman & Buhrmester, 1992; Lewis, 1982). The focus of this approach is contrasted to the epigenetic model that also focused on in the interconnection between relationships. The epigenetic model is the most accepted theory of the development of social relationships and proposes that relationships develop in a determined fixed sequence (Lewis, 1982). Early attachments (most likely to the mother) are the basic elements of all relationships. The quality of all later relationships stems from these early relationships. Earliest attachment relationships

shape organisms and this shaping determines the quality of all subsequent relationships.

In contrast, a systems approach or ecological approach places the emphasis on the social world instead of the organism alone. Some causes of social behavior are found within the social system. Social relationships are influenced by the structure of the system and when relationships within the system or the system itself changes, then individual behaviors and the nature of other relationships are affected. For example, the epigenetic model would predict that attachment to the mother (or caregiver in the family of origin) would predict both the quality of same-sex friendships in adolescence and the quality of cross-sex relationships in adolescence and adulthood. In addition, it could predict that early attachment to a same-sex friend would influence attachment to a romantic partner. However, the epigenetic model would not predict that the emergence of romantic relationships would change interactions with same-sex friendships or alter their quality. A systems approach would predict exactly that. In sum, while the epigenetic model places the focus on the individual and on the traits that he or she carries forward from relationship to relationship, the systems approach places more focus on features of the social system and on processes within the social system.

A systems approach organized the study presented here. Same-sex friendships and romantic relationships were conceptualized as two microsystems in which

individuals exist and interact. One property of the microsystem was reciprocity, so the microsystems were expected to reciprocally influence each other (Bronfenbrenner, 1977). In this study, quantity of same-sex and cross-sex friendships were expected to influence the emergence of romantic relationships, and once in existence, romantic relationships were expected to result in the reorganization of peer relationships.

Systems approaches also emphasize processes above the level of the microsystem. The mesosystem was thought to encompass both these microsystems and was used to describe how behaviors and experiences in same-sex friendships were expected to influence behaviors and experiences in romantic relationships and vice versa. One property of a mesosystem allows for the possibility that the joint influences of microsystems may combine to influence current behavior. In this study, it was expected that combined patterns of same-sex friendships and romantic relationships during high school would result in the experience of high or low quality peer relationships in later adolescence.

#### Assumption 2: Dating is an Ecological Transition Unique to Adolescence

Ecological theory has proposed that ecological transitions are the opportune time to study contextual influences on development (Bronfenbrenner, 1988; Bronfenbrenner & Crouter, 1983; Bolger, et al., 1988). An ecological transition is

a normative or nonnormative event that changes the role or setting of the developing person. A normative event is associated with a person's level of maturation (Baltes, et al., 1980). The transition to dating and first involvement in romantic relationships is a normative ecological life event that is unique to adolescence (in Western culture; Cate & Koval, 1983; Connolly & Johnson, 1995; Kirchler, et al., 1993; Newcomb, Huba, & Bentler, 1986; Gordon & Miller, 1984). At this time in the life course, the onset of puberty occurs and the emergence of new societal expectations result in a majority of individuals forming romantic relationships.

### Assumption 3: Gender Differences in Peer Relations

Research has supported notions that gender differences exist in the development of intimacy between both same-sex and cross-sex peers in childhood and adolescence. Young females have been found to report more significant relationships with others, and a higher capacity for intimacy. They also achieve more intimate relationships earlier in the life span, report higher levels of intimacy and need for social support in same-sex relationships, and inconsistently report more intimacy, love and commitment within their romantic relationships. Finally females appear to prefer close dyadic relationships to group involvement when compared to males of the same age (Berndt, 1982; Blyth & Foster-Clark, 1987;

Blyth, Hill, & Thiel, 1982; Buhrmester, 1990; Buhrmester & Furman, 1987; Easton, Mitchell, & Jolley, 1991; Lempers & Clark-Lempers, 1993; Miller, 1990; Paul & White, 1990; Perlman & Fehr, 1987; Rice & Mulkeen, 1995; Sharabany, Gershoni, & Hofman, 1981). In addition, how same-sex and cross-sex relationships influence each other has been found to differ when comparing male and female adolescents (Miller, 1990). Therefore, in all research concerned with the quality of adolescents' relationships, gender differences must be assumed. The hypotheses of this study are focused on female adolescents.

### Literature Review: Romantic Relationships during Adolescence

The focus of this first literature review chapter is on romantic relationships during early and middle adolescence. This chapter includes three sections that provide an understanding of the nature of romantic relationships and predictors of the emergence of romantic relationships. The first section focuses on relationships with romantic partners (usually of the other sex) during adolescence. This section a) defines dating; b) summarizes research on the antecedents of the developmental path of dating including age, pubertal development, dating history, and interaction in mixed-sex peer groups, and c) describes positive and negative qualities of these relationships. The second section describes how these romantic relationships emerge in an existing peer mesosystem. The third section than summarizes the existing evidence for the supposition that romantic relationships might influence and change existing peer relationships and the peer mesosystem.

#### Definitions of Dating and Romantic Relationships

It has been difficult to clearly define dating and to identify when adolescents normatively start to date or become involved in steady romantic relationships. Dating and steady relationships are elusive phenomena that have been found to be influenced by historical change, and at any point in time, usually depend upon the



specific dyad, partners' perceptions, emotional involvement and future goals, and the setting in which dating takes place (McCabe, 1984; Gordon & Miller, 1984).

Reports of the average timing of the onset of dating and other markers of involvement in romantic relationships have been somewhat inconsistent. It can be assumed that the lack of a clear definition for the phenomenon of dating has been responsible for some of these inconsistencies. The literature has referred to romantic relationships during adolescence as dating, going steady, having a boyfriend or girlfriend, heterosexual relationships, courtship relationships, cross-sex relationships, opposite-sex relationships, or other-sex relationships. However, these terms were not often explicitly defined. In fact, some studies have used survey questions which asked about opposite-sex relationships without differentiating platonic from other possible forms (e.g., Blyth, et al., 1982; Sharabany, et al., 1981). This variety in terminology and lack of definition makes replications of results in other settings or across cultures more difficult.

Only a few attempts have been made to investigate what these terms mean to adolescents (Garcia Werebe, 1987; Gordon & Miller, 1984). One study of French adolescents reported that dating did not always imply an existence of any special level of affection (Garcia Werebe, 1987). One study detailed how terms such as "going steady" or "going steadily" have changed over the last few decades (Gordon & Miller, 1984). Gordon and Miller (1984) reported that the exchange of clothing

or jewelry (e.g., a class ring or jacket) was the one indicator of an exclusive relationship that had remained constant over time.

### Onset and Length of Romantic Relationships

According to McCabe (1984), the median age of beginning to date in 1968 was 13.2 years. This was a decrease from about 16 years of age at the time of World War I. However, Phinney and colleagues (1990) found that the average age of the first date was 15 years for nonblack females and 16 years for black females, and Wright (1982) defined "early daters" as those dating before 14 years of age. In contrast, Gordon and Miller (1984) reported that most adolescents had gone steady before their 15th birthday. These varying statistics may have been partially a result of differing definitions and interpretations of terms such as dating or going steady, but may also reflect individual and group differences in patterns of dating.

The romantic relationships of 14- and 15-year-olds are fairly short in duration, but the norm seems to be consistent involvement in serial steady relationships (McCabe, 1984; Simon, et al., 1992). Among 15-year-olds residing in Canada, romantic relationships continued an average of about 4 months (Connolly & Johnson, 1997). No research was found that reported whether relationships of longer duration are more common as adolescents get older, although, Parks, Stan, and Eggert (1983) reported that the average length of dating relationships in

undergraduate students was longer. In summary, about 70% to 90% of males and females have been found to be involved in steady romantic relationships by the time they were in their last year of high school, and most relationships were fairly short in duration (Gordon & Miller, 1984; Thornton, 1990; Udry & Campbell, 1994). Nevertheless, there seems to have been variation among these adolescent samples. This variation may be due to individual factors that can influence the developmental path of dating and romantic relationships. These are described in the next section.

#### Influences on the Developmental Path of Dating and Romantic Relationships

Developmental patterns of dating and involvement in romantic relationships among contemporary adolescents have been found to exhibit individual differences that are influenced by both biological and environmental factors (Aneshensel & Gore, 1992; Brooks-Gunn, 1988a, 1988b; Collins & Repinski, 1995; Gargiulo, Attie, Brooks-Gunn, & Warren, 1987). Pubertal status, gender, age of dating onset, status with peers, dating importance (a combination of measures of the need to be social, need to have a partner, and a need for companionship), and size of the opposite-sex friendship network have been found to be directly related to going steady, dating, the emergence of steady romantic relationships or the onset of sexual intercourse (Connolly, et al., 1995; Connolly & Johnson, 1997; Franzoi, et

al., 1994; Gargiulo, et al., 1987; Gordon & Miller, 1984; McCabe, 1984; Newcomb, et al., 1986). In addition, in an observational study of early adolescent females in grades 6 to 8 over a two-year period, the importance and emphasis placed on relationships with boys varied depending on adolescents' membership in particular peer groups (Simon, et al., 1992). Even within peer groups, girls' interest in boys varied. Nevertheless, most girls began to show some interest in the other sex by the seventh grade.

### Age

In general, dating appears to be a highly sought after and normative behavior during adolescence in Western industrialized cultures, and some researchers have theorized that dating and the transformations which accompany the new dating role is a developmental task of adolescence (Cate & Koval, 1983; Havighurst, 1972; Kirchler, et al., 1993). In qualitative interviews, most adolescents between the ages of 13 and 17 mentioned having a first boyfriend or girlfriend as a significant life event during this period (Aneshensel & Gore, 1992). Zani (1991) reported that in a survey of 603 Italian adolescents between the ages of 15 and 17, 70% believed having a boyfriend or girlfriend was important. Therefore, dating and romantic relationships seem to be age-graded in Western cultures.

### Timing of Puberty and Appearance of Physical Maturation

Multiple studies have found that pubertal development influences the onset of dating. In a nationally representative survey of adolescent females, girls reported beginning to date about 2.5 years after menarche (Phinney, et al., 1990). Using a method in which adolescents between the ages of 10 and 16 selected pictures that most closely represented their level of physical maturation, Flannery, Rowe, and Gulley (1993) found that early maturing girls reported two to three times more sexual experiences when compared to late maturing girls. In a longitudinal study of Finnish eighth grade girls, Aro and Tiapale (1987) found that 70% of girls that experienced menarche at age 12 or earlier were dating at age 16, while only 48% of girls who experienced menarche at age 14 or later were dating at this age.

### Timing and Intensity of Past Dating Behavior

Dating history is also related to the developmental path toward steady romantic relationships, sexual activity, marriage, and marriage-like relationships. Additionally, increasing amounts of time spent with romantic partners during adolescence has been associated with an intensified courtship process and increased sexual activity (Thornton, 1990). In a longitudinal study following a group of children from birth to age 18 and their mothers, Thornton (1990) found that the timing of the first date was strongly related to going steady. Earlier onset of dating

was associated with earlier steady relationships and more frequent dating. Also, those young people who began to date and go steady earlier were more likely to participate in sexual intercourse with partners at any level of dating and courtship that they were involved in.

In summary, age or grade level have been found to have the strongest influence on dating behavior. By about age 15 most young people had dated or gone steady. However, pubertal timing and physical maturation also influenced the onset of dating after accounting for the influence of age or grade. Girls who matured earlier also tended to date earlier. In addition, the timing of the onset of dating and the intensity of dating influenced future dating behaviors including steady relationships and sexual activity. Therefore, pubertal timing, over and above the influence of age, influenced dating onset, and the experience of dating influenced the developmental path toward steady or marriage-like romantic relationships and sexual activity.

### Mixed-Sex Groups

Past research has described the larger peer group, and particularly mixed-sex groups, as the promoters of the importance of establishing romantic relationships. The importance of romantic relationships has been found to be influenced by adolescents' desires for social achievement and maintenance of their social status.

In a field study of 303 adolescents using participant observation in Sydney, Australia, Dunphy (1963) reported that single-sex cliques of older male and younger female adolescents come together in middle adolescence (high school) to form peer groups containing both males and females. In observations of school, leisure, and social functions in youth hangouts, on streetcorners, in homes, at parties, and on beaches, it appeared that mixed-sex crowds of adolescents served the purpose of facilitating dating and heterosexual relationships. These crowds of adolescents then began to disintegrate as heterosexual couples formed.

Consistent with Dunphy's (1963) work, other research has reported that the number of members in peer groups does generally decline from middle adolescence (high school age) to late adolescence (college age). This seems to be primarily prompted by adolescents increasing involvement in more intimate dyadic relationships (same- or cross-sex; Connolly & Johnson, 1993; Csikszentmihalyi & Larson, 1984; Pombeni, Kirchler, & Palmonari, 1990; Zani, 1993). However, one study of about 100 young people in grades 6, 8, 10, and 12 suggested that many adolescent friendship groups remain single-sex throughout high school (Urberg, Degirmencioglu, Tolson, & Halliday-Scher, 1995). Further, Simon, et al (1992) observed that female friendship groups in early adolescence also promoted romantic relationships through conversation about males. It may be that the research of Dunphy (1963) primarily involved more popular students as current

research has found that only the popular and "burnout" (students more disengaged from school and who use higher amounts of alcohol and drugs than most other students) adolescent crowds had both a male and a female friendship group nested within them (Urberg, et al., 1995). However, Dunphy (1963) stated that he found no "bias" (p. 375) in his selection of youth to observe.

### Qualities of Romantic Relationships During Adolescence

The majority of research on cross-sex relationships during adolescence within developmental psychology has focused on the positive qualities and benefits of these relationships. However, research that has not usually originated from a developmental orientation has illuminated the possibility of negative experiences within romantic relationships. Both of these bodies of literature are reviewed.

### Functions and Positive Qualities of Romantic Relationships

Romantic relationships can have many of the same function and qualities as same-sex friendships including intimacy, companionship, and support. However, some functions of romantic relationships may be qualitatively different from those of same-sex friendships. For example, the functions of sexual experience, courtship, and/or marriage may differentiate romantic relationships from friendships (Lempers & Clark-Lempers, 1993; Sharabany, et al., 1981).



Additionally, as adolescents grow older, the functions of dating and romantic relationships may begin to broaden or change. For example, adolescents in grade 6, grade 11, and college were asked to complete a survey asking for reports of the functions of dating in their lives. Adolescents in grade 6 and 11 perceived dating as a means of recreation, intimacy, and status, while adolescents in college were less likely to date for status achievement and more likely to date for recreation, intimacy, companionship, and socialization (Roscoe, Diana, & Brooks, 1987). Therefore, it appears that some of the functions of dating change with age.

#### Negative Qualities of Romantic Relationships

The emergence of romantic relations in adolescence can also result in some negative and distressing experiences. Two qualitative interview studies by Thompson (1994, 1995) and Aneshensel and Gore (1992) provide evidence that the transition to dating and the role restructuring that accompanies this transition can be distressing to young people. After interviewing 400 females between the ages of 13 and 20, Thompson (1994) reported that some females were concerned with falling in love and then being “dumped” and hurt like others they knew. Aneshensel and Gore (1992) reported that a delay in dating in comparison to one’s peers; unwanted breakups and exits, including feelings of being trapped in relationships they could not end; and other difficulties with romantic partners were

the most distressing events associated with dating and romance. Although not directly mentioned in these articles, other research has shown that some of this distress may have been the result of physical aggression, psychological maltreatment, and/or verbal aggression between dating partners (Sugarman & Hotaling, 1989).

Physical aggression and violence. High school students report that they experience a range of emotionally hurtful and physically aggressive behaviors in their dating relationships including being called names, being slapped and pushed, or being threatened with knives and guns (Bergman, 1992; Pirog-Good & Stets, 1989; Reuteran & Burcky, 1989; Roscoe & Callahan, 1985). In a review of research on dating violence, the mean self-reported prevalence of physical dating violence in high school students was 22% (Sugarman & Hotaling, 1989) and reported estimates have ranged from 10% to 40% (Reuteran & Burcky, 1989). These rates of physical violence are similar to those found in studies of marital relationships (Goodman, Koss, Fitzgerald, Russo, & Keita, 1993).

Psychological maltreatment and verbal aggression. Psychological maltreatment or verbal aggression between dating partners is also fairly common in the dating relationships of young people. Modifying a scale originally developed by Tolman (1989) for marital relationships, Kasian and Painter (1992) found five forms of psychological abuse among unmarried college students. These factors were titled

isolation and emotional control, self-esteem (mostly items that denigrated feelings of cognitive and emotional competence), jealousy (lack of trust), verbal abuse/intimidation and emotional/physical withdrawal. Reporting characteristics of their current dating relationships, approximately 19% of undergraduate females were found to have two or more psychological maltreatment scores at least one standard deviation above the mean.

Predictors of negative qualities. Many of the commonly proposed causes or correlates of females' experience of dating violence have not been consistently supported. These have included individual, interpersonal, or family-of-origin (social learning) factors such as relationship commitment, a history of violence in the family of origin (either between parents or parent-to-child), sex-role attitudes, and personality factors (see reviews by Carlson, 1987 or Sugarman & Hotaling, 1989). A more promising approach may be to pursue the possibility that past experiences with dating, characteristics of the peer group, or characteristics of peer group members may be the root of some physical aggression in dating relationships. For example, the number of previous dating partners has been found to be associated with females' experiences of violence in dating relationships. In one study of dating violence in high school students, girls who had experienced violence had dated a larger number of individuals when compared to adolescents who had not experienced violence (Reuterman & Burcky, 1989). In a second and

similar study, a score on a scale of dating violence had the strongest positive correlation with the reported number of dating partners (Bergman, 1992). Dating frequency was also related to experiencing dating violence in this study. An additional study found that individuals who had experienced an aggressive relationship had been involved in more steady romantic relationships than individuals who had not experienced aggression within relationships (Murphy, 1984 cited in Arias, Samios, & O'Leary, 1987).

One study of women seeking shelter from violent marriages provides evidence of the risk of an accelerated pathway to involvement in relationships with males (Avni, 1991). Of 32 women residing in a shelter for battered women, 50% married between the ages of 15 and 17. Eighty percent married before age 20. Most of these women reported short courtships lasting one to five months before marriage and all but one woman married within one year of meeting their partners.

#### Co-Occurrence of Positive and Negative Qualities

Only a few studies have measured both positive and negative qualities of romantic relationships concurrently. These studies have found that negative and positive qualities can exist within relationships simultaneously. Distressing events such as emotional abuse and physical aggression may even co-occur with positive qualities of romance. Connolly, et al. (1995) found that social support and conflict

within romantic relationships were highly positively correlated ( $r=.48$ ). In addition, although there have been no similar studies with high school aged participants, Raymond and Bruschi (1989) found that college women's relationships with men could be categorized as high or low in psychological abuse and high or low in kindness. They identified relationships that fit all four categories. Although the majority of partners were reported to provide high amounts of kindness and little psychological abuse (43%), 27% of relationships were categorized as having low levels of kindness and high levels of abuse and 16% of relationships were both high in kindness and abuse. No studies could be located that assessed both positive qualities of romantic relationships such as intimacy and negative qualities of psychological maltreatment or physical aggression in the relationships of high school students. Because positive and negative qualities are not mutually exclusive, it was important in this study to include measures of both positive and negative qualities of romantic relationships to more fully describe relational experiences.

### The Peer Mesosystem

It is clear that for the majority of adolescents, one's social life expands and becomes more complex as peers, including romantic partners, come to take a more central role (Jackson & Rodriguez-Tomé, 1993). A lack of peer companionship

becomes associated with serious social and emotional difficulties, and low quality relationships, particularly relationships marked by aggression and maltreatment, can also be devastating (Baumeister & Leary, 1995; Goodman, et al, 1993; Hartup, 1983, 1989; Leary, 1990; Parker & Asher, 1987; Pirog-Good & Stets, 1989; Walker, 1984, 1987).

Despite the recognition of the continuing change in social networks that begins in preadolescence and continues throughout the adolescent years, there has been little research directly addressing the expansion of peer social networks to include romantic relationships. There is a prominent history of focusing on the influences of the family on peer relationships and the changes in family relationships that occur when peer relationships become more central to the lives of adolescents (Aseltine, Gore, & Colton, 1994; Berndt, 1982; Collins & Repinski, 1995; Jackson & Rodriguez-Tomé, 1993; Perry, Kelder, & Komro, 1993). However, very little attention has been paid to the restructuring that may occur when the peer system is broadened to include romantic relationships. Future research is needed to understand when these changes occur, how this process may vary among adolescents, and how adolescents manage this transition.

### Romantic Relationships May Impact Existing Same-Sex Relationships

Some very current research has focused on how the emergence of romantic relationships may impact existing peer relationships during adolescence or young adulthood. Yet, very little of this work has been directly concerned with how adolescents may manage and negotiate their peer social networks as a result of the initiation and development of romantic relationships. Additionally, no previous research has focused on how this negotiation process might result in the reorganization of peer relationships, and might have consequences for the development of low or high quality peer relations. Therefore, the final section of this literature review chapter focused on interpreting research that suggests reorganization of peer relationships as romantic relationships emerge.

### Change in Companions and Involvement with Peers

Although the number of studies remains small, a few researchers have recognized that changes might occur in established social relationships when dating or romantic relationships are added to existing adolescent roles and social relationships. One area of focus has been on changes in time spent with peer companions. Since one of the distinguishing features of close relationships is the amount of time spent interacting within them, young people spend increasing amounts of their leisure time with their romantic partners as they mature. In

interviews, adolescents have reported that they begin to curtail the amount of their leisure time they spend with friends to accommodate these changes (Aneshensel & Gore, 1992).

Observational and survey research has confirmed the reports of young people. In an observational study of 130 groups including 321 adolescents in three high schools and six out-of-school settings, Montemayor and van Komen (1985) measured setting, group size, and sex composition of groups of peers. Peer group size outside of the school setting decreased between age 13 to 20 from an average of 3 members to 2 members and became more heterosexual.

Other studies have confirmed these findings. In a cross-sectional study relying on beepers to prompt high school students to report their activities over a one-week period, Csikszentmihalyi and Larson (1984) reported that adolescents spent the majority of their leisure time with peers in conversation. They also identified a significant shift in the number and gender of peer companions from grade 9 to grade 12. Freshman spent the majority of their time in same-sex groups or in same-sex dyads (see Figure 1). Sophomores and juniors were spending more time in cross-sex peer groups. Seniors spent much more time in cross-sex dyads and reduced the amount of leisure time they spent in cross-sex groups of peers.

Although the changes in leisure time companions (from friends in groups to cross-sex dyads) varies according to gender and social class, most adolescents



begin to spend more time with boyfriends or girlfriends at about age 13 or 14 and this time increases from thereafter. Hendry and colleagues (Hendry, Shucksmith, Love, & Glendinning, 1993) administered surveys to almost 10,000 randomly selected high school students in Scotland. Surveys were completed every other year for five years (three surveys). In cross-sectional analyses, young people spent most of their time with their parents when they were 12 years old or younger. Time spent with peers and alone gradually increased until about age 15 or 16 when time spent with a boyfriend or girlfriend then became more common (see Figure 2). In general, females and individuals of lower socioeconomic status spent more time with boyfriends or girlfriends earlier in the life course. Overall, the general trend was for time with friends of the same-sex to decline beginning in middle adolescence with a corresponding increase in the amount of time spent with boyfriends or girlfriends. Young women were the most likely to sacrifice time spent with close female friends for boyfriends. Females who spent a lot of time with boyfriends were less involved with their best female friends.

This transition can leave other adolescents feeling abandoned by friends and may result in feelings of pressure to establish a new friendship group or to follow their friend in this role transition. Douvan and Adelson (1966) reported this phenomena between female same-sex friends. They found that girls who were becoming involved in cross-sex romantic relationships were having more conflicts

with their friends over feelings of competition, jealousy, and disloyalty. Shulman (1993) believed that there were three main reasons that friendships between adolescents were terminated: a conflict, mistrust, or personal changes such as intrusion of a third person like a boyfriend or girlfriend.

Finally, Johnson and Leslie (1982) predicted that as couples formed and developed, their individual networks would shrink. They labeled this process The Dyadic Withdrawal Hypothesis. This hypothesis has been verified in studies of late adolescents and young adults (Johnson & Leslie, 1982; Surra, 1985; Surra & Huston, 1987). Surra (1985) recruited 50 married couples to construct retrospective pathways through dating, engagement, and marriage. Romantic partners did begin to withdraw from their individual networks of family and friends as their relationships evolved. The proportion of leisure activities that included both of the members of couples, as well as other network members declined from the serious dating stage to the marriage stage. In addition, the proportion of leisure activities that an individual member of a couple engaged in with other social network members without the presence of the other member of the couple declined even more substantially. In general, the social network withdrawal process was primarily apparent in the reduction in the frequency of activities with other network members.

In summary, young people have been found to change their levels of involvement with members of their social networks when they become involved in cross-sex and/or romantic relationships. These changes even affected their involvement with their close same-sex friends. Changes began to occur during middle adolescence and became most visible by about grade 12. Also, changes in peer involvement as a result of the emergence of romantic relationships were most easily recognized by examining time spent in groups versus dyads and the amount of time spent with social network members. Additionally, these changes were most pronounced among females and individuals of lower socioeconomic status.

#### Change in Peer Group Involvement and Status

According to Italian researchers (described in Zani, 1993), there were three possible effects on peer group interactions when romantic relationships were initiated. First, involvement in peer groups remained stable because partners demanded no change in peer group relationships and these relationships continued as before. In contrast, changes in peer group involvement were evident when either new relationships affected the presence in peer groups or new relationships resulted in conflicts and choice of new partners over peer groups. Hence, involvement with peer groups were often affected by the initiation of romantic relationships, but changes in involvement with peer groups differed among individuals. Although

this research may have focused on membership and involvement with groups of peers rather than involvement with same-sex friends, these possible variations in changes in existing relationships as romantic relationship emerge could easily be applicable to close same-sex friendships.

In general, dating, especially early interest in boys and dating or involvement in romantic relationships, may have the disadvantage of taking one out of wider circulation in the peer group. This could reduce visibility by peers. Lowered visibility and recognition by peers is linked to lower status with peers and less involvement in group activities. For example, in interviews and observations, popular students have been found to be those students that most other students know and recognize (Brown, Mory, & Kinney, 1994; Eder, 1985; Kinney, 1993). Further, popular students often have been found to report the highest level of involvement in social and school activities, and report more friends and close friends (Franzoi, et al., 1994). In a small study of about 100 high school students by Franzoi and colleagues (1994), a sociometric measure was used to classify students as popular, controversial, average, neglected or rejected. Popular students (those that were often liked and rarely disliked) did not date as much as one would expect. Controversial students (those with many reports of being liked and many reports of being disliked by their peers) and average students were found to date more frequently and to have been involved in romantic relationships earlier than

popular students. Further, observational research has reported that early interest and involvement with romantic relationships by females, or frequent and more indiscriminant dating has been found to lead to female friendship conflict and a label of "boy crazy" or worse (Simon, et al., 1992). In sum, early and intensive interest in romantic relationships may lead to less recognition by the wider peer network, and conflict or labels that result in lowered status with same-sex peers and lower popularity (at least with other females).

In older adolescent females, there does not appear to be as strong a link between attractiveness and popularity with both females and males as there is in younger adolescents. Some students reported that the females who attracted the most attention from males were viewed negatively by other females and began to lose popularity with females over time (Simon, et al., 1992). Additionally, Franzoi and colleagues (1994) reported that older adolescents sometimes rated the most attractive students as the least liked students and Miller (1990) found a strong relationship between popularity with the same-sex and cross-sex for boys in grade 10 ( $r=.70$ ), but there was no such relationship for girls in grade 10 ( $r=.18$ ).

#### Changes Linked to Low Quality Romantic Relationships

To fully understand the reorganization of the peer relationships of females during adolescence, it is important to understand how negative qualities within

romantic relationships may restrict interactions with other peers. The literature on physical aggression and psychological maltreatment in romantic relationships contributes to the understanding of how these relationships potentially affect relationships with other network members, and suggests how these experiences might result in high or low quality relationships in late adolescence. In particular, measures of psychological maltreatment within romantic or marital relationships and reports of females' experiences of physical aggression within marriage suggest that dominance and isolation often accompanied these behaviors (Browne, 1987; Walker, 1984; 1987; Tolman, 1989; Hoff, 1990). Larkin and Popaleni (1994) reported that in the course of interviews specifically addressing heterosexual violence and sexual harassment, high school females were intimidated by male peers into curtailing involvement with friends or involvement in extracurricular activities. In addition, individuals in violent relationships have reported feelings of loss of independence and being trapped or pressured to remain in romantic relationships (Gryl, Stith, & Byrd, 1991).

This literature on physical or psychological aggression and isolation has limitations. The bulk of this literature focuses on college students, fails to recognize that many first experiences with these abusive behaviors within romantic relationships may occur in early or middle adolescence, and does not usually attempt to incorporate an understanding of developmental processes. Therefore,

there is little recognition of the influence of other developmental changes that occur during adolescence such as cognitive changes or identity development, and little discussion of how these changes may place an individual at greater risk or could protect a young person from these negative experience. For example, early physical maturation and early involvement with older males may leave adolescent females more vulnerable to influences that they are not prepared to cope with adequately. This possibility has never been addressed in the existing work on violent adolescent dating relationships.

The lack of recognition of the relationship between the quality of dating relationships and the quality of other peer relationships is also a limitation of research on abusive heterosexual relationships. There is often little acknowledgement that these relationships are embedded within a context of friends and a larger peer group that impacts each individual and the relationship. Yet, research literature has not documented how violent relationships affect others parts of the social system. Most literature on violence in dating relationships stems from a personality or social learning framework. This literature has often focused on explaining the emergence or continuation of violence in relationships with social learning theory (e.g., family of origin effects), individual personality factors (e.g., self-attitudes, sex role orientation, rejection sensitivity), and relationship dynamics (e.g., inadequate communication skills, deficits in skills for coping with conflict).

However, recently some research has begun to place more emphasis on characteristics of the peer social system. Wyrick (1992) found that females who were more popular with peers were more likely to have experienced dating violence. Gwartney-Gibbs and Stockard (1989) also identified the importance of the experiences within the broader peer friendship group for prediction of members' experiences with sexual aggression in heterosexual relationships.

No literature could be found that investigated of how the system of same-sex friendships changes, or how peer group status or membership changes when adolescents become involved in violent romantic relationships. Some counseling literature geared towards assisting battered women has stressed the isolation from family and friends that occurs as violent relationships emerge (Hoff, 1990; Nicarchy, Merriam, & Coffman, 1984; Pagelow, 1981; Walker, 1984, 1987).

The evidence from battered women that isolation from others is a significant problem when involved in a violent relationship during adulthood coupled with the large number of females who first become involved in violent relationships in their teen years suggests that changes in the peer system during adolescence may be influenced by negative characteristics of romantic relationships. For example, adolescents involved in violent relationships may become more isolated from their friends resulting in less frequent involvement with same-sex friends. Adolescents involved in violent relationships may also lose status within the general peer group.



The experience of violence and reduction or change in the network of friends may truncate the adolescent's chances to reach their greatest potential social self and to fully develop their identity. Including information on low qualities of romantic partners in studies of romantic and other relationships during adolescence will improve our ability to understand what prompts reorganization of other relationships after these relationships are initiated.

## Literature Review: Same-Sex Friendships during Adolescence and Female Development

The focus of this second literature review chapter is on same-sex friendships during adolescence. There are three sections in this chapter. The first section describes the emergence of same-sex friendships and the important and positive functions of friends. In the second section, the ways that friends might help young females negotiate the transition to romantic relationships were identified. In particular, this section included literature on characteristics of same-sex friendships that influence the emergence of romantic relationships, and associations between qualities in same-sex friendships and qualities in romantic relationships. In the third section, the focus was on research that provides evidence of the consequences of patterns of peer involvement for later relational and individual functioning.

### The Nature and Importance of Same-Sex Friendships

Intimacy with same-sex friends first appears in preadolescence (about age 8; Furman & Buhrmester, 1985; Sullivan, 1953). At this same time, a lack of intimacy is first experienced as painful or lonely (Perlman & Fehr, 1987). In general, same-sex friends have been found to be important to adolescents of all ages, but the importance of friends may increase over the course of adolescence, and the functions of friendships may change (Berndt, 1982).

### Importance of Same-Sex Friendships

Relationships with same-sex friends have been found to be quite important to adolescents. In fact, Lempers and Clark-Lempers (1993) reported that, compared to parents, teachers, and siblings, best same-sex friends were rated highest for intimacy and companionship among adolescents in grade 6 to 12. Nurturance provided by same-sex friends was also reported to be highest among all age and sex groupings except young adolescent males. Conflict with best friends was lower when compared to conflict with parents or siblings in all age and gender groups. In addition, adolescents report that they ask their good same-sex friends for support and advice more often than others in their lives and that this support is most often provided (Blyth, et al., 1982; Frankel, 1990; Pombeni, et al., 1990). These peer interactions appear to provide opportunities to learn to care for others, to be equitable with others, and to negotiate conflicts (Furman, 1993; Youniss & Smollar, 1989).

In general, development of intimacy with friends of approximately the same age and sex can play an important role in individuals' social development (Buhrmester, 1990; Hartup, 1989, 1993; Rice & Mulkeen, 1995). Youniss and Smollar (1985) argue that friendships with peers have a specific role in socialization that is different from the role of parents. Parents primarily influence young people's

conception of social reality and future plans, while relations with friends aid in the acquisition of social skills by working through shared experiences, emotions, and knowledge. While relationships within the family are usually of unequal power ("vertical" relationships; parents have more power than children and older siblings have more power than younger siblings; Hartup, 1989), close friendships are usually freely chosen by the adolescent and often have more balanced power ("horizontal" relationships; Hartup, 1989). Therefore, peers provide adolescents with opportunities that they cannot find elsewhere including chances to develop independence or autonomy, and to demonstrate adult-like behaviors and roles (Buhrmester, 1990; Collins & Repinski, 1995; Hartup, 1989; Stattin, Gustafson, & Magnusson, 1989).

#### Age Differences in Qualities and Functions of Same-Sex Friendships

The majority of research has reported that the level of intimacy and other qualities within same-sex friendships, such as nurturance and companionship, increase from early adolescence (about at the time of the start of puberty, or in middle or junior high school) to late adolescence (college age; age 18 to 21). In general, these studies have found that positive qualities of same-sex friendships (particularly intimacy) increase as individuals enter adolescence and seem to level off in late adolescence (Collins & Repinski, 1995; Furman & Buhrmester, 1985).

In a longitudinal study of students in eighth grade, twelfth grade, and 4 years post-high school, Rice and Mulkeen (1995) reported that females reported increasing intimacy with friends from eighth to twelfth grade, and a leveling off or a decline thereafter.

In contrast, other researchers have reported that levels of intimacy within same-sex friendships were similar at least during early and middle adolescence (grade 6 to grade 12; Lempers & Clark-Lempers, 1993). In a cross-sectional study of 6th through 12th grade students, Lempers and Clark-Lempers (1993) measured 11 dimensions of same-sex friendships including: 1) admiration (confirmation of one's worth), 2) affection (liking and attachment), 3) companionship (sharing of experience), 4) instrumental help, 5) intimacy (disclosure), 6) nurturance (taking care of another), 7) reliable alliance (a dependable relationship), 8) relative power (who is the decision maker), 9) conflict (quarreling, arguing, and disagreeing), 10) punishment (scolded and disciplined), and 11) satisfaction (happiness and feeling good about the relationships) with the Networks of Relationships Inventory (Furman, not dated). Levels of intimacy reported in same-sex friendships did not differ between younger and older adolescents. However, younger adolescents actually reported more admiration, companionship, reliable alliances, and satisfaction in their same-sex friendships than older adolescents.

### Co-Occurrence of Positive and Negative Qualities

Interactions between same-sex friends during adolescence appear to have both positive and negative qualities. When asked about friendships, adolescents usually mention 2 important features - intimacy and loyalty (Savin-Williams & Berndt, 1990). Friendships do provide intimacy, loyalty, and support, but they can also have instances of negative affect including conflict, jealousy, insecurity, resentment, and rejection (Collins & Laursen, 1992; Laursen, 1993; Laursen & Collins, 1994; Savin-Williams & Berndt, 1990). For example, Garcia Werebe (1987) provided these quotes from French adolescents about their friendships:

"We are always at each others' throats; it's too bad because in fact I like her a lot, and I think she does too."

"Underneath it all, we really get along very well, but at times she makes comments that are a little aggressive."

"I like her a lot but she's got everything I hate."

"There are quarrels, of course, because a friendship cannot go on without high points and low points."

Overall, 62% of participants age 15 to 19 reported only positive qualities of their same-sex friends including "pleasant", "nice", etc. Another 32% were

ambivalent about their friendships reporting additional qualities such as "aggressive", "difficult", and "jealous". Three percent of young people reported only negative qualities of their friendships. Girls were more likely to mention differences and conflicts with their friends than boys and there were no friendships in which tensions and disagreements did not occur.

### Same-Sex Friendships and Adjustment

Because there is evidence that peer friendships have multiple important functions during adolescence, researchers have also investigated whether there are associations between quantity or qualities of these relationships, and concurrent adolescent functioning or later outcomes. Although it has not been firmly concluded that childhood and adolescent same-sex friendships are a necessity for healthy social and emotional development, it is clear that not having any friends is related to adjustment difficulties (Hartup, 1989; Parker & Asher, 1987).

Studies have found links between suboptimal social relationships in childhood and later adolescent and adult maladjustment since the early 1930's and recent research continues to demonstrate the association between a lack of friends or poor quality peer relationships in childhood and adolescence and later maladjustment (Dishion, Patterson, Stoolmiller, & Skinner, 1991; Coie, Lochman, Terry, & Hyman, 1992; Hymel, Rubin, Rowden, & LeMare, 1990; Morison & Masten, 1991;

Parker & Asher, 1987). For example, being rejected by peers (rated as highly disliked and rarely liked by others) in childhood is related to adolescent early school dropout, delinquent behavior, and psychological disorder (Parker & Asher, 1987). One's positive status and relations with the larger group of peers during childhood and adolescence has also been found to be important to later positive adult functioning (Coie, et al., 1992; Hightower, 1990; Morison & Masten, 1991).

Qualities of same-sex friendships have also been associated with functioning. Support from friends has been found to be negatively related to depressed affect during the adolescent years and has been found to be particularly beneficial to those individuals who have high family stress (Aseltine, et al., 1994). Claes (1992) reported that adolescents' higher attachment to friends (measured as communication and trust) was positively related to impulse control, emotional tone, mastery of the external world, and global adjustment. Higher attachment to friends was also associated with lower levels of psychopathology. In addition, the relationship between friendship conflict and measures of adjustment were opposite those of attachment.



## Same-Sex Friendships and Romantic Relationships

### Same-Sex Friendships and the Emergence of Romantic Relationships

Number of same-sex friends. There exists only one study that provides evidence that same-sex friendships may influence the timing of the emergence of romantic relationships. Connolly, et al. (1995) reported the results of a longitudinal survey study of adolescents. The first time of measurement was in grade 9. Adolescents also completed surveys in grade 10 and grade 11. It was reported that the larger the size of the same-sex friendship networks of adolescents in grade 9, the lower the likelihood of involvement in heterosexual romantic relationships in grade 10. Similar results were reported when focusing on grades 10 and 11.

Friendship quality or involvement. No research exists which directly addresses the question of whether closeness, or potential markers of closeness such as the amount of time spent with same-sex friends, undermines or promotes the process of beginning to date or spend time with romantic partners. However, some studies (most of them based upon interviews) provides clues to some possible links. For example, after interviewing a selected, but diverse, sample of 400 girls over almost a 10-year period, Thompson (1994; 1995) reported that girls could be classified into one of two groups. The first group contained "broken-heart narrators" who saw their youth as a time to focus on love. Thompson concluded that this group was devastated when love was not achieved or was lost, and this group looked to love to

provide meaning in their lives. The second group that she identified as "romantic strategists" conversed about dating and romance as fun and as one of their many interests. Although not directly addressed by Thompson (1994, 1995), the perceptions that these females had of their relationships with other females also seemed to differentiate these two groups. In the quotes provided from broken-heart narrators, this group described their friends as dividers, warners, and stigmatizers. In contrast, the quotes from romantic strategizers appeared to describe their friends as partners in achieving and dealing with romantic involvement. These friends seemed to have supported each other through losses and gains of romantic relationships. This study suggests that groups of girls who had friendships that are more competitive or conflictual, less supportive, less important, or less enduring than other adolescents may feel more dependent on romantic relationships for their continued companionship and peer involvement.

#### Same-Sex Friendships and the Quality of Romantic Relationships

The qualities of same-sex relationships and the qualities of romantic relationships have also been compared in a small number of studies. By examining associations between qualities in same-sex friendships and romantic relationships, this research usually argues that qualities that are experienced, learned, and

practiced in same-sex friendships are transferred to romantic relationships, and they allude to the eventual replacement of same-sex friends with romantic partners.

In general, this research is often difficult to compare or is contradictory. Some studies have found that same-sex friendships continue to be more intimate than cross-sex friendships and romantic relationships throughout high school. Others report that young people with a boyfriend or girlfriend perceive this person to be more intimate and supportive than either parents or best friends. It seems that these differences may be due to not differentiating cross-sex friendships from romantic relationships, not differentiating short-term from longer-term romantic relationships, or not describing age differences or changes within genders.

For example, a group of 576 adolescents who had both same-sex friends and boyfriends/girlfriends in sixth through twelfth grade in the rural Midwestern United States were asked to complete a survey measuring eleven qualities of their best same-sex friends and their boyfriends or girlfriends (although this was first described as “opposite-sex friends”, p. 93; Lempers and Clark-Lempers, 1993). Intimacy with same-sex friends remained higher than intimacy with boyfriends or girlfriends in every grade. All other positive qualities of relationships with same-sex friends and cross-sex friends were also either the same or higher within same-sex friendships. Although gender differences were described overall, no age comparisons within gender were provided. Likewise, Sharabany, et al. (1981)

found that same-sex friendships were either similar to or more intimate than cross-sex relationships up to the 12th grade. However, in contrast, Connolly and Johnson (1997) found that adolescents age 13 to 19 involved in romantic relationships of longer duration (over 11 months) reported that their romantic relationships were more intimate and supportive than their best same-sex friendships. Adolescents in romantic relationships of shorter duration (4 months or less) had best same-sex friendships with higher intimacy and support than their romantic relationships.

Studies have also shown that there are some commonalities in quality within and between same-sex friendships and romantic relationships. In a three year longitudinal study of adolescents in grade 9 to grade 11, Connolly, et al. (1995) found that perceived social support and negative interactions (possessiveness and conflict) within romantic relationships were fairly consistent from grade 9 to grade 11. This consistency existed even though only 10% of romances were with the same person. Also, social support and negative interactions with close same-sex friends in grade 9 were positively related to social support and negative interactions in concurrent (grade 9) and subsequent (grade 10) romantic relationships ( $r$  ranged from 0.10 to 0.46). Similar relationships were found between qualities of same-sex friendships and romantic relationships between grade 10 and grade 11. However, qualities of romantic relationships in grade 9 did not directly influence qualities of same-sex friendships in grade 10, and qualities of same-sex friendships in grade 10

did not directly influence quality of romantic relationships in grade 11. Qualities of friendships indirectly influenced quality of romantic relationships in the subsequent year through influence on concurrent same-sex friendship and/or concurrent romantic relationship quality.

In a second longitudinal study, Lev-Ran and Sharabany (1981, cited in Sharabany, 1994) found that the level of intimacy between same-sex friends in grade 5 was related to the level of intimacy with cross-sex friends in grade 12. Furman and Wehner (1994, 1997) also found an association between quality of friendships and quality of romantic relationships. In this study the authors measured secure, dismissing, and preoccupied attachment styles with mother, father, closest friend, and romantic partner. The attachment styles with mother and father were not consistently related to attachment style with the romantic partner, but attachment to friends was related to style of attachment with the romantic partner in all forms ( $r=.25$  for secure,  $r=.35$  for dismissing,  $r=.40$  for preoccupied).

Although not a direct comparison of the quality of same-sex friendships and the quality of romantic relationships, research on the homogeneity of violent experiences in interpersonal relationships within peer groups provides some additional evidence that there is a relationship between female peer group members' and the target member's romantic relationship qualities. The target individual's personal experience of violence in a romantic relationship was

predicted by belonging to a peer friendship group that contained other female members who had experienced violent romantic relationships or included males that had been violent. In a mail-out survey to college students with a measure of peer group membership that was not validated, Gwartney-Gibbs and Stockard (1989) asked individuals to report their knowledge of sexually aggressive behaviors and experiences of the members of their friendship group. Belonging to a group which contained males who were known to have been sexually aggressive virtually guaranteed that females in the group had experienced this aggression. Peer groups that contained only victimized females and non-violent males also existed, but no groups containing violent males and non-victimized females were found. Some friendship groups seemed to legitimize aggression in courtship relationships more than other groups. This consistency in violent experiences within the friendship group suggests possible links through the same-sex friendships of peer group members and their common pool of romantic partners.

### Female Development

Evidence suggests that changes in the peer social world including early initiation of romantic relationships, significant changes in same-sex friendships, and the experience of negative qualities in romantic relationships would be expected to have the greatest impact on the social life, functioning, and quality of

relationships of adolescent females. Sullivan (1953), Erikson (1968), and Douvan and Adelson (1966) believed that same-sex friendships were crucial to autonomy and identity formation because it is within these relationships that we learn how our opinions and decisions compare with those of our peers. This comparison can validate and enrich one's perceptions resulting in a stronger sense of self, and improved behavioral and emotional autonomy. Current theorists interested in relationships and identity development still agree that same-sex friendships and belonging to peer groups facilitate individuation and autonomy. These theorists also believe that close friendships facilitate the achievement of social and self identities that support later healthy romantic relationships (Collins & Repinski, 1995; Harter, 1990).

However, the quantity and quality of interactions with friends and romantic partners during adolescence may be most important for female social or self development. Connection to social relationships has been described as being central to the development of girls and women (Miller, 1976, 1986; Gilligan, 1982). Although some debate exists as to whether this connection to social relationships is greater than those of males (Colby & Damon, 1983), there is evidence that female adolescents report that they experience relationships as more significant, have more intimate relationships, report a higher need for social support, prefer close dyadic relationships over group activity, and are more interested in being involved in

romantic relationships when compared to males (Berndt, 1982; Blyth & Foster-Clark, 1987; Blyth, et al., 1982; Buhrmester, 1990; Buhrmester & Furman, 1987; Eaton, Mitchell, & Jolley, 1991; Lempers & Clark-Lempers, 1993; Miller, 1990; Paul & White, 1990; Perlman & Fehr, 1987; Rice & Mulkeen, 1995; Sharabany, et al., 1981; Zani, 1993).

Erikson (1968) proposed that a sense of identity must be developed before true intimacy and commitment to others can be achieved. In contrast, other literature suggests that females are more likely to develop a sense of identity while involved in intimate and committed relationships while males are more likely to follow the path proposed by Erikson (1968; Douvan & Adelson, 1966; Gilligan, 1982; Josselson, 1987; Paul & White, 1990; Rice & Mulkeen, 1995; Stern, 1990). Some research has supported this proposal. Throbecke and Grotevant (1982) found that the processes of interpersonal and vocational identity development were interrelated for females, but were not as strongly related in males. Rice and Mulkeen (1995) found that females' social self-images were more connected to their experiences of intimacy throughout adolescence than was males' social self-images. The authors proposed that this stronger connection could leave young females particularly vulnerable to the influences of close friendships. Mercer, Nichols, and Doyle (1989) found that as women described their life histories, past relationships were discussed more often (and appeared more important to the life



course) than significant personal transitions (e.g. a new job, a job promotion, or graduation from school).

Additionally, females may need same-sex friendships to promote optimum identity and autonomy. For example, females report feeling less power in heterosexual relationships as they age (Buhrmester and Furman, 1992; Hendry, et al., 1993). In many theories of the benefits of peer friendships, members within peer relationships are assumed to have similar power (Hartup, 1989), and this equal power is thought to allow for practice in sharing opinions relatively freely and making independent decisions. However, Buhrmester and Furman (1992) measured qualities of relationships with a survey given to young people in grade 7, 10, and in college. Qualities of same-sex friendships and romantic relationships were measured. Older males reported more relative power in romantic relationships than younger males, while older females reported less relative power than younger females. These perceived power differences may reflect other differences in the experiences of males and females within these relationships. Females may not experience the same level of support for autonomy and independent decision-making that is experienced by males. Since relationships that promote optimum development have been described as warm and autonomy supportive (Connell & Wellborn, 1991; Skinner & Wellborn, 1994), then the most ideal context for the development of autonomous thinking, competence, and a

chance to search for and form a clear sense of identity may not always be within romantic relationships for females. Early involvement in steady romantic relationships, especially in relationships that isolate the female from same-sex friendships (such as those that are abusive or domineering), might limit the personal and social development of females.

There is also evidence that dating more frequently, more experience with sexual activity, and low quality romantic relationships are related to lower future goals and negative affect in adolescent females. Gargiulo and colleagues (1987) found that the importance of a career was negatively related to dating in females. Other research has found that young females who were sexually active placed lower value on future academic achievement and had a more external locus of control than those who were not sexually active (Billy, Landale, Grady, & Zimmerle, 1988). In a multivariate analysis, Harvey and Spigner (1995) found that adolescent females who were sexually active were more depressed, reported more stress, engaged in more problem behaviors, and consumed more alcohol and cigarettes. Finally, female high school students who reported they had experienced dating violence were more likely to be expelled or suspended from school, were less likely to enroll in college preparatory classes, had lower grade point averages, and were involved in fewer extracurricular activities when compared to girls who were not in violent relationships (Reuterman & Burcky, 1989).

This line of research suggests that females who are on the fast track toward serious involvement in committed relationships before they have had a chance to develop sufficient emotional maturity, autonomous thinking, and senses of their own identities within same-sex friendships may experience disadvantages. Early exclusive relationships may limit the chances of experiencing and negotiating through a greater diversity of possible relationships. This may reduce the chance of developing broader understandings of the social world, to fully develop independent and full sense of selves, and to be emotionally and behaviorally autonomous young adults. If this pathway is combined with the experience of early low quality romantic relationships, the adolescent female could be less prepared to efficiently meet these challenges and could be launched on a negative life course that will be more resistant to change. Promoting and maintaining quality same-sex friendships and romantic relationships may be particularly important for optimizing female social and self development. In sum, this literature suggests that more research is needed to understand these pathways and to describe how females reorganize and manage their peer relationships as they form romantic relationships. In the future, it may then be possible to link these pathways and processes of reorganization to subsequent social and self development.

### Summary of Literature Review

In summary, research suggests that with the formation of romantic relationships, same-sex friendships were often perceived of as similar in intimacy (especially when romantic relationships were shorter in duration), but conflict with friends increased and peer status may have declined. In addition, time spent with same-sex friends was often reduced. Because same-sex friendships between females are important for social development, self development, intimacy, and support, the strategies that adolescent females use to manage and reorganize their peer relationships as they initiate romantic relationships may have important consequences for their continued individual and social development.

Additionally, romantic relationships that are outside the norms set by the larger peer group such as early involvement in romantic relationships, more intense and continuous involvement, or multiple and indiscriminant involvement may also limit one's status with other females and result in the most significant changes in prior peer relationships. In particular, romantic relationships that are marked by physical aggression, psychological maltreatment or isolation may limit one's involvement with other peers most dramatically.

Overall, the number of studies on romantic relationships during adolescence is expanding rapidly. However, current published research has not often directly focused on the influence of the emergence of romantic relationships on same-sex

friendships or other peer relationships. Research has also not addressed the process of reorganization of peer relationships that may take place after the emergence of romantic relationships. No research has attempted to understand if the timing of the emergence of romantic relationships and the process of reorganization influence later qualities of same-sex friendships or romantic relationships. Nevertheless, a handful of studies do suggest the importance of understanding the characteristics of one of these peer microsystems for predicting the characteristics of the other. Information on how the quantity and quality of same-sex friendships impact subsequent quantity and quality of romantic relationships is scarce, but there is evidence that changes in the amount of time spent with friends occur as romantic relationships emerge.

### Study Goals and Hypotheses

The goal of this study was to examine how female adolescents negotiate the transition to romantic relationships during high school. It was assumed that females initiate and develop romantic relationships in a context of their existing close friendships with other females. In addition, it was assumed that close friendships can help female adolescents to negotiate early romantic relationships, and, most importantly, might buffer their most negative potential consequences.

This study was prompted by two deficits in the existing literature on romantic relationships during adolescence. First, there are no studies that have directly examined how existing friendships might change as females become involved in romantic relationships, and second, there are few studies that have focused on whether these existing peer relationships might serve to ease or intensify this normative developmental task.

A special focus of this study was on the notion of a “Relatedness Orientation Transition” (RT). This construct was defined to represent a change in the status of previous same-sex relationships in relation to emerging romantic relationships. It described a process during which romantic relationships begin to approach, and perhaps surpass, friendships in terms of their importance, salience, or prominence in adolescents’ social networks. For many young females, this transition probably represents a significant shift in their primary source and target of intimacy,

attachment, and caregiving (Furman & Wehner, 1994, 1997). It may also indicate a turning point in relational, emotional, social, or sexual developmental pathways.

Although the RT may actually occur over a period of time, it may contain a set of conditions that reflect a critical life event. A critical life event has been defined as an event that a) results in a significant change in the current life situation, b) has enduring developmental influence, c) results in a reorganization of the person-environment system, d) is of utmost importance to the individual, and e) has an affective/emotional component (von Eye, Kreppner, Spiel, & Wessels, 1995). The first time that a romantic partner takes precedence over best female friends fulfills all these criteria.

The RT meets the first criteria of a critical life event because it represents a significant shift in the current life situation. After the RT, romantic partners may (at least temporarily) replace best female friends as priority companions. This may create a significant shift in many life situations including day-to-day leisure time activities, changes in the topics of discussion with companions, the possibly of extended or exchanged sources of intimacy and support, and priorities when choices between relationships must be made (e.g., between going out with female friends and going out with the partner).

The RT meets the second and third criterion because it likely continues to be influential throughout the remainder of high school, and may reorganize an

adolescent's social and emotional life. For example, adolescents who have romantic partners who take precedence over their best female friends will be linked to these partners within the peer social system. Being linked to a romantic partner may result in status changes with peers, and changes in peer networks (Dunphy, 1963; Eder, 1985).

The RT meets the fourth criteria because involvement with romantic partners who takes precedence over best female friends is very likely important and significant events in the lives of adolescents. Finally, the RT meets the fifth criteria because it clearly has an affective/emotional component. At the core of involvement with romantic partners is affect and emotional experience.

#### Overview of the Study

In this study, retrospective data were collected about leisure time spent with best female friends and romantic partners at multiple points in time during high school. These data were used to describe trajectories of involvement with steady romantic relationships and best female friendships. In addition, data on positive and negative qualities of current or most recent best female friendships and romantic partners, other characteristics of dating and romantic relationships, early male and female peer social network characteristics, and early individual characteristics (attractiveness and maturation) were collected.



An initial step of this study was to describe basic patterns of involvement with best female friends and romantic partners during high school (“trajectories”). Trajectories of involvement with best female friends and romantic partners were operationalized as the amount of leisure time that adolescents spent with these peers. Additionally, associations between these trajectories were investigated to determine if, on average, female adolescents traded leisure time with their friends for time with romantic partners during high school.

The second step was to determine if, on average, female adolescents’ also reorganized their existing peer relationships as they were becoming increasingly involved with romantic partners. If (and how) peer relationships were reorganized as romantic relationships emerged was investigated by focusing on the timing of the RT. In this study, the RT was operationalized as the first time during high school that a female adolescent spent more of her leisure time with a romantic partner than with her best female friends (e.g., see Figure 3). Rather than studying associations between trajectories, the RT shifted the focus of study to the combination of trajectories of involvement with peers. Therefore, the RT was considered to be a marker of a reorganization of peer relationships.

The third step was to investigate the variety of patterns of reorganization of peer relationships that occurred during adolescence. In particular, it was determined whether all female adolescents in high school experienced the RT at similar times,

and if not, individual differences in patterns of involvement with peers and timing of RTs were described.

The fourth step of this study was to investigate whether early social and individual characteristics predict individual differences in patterns of involvement with peers during high school, and the timing of the RT. These characteristics included early dating and romantic relationships (timing of the onset of dating, number of romantic partners, having older romantic partners, etc.), characteristics of peer social networks in grade 9 (number of friends, popularity, etc.), and individual characteristics in grade 9 (attractiveness and physical maturity).

The fifth step of this study was to identify whether patterns of involvement with friends and partners, and the timing of the RT had consequences for the development of high or low quality romantic relationships and friendships in later adolescence. Patterns of change in time spent with peers during high school and the timing of the RT were expected to influence later qualities of romantic relationships and friendships.

A few final exploratory analyses then described the differential experiences of groups of adolescents. In particular, adolescents were described and compared who 1) reported low or high quality romantic relationships, 2) had experienced physical aggression in romantic relationships, 3) spent low or high amounts of time with

peers, and 4) had differing timing of the RT. The specific hypotheses of this study follow:

### Hypotheses about Trajectories, Tradeoffs, and Reorganization

#### Hypothesis 1. Do Female Adolescents Trade Time with Friends for Time with Romantic Partners?

A. Do tradeoffs emerge in late high school? In ninth grade, it was expected that young females would exhibit no tradeoff in time with best female friends for time with romantic partners. In fact, it was expected that female adolescents who spent more time with romantic partners would also spend more time with best female friends, since both of these would be a function of individual sociability. Hence, the amount of leisure time spent with best female friends was expected to be positively related to the amount of time spent with romantic partners in grade 9. At this time during high school female adolescents were expected to spend much of their leisure time with groups of peers regardless of whether or not they had romantic partners. In addition, those female adolescents who had romantic partners early in high school were expected to be more sociable, more attractive, and to have more female friends than other females. Therefore, the most sociable girls would be spending more time with females and be more likely to have and spend time with romantic partners. Additionally, because of the emphasis on

involvement with groups of peers at this age, they would not be expected to spend much time with their romantic partners without the presence of their best female friends.

In contrast, in grades 11 and 12, the amount of leisure time spent with best female friends was expected to be negatively associated with time spent with romantic partners. In these years of high school, it was anticipated that female adolescents would spend more time in dyads. This time in dyads was expected to result in females beginning to trade the time they spent with best female friends for time with romantic partners. In other words, spending increasing amounts of time with romantic partners was expected to result in spending decreasing amounts of time with best female friends.

B. Do females who increase the amount of time they spend with romantic partners more rapidly also trade more time with friends? Patterns of time spent with best female friends and romantic partners were anticipated to reflect the increasing tradeoffs that female adolescents made between their time with best female friends and their time with romantic partners. In particular, adolescents who had the steepest increases in time spent with romantic partners during high school were expected to have the steepest declines in time spent with best female friends during high school. The trajectory of the amount of leisure time spent with

best female friends was expected to be negatively correlated with the trajectory of time spent with romantic partners throughout high school (see Figure 4).

## Hypothesis 2. The Relatedness Orientation Transition

A. Is the Relatedness Orientation Transition simply a marker for increasing time with romantic partners? The timing of the RT was operationalized as the first time during high school that female adolescents reported spending more time with romantic partners than with best female friends. Therefore, by definition, the RT reflected patterns of time spent with best female friends and patterns of time spent with romantic partners during high school. Yet, it could have been that the RT was simply a marker of the increase in involvement with romantic partners. It was not clear whether changes in the amount of leisure time that females spent with friends and changes in time with partners were both necessary to most accurately predict the timing of the RT. This needed to be tested empirically.

It was expected that the timing of this transition would be predicted by the initial level and the slope of the trajectory of time spent with best female friends, as well as by the initial level and the slope of the trajectory of time spent with romantic partners (see Figure 4).

In particular, it was predicted that individuals who had steeper inclines in time spent with romantic partners across the high school years would exhibit earlier

RTs. Estimated slopes of trajectories of time spent with romantic partners were expected to be negatively associated with the timing of the RT. In contrast, individuals who had no decrease in time spent with best female friends (or increased their time with friends) during high school were expected to exhibit later RTs. Slopes of trajectories of time spent with friends were expected to be positively correlated with the timing of the RT.

B. When do female adolescents first spend more time with partners than with friends? Past literature has suggested that, on average, adolescents begin to show interest in romantic relationships prior to high school and begin dating and forming steady romantic relationships in high school (Gordon & Miller, 1984; Phinney, et al., 1990; Simon, et al., 1992; Wright, 1982). Therefore, it was expected that female adolescents would first spend more time with their romantic partners than with their best female friends in late high school (fall or spring of grade 12).

#### Hypotheses about Antecedents of Trajectories of Time Spent with Peers

Hypothesis 3. What Predicts How Rapidly Females Increase the Amount of Time They Spend with Romantic Partners?

A. Do early relationships with females slow the rate with which females become involved with romantic partners? Being more involved with female friends and being more popular with females early in high school may have been a

reflection of the higher interest that some females had in forming and maintaining their female friendships. As these females became involved in romantic relationships they were expected to attempt to maintain spending a higher amount of their leisure time with their female friends. Therefore, they were not expected to increase the amount of leisure time they spent with romantic partners as rapidly as other females. Specifically, females who rated themselves higher on the following characteristics were expected to not increase the amount of their leisure time that they spent with romantic partners as steeply during high school. Each of the following factors was expected to be negatively correlated with slopes of trajectories of time spent with romantic partners (see Figure 5):

1. Number of best female friends in grade 9
2. Popularity with other females in grade 9
3. Time spent with best female friends in grade 9

B. Do early relationships with males speed up the rate with which females become involved with romantic partners? Females who had more male friends and were more popular with male peers early in high school were expected to be more interested in males, recognized by males, and attractive to males. Therefore, these females were more likely to rapidly increase the amount of leisure time they spent with romantic partners across the high school years. Females who rated themselves higher on the following characteristics were anticipated to have steeper inclines in

time spent with romantic partners during high school. Each of these factors was predicted to be positively correlated with slopes of trajectories of time spent with romantic partners (see Figure 5):

1. Number of male friends in grade 9
2. Popularity with males in grade 9

C. Do individual characteristics speed up the rate with which females become involved with romantic partners? Females who were more physically attractive early in high school and who looked more mature than their female peers early in high school were expected to be approached earlier and more often for romantic relationships. This was predicted to result in more rapid increases in the amount of leisure time attractive females spent with romantic partners during high school. Females who rated themselves higher on the following characteristics were anticipated to have steeper inclines in time spent with romantic partners during high school. Each of the following factors was predicted to be positively correlated with slopes of trajectories of time spent with romantic partners (see Figure 5):

1. Attractiveness in grade 9
2. Physical maturity in grade 9

D. Does later onset of dating slow the rate with which females become involved with romantic partners? Females who were older when they first dated were not expected to increase the amount of time they spent with romantic partners



as steeply during high school. Therefore, the age of dating onset was predicted to be negatively correlated with slopes of trajectories of time spent with romantic partners (see Figure 5):

E. Does having older romantic partners speed up the rate with which females become involved with romantic partners? Having older romantic partners during high school may have influenced female adolescents to increase the amount of time they spend with their partners more rapidly. Older partners often have access to more resources including finances and vehicles that prompt adolescents to spend time away from home. Further, older partners may have more autonomy such as having later curfews, more lenient family rules, and being allowed to make more of their own decisions. Females involved with older romantic partners may be prompted to seek more behavioral autonomy from their parents. This greater autonomy may be reflected in increased time spent with romantic partners. Therefore, females who were involved with older males were predicted to have steeper increases in time spent with romantic partners during high school. Involvement with older romantic partners was expected to be positively correlated with slopes of trajectories of time spent with romantic partners (see Figure 5).

#### Hypothesis 4. What Predicts a Lower Level of Involvement with Friends?

A. Do early relationships with males result in a lower level of involvement with female friends? Females who were more involved with romantic partners, who had more male friends, and who were more popular with males early in high school were expected to increase their time with romantic partners during high school. Because of these steeper increases in time with partners, these females were also expected to exhibit faster declines in the amount of leisure time they spent with best female friends during high school. Therefore, females who rated themselves higher on the following characteristics were expected to exhibit the steepest losses in time spent with best female friends during the high school years. Each of these factors were predicted to be negatively correlated with slopes of the trajectories of time spent with best female friends (see Figure 6):

1. Number of male friends in grade 9
2. Popularity with males in grade 9
3. Time spent with romantic partners in grade 9

B. Do early relationships with female friends result in higher level of involvement with female friends? Females who were the most sociable with females and involved with female friends early in high school were expected to be more likely to maintain the amount of time they spent with their best female friends during high school. In particular, females who rated themselves as having more of

the following characteristics would not decrease time spent with best female friends as steeply during high school (the trajectories of time spent with best female friends were expected to be flat rather than to decline). Each of these factors was predicted to be positively correlated with slopes of trajectories of time spent with best female friends (see Figure 6):

1. Number of best female friends in grade 9
2. Popularity with females in grade 9
3. At least 1 stable female friendship

C. Does later onset of dating result in a higher level of involvement with female friends? Females who began dating later were expected not to increase their time with romantic partners as rapidly during high school compared to females who began dating earlier. Therefore, females who were older when they had their first date were expected to exhibit less decline in the amount of time they spent with best female friends during high school. Specifically, trajectories of time spent with best female friends were expected to be flat. Therefore, as females started dating later, the slope of trajectories of time spent with best female friends were expected to increase. Age of dating onset was anticipated to be positively correlated with slopes of trajectories of time spent with best female friends (see Figure 6).

### Hypothesis 5. What Predicts the Timing of the Relatedness Orientation Transition?

#### A. Do early relationships with males result in an earlier Relatedness

Orientation Transition? Females who had more male friends and who were more popular with male peers early in high school were expected to have earlier RTs. Specifically, these females were predicted to spend more time with their romantic partners than with their best female friends earlier in high school. Females who rated themselves higher in the following characteristics were expected to exhibit earlier RTs. Each of the following factors were predicted to be negatively correlated the timing of the RT (see Figure 7):

1. Number of male friends in grade 9
2. Popularity with males in grade 9

#### B. Do early relationships with friends result in a later Relatedness Orientation

Transition? Females who were more sociable with females and involved with female friends early in high school were expected to spend a greater amount of their leisure time with these friends for a longer period of time. By maintaining time with friends, these females would continue to spend more time with friends than partners later into high school. In particular, females who rated themselves as having more of the following characteristics were anticipated to have later RTs than other females. Each of the following factors was predicted to be positively

correlated with slopes of trajectories of time spent with best female friends (see Figure 7):

1. Number of best female friends in grade 9
2. Popularity with females in grade 9
3. At least 1 stable female friendship throughout high school

C. Does later onset of dating result in a later Relatedness Orientation

Transition? Females who began dating later were expected to increase their time with romantic partners more slowly during high school. This would result in these females continuing to spend a greater amount of leisure time with their best female friends. Therefore, females who were older when they had their first date were expected to continue to give precedence to their best female friends over their romantic partners for a longer period of time. These females were anticipated to have later RTs. As the age of dating onset increased, the timing of the RT would also increase. Age of dating onset was expected to be positively correlated with the timing of the RT (see Figure 7).

Hypotheses about Quality of Peer Relationships

Hypothesis 6. Associations between Qualities of Peer Relationships

A. Do positive qualities of female friendships predict positive qualities of romantic partnerships? Some researchers and theorists have proposed that

adolescents learn about, practice, and experience positive qualities in their best same-sex friendships which are then translated to their romantic relationships (Douvan and Adelson, 1966; Furman & Wehner, 1994, 1997; Sullivan, 1953). This would suggest that positive qualities in current female friendships would likely be similar to the positive qualities in current romantic relationships.

In this study, each participant was asked to select their one very best female friend and to report on positive qualities of this relationship. Females who had very best female friendships characterized by high levels of positive qualities (intimacy, companionship, etc.) were expected to have current (or most recent past) romantic relationships with high levels of positive qualities. Therefore, positive qualities of very best female friendships were expected to be positively correlated with positive qualities of current (or most recent past) romantic relationships (see Figure 8).

B. Do positive qualities of female friendships predict negative qualities of romantic partnerships? It was anticipated that having high quality very best female friendships would also have helped female adolescents to maintain those romantic relationships that had more positive qualities and few negative qualities (such as physical aggression, verbal aggression, isolation, and jealousy). High quality female friendships were expected to provide such things as support and an understanding of what positive relationships should be like. Therefore, adolescents

were expected not to maintain those romantic relationships with negative qualities, and to pursue or maintain romantic relationships with few negative qualities.

Therefore, female adolescents who had female friendships of higher quality would be least likely to maintain romantic relationships with negative qualities such as physical aggression, verbal aggression, and psychological maltreatment. In other words, positive qualities of very best female friendships were expected to be negatively associated with the amount of physical aggression, verbal aggression, and psychological maltreatment experienced in current (or most recent past) romantic relationships (see Figure 8).

#### Hypothesis 7. Do Patterns of Time Spent with Peers and the RT Predict Qualities of Peer Relationships?

Patterns of involvement with romantic partners and best female friends, as well as timing of the reorganization of these relationships were expected to have consequences for qualities of peer relationships in later adolescence. In particular, the following sections describe expected associations between the two trajectories of time spent with peers, the RT, and the qualities of peer relationships in later adolescence (see Figure 8).

A. Do trajectories of time spent with romantic partners predict qualities of peer relationships? Females who had the steepest gains in time with romantic partners

during high school were predicted to have a) lower positive qualities in their very best female friendships slightly after high school, and b) higher positive qualities in their most recent romantic relationships, but also to have more experience with physical aggression, verbal aggression, and psychological maltreatment in these romantic relationships. Slopes of trajectories of time spent with romantic partners were predicted to be a) negatively associated with the quality of current very best female friendships; b) positively correlated with the quality of the most recent romantic relationships; and c) positively correlated with the amount of physical aggression, verbal aggression, and psychological maltreatment experienced in most recent romantic relationships.

B. Does the ambient level of time spent with friends predict qualities of peer relationships? Females who reported the smallest declines in the time they spent with best female friends during high school were anticipated to a) have higher positive qualities in their very best female friendships shortly after high school, and b) to have less experience with physical aggression, verbal aggression, and psychological maltreatment in past and most recent romantic relationships. Slopes of trajectories of time spent with best female friends were expected to be positively associated with positive qualities of very best female friendships, and negatively correlated with the level of experience with physical aggression, verbal aggression, and psychological maltreatment in past and current romantic relationships.



C. Does the timing of the Relatedness Orientation Transition predict qualities of peer relationships? Females who experienced the RT at a later age were predicted to have higher quality very best female friendships shortly after high school and to have less experience with physical aggression, verbal aggression, and psychological maltreatment in romantic relationships. The timing of the RT during high school was predicted to be positively correlated with the amount of positive qualities in very best female friendships. The timing of the RT was anticipated to be negatively correlated with the amount of experience with physical aggression, verbal aggression, and psychological maltreatment by most recent romantic partners.

## Methods

### Participants and Procedures

Participants were 102 white females who had recently graduated from high school. Seniors in high school were recruited the last month of school at a large urban high school with a population that was socioeconomically diverse. The author attended senior English classes to explain the study and ask for volunteers. If interested, students were asked to supply their names, ages, race/ethnicity, addresses, and phone numbers. All interested white females were contacted by telephone and interviews were scheduled. Thirty-seven females from this school were interviewed in the summer after their senior year. Interviews were completed either on the high school grounds or at the interviewees' homes.

The remaining 55 participants were recruited at a large urban university. Recruitment involved advertising on campus for females who were 19 years of age or less and interested in participating in a study of high school relationships. These interviews were completed at the university or at the interviewees' homes. Upon meeting for interviews, all participants were asked to read and sign consent forms. Interviewees were entered into a contest to win cash prizes or movie passes. The interview and survey took between 60 to 150 minutes to complete.

### Self-Report Measures

Data were collected with a set of self-report questionnaires designed to gather historical information, information on individual characteristics, and qualities or current (or if no current, most recent past) peer relationships. A structured interview was used to collect further information about peer relationships during high school. Measures used are summarized in Table 1.

#### Dating

Each participant indicated the month and year that they had their first date, the month and year they began their first steady romantic relationship, if parents set an age at which dating could begin, and the age their parents said they could start to date (if an age standard was set). Dating was defined as a planned encounter that involved spending time with a person you were romantically interested in with the understanding that you were together as a dyad whether or not you were alone. A steady romantic relationship was defined as a mutual relationship that lasted longer than 2 weeks and that the interviewee felt had been a relationship that she was emotionally connected to or invested in at the time. These definitions were open to discussion during the interview.

Participants also listed all of the steady romantic they had before or during high school, the age of these romantic partners, when they began going steady with each

person (month and year), when each relationship ended (month and year), and the length of time each relationship continued. This information was used to determine if females were involved with older romantic partners, the number of steady partners each participant had in her lifetime, and the number of months each participant spent involved in steady relationships before and/or during high school.

### Friendships

Participants were asked to report the number of best female friends and very good or best male friends they had at 8 times during high school (in the fall and spring of grade 9, 10, 11, and 12). Participants were also asked if they had been best friends with any of the females included at each time point in the prior year of school and in ninth grade (when appropriate). Finally, they were asked how long they had been friends with their current “very” best female friend. Discussions of “best” female friends as compared to “very good” female friends were often a part of the interviews. Participants were encouraged to count only “best” female friends for these items.

This information was used to determine the number of female best friends and very close or best male friends each individual had in the ninth grade and to determine the existence of a best female friendship that continued throughout high

school (a stable best friendship). A stable friend was defined as a best female friends that was reported in each year of high school.

### Puberty

Behavioral scientists commonly use self-reports of menarche to measure pubertal development (Brooks-Gunn, Warren, Rosso, & Gargiulo, 1987).

Menarche indicates more advanced pubertal development. Participants were asked to recall the month and year of their first menstrual periods after first being prompted by the interviewer to think about the grade they were in, where they were, what they were doing, and what they were wearing. Retrospective reports have been found to be accurate over lengthy time spans.

To measure an aspect of maturity that is more easily recognized by others, participants were also asked to report how they "looked" in ninth grade compared to other females who were the same age. This was reported on a 5-point Likert-type scale with choices ranging from "much younger than other females in the ninth grade" to "much older than other females in the ninth grade."

Three groups were formed according to the age of onset of menstruation. Based on the distribution of the sample population and prior research, females were placed in the "early" group if they reported menstruating before the age of 12 (the lowest quartile of the distribution of the age of onset of menstruation). They were placed

in the "on-time" group if menstruation occurred between age 12 and 14. Females who began to menstruate after age 14 were placed in the "late" group (the highest quartile).

### Popularity

A common method of assessing peer status, such as popularity, is a sociometric method that was developed in younger children and has been applied to high school populations. It is based on peer ratings of like and dislike of others (described in Kindermann, 1993; Parker & Asher, 1987; Terry & Coie, 1991). For example, Franzoi and colleagues (1994) asked all students in a small high school to nominate 10 individuals in their grade they would most like to spend Saturday night with. Each individual also nominated 10 individuals they would least like to spend Saturday night with. These nominations were tallied and popular students were defined as those with high positive nominations and low negative nominations.

Franzoi and colleagues (1994) also used an alternative method that was more feasible for this study. This method asked for ratings of self-perceived popularity in comparison to others of the same age. This study reported that individuals and groups who were rated as more popular by others using the sociometric method also perceived themselves as more popular. Therefore, self-perceptions of popularity appeared to be a good estimate of popularity as rated by others.

Popularity has been found to be only somewhat stable across time. However, the correlation between popularity with males and popularity with females has been found to be low (Franzoi, et al., 1994; Miller, 1990). Therefore, each participant in this study was asked to give ratings of her popularity with males in the ninth and twelfth grades of high school, and to give ratings of her popularity with females in the ninth and twelfth grades (4 questions). Possible responses to items requesting ratings of popularity with other girls in the ninth grade, for example, included: “much more popular with girls than other girls in the ninth grade”, “sort of more popular with girls than other girls in the ninth grade”, “about as popular with girls as other girls in the ninth grade”, “sort of less popular with girls than other girls in the ninth grade”, and “much less popular with girls than other girls in the ninth grade.”

### Attractiveness

Two questions asked for ratings of self-perceived attractiveness. One item measured participants’ self-perceived attractiveness in comparison to other females their age when they were in ninth grade. A second item asked participants to estimate their attractiveness in comparison to females their age when they were in twelfth grade. These two items had the following response options: “much more attractive than other girls in ninth (twelfth) grade”, “sort of more attractive than

other girls in ninth (twelfth) grade”, “about as attractive as other girls in ninth (twelfth) grade”, “sort of less attractive than other girls in ninth (twelfth) grade”, and “much less attractive than other girls in ninth (twelfth) grade. In addition the interviewer rated the attractiveness of the last 65 participants on a scale from 1 (very unattractive) to 5 (very attractive) for validation.

### Qualities of Friendships and Romantic Relationships

Positive qualities of friendships and romantic relationships. The Networks of Relationships Inventory (NRI; Furman & Buhrmester, 1985; Furman, not dated) was used to assess twelve qualities of current (or most recent past) peer relationships including: (a) reliable alliance (a lasting dependable bond), (b) admiration (enhancement of worth), (c) affection, (d) companionship, (e) instrumental aid, (f) intimacy, (g) nurturance of the other, (h) satisfaction, (i) conflict, (j) punishment, and (k) antagonism, and (l) relative power in the relationship. All subscales were completed about the current “very best” female friend and current (or most recent past) romantic partner.

This scale had three items that measured each quality. Seven subscales (21 items) could be combined to form a measure of positive qualities of peer relationships and three subscales (9 items) form a measure of negative qualities.



Satisfaction and relative power are not included in these composite quality measures.

All subscales of the NRI have been found to have high reliability. For example, Lempers and Clark-Lempers (1993) reported Cronbach's alpha coefficients above 0.75 for all subscales of the NRI. Adler and Furman (1988) reported test-retest reliability of the positive relationship quality for the best same-sex friend was .77, and was .66 for romantic partner. Connolly and Johnson (1997) reported a reliability coefficient alpha of .94 for best friend and .95 for boy/girlfriend for composite measures of positive relationship qualities, and test-retest reliability was above .75 for both.

Physical aggression by romantic partners. The Conflicts Tactics Scale (CTS; Straus, 1979) is an 18-item scale assessing verbally and physically aggressive behaviors that an individual might engage in or experience when in conflict with an intimate partner. The CTS is the most widely used instrument to assess aggression within intimate relationships. Six items asked about verbal aggression. Nine items of the CTS asked about physically aggressive behaviors. Three of these items (throwing something; pushing, grabbing, or shoving; and slapping) measured minor physical aggression. The other 6 items (kicking, biting, or hitting; hitting or trying to hit with something; beating up; choking; threatening with a knife or gun; and using a knife or gun) formed the severe aggression scale. Three other items

measure negotiation in relationships and were not used in this study. Each respondent was asked to answer all questions twice, first regarding experiences of aggression by the current (or the most recent past) steady romantic partner and, second, regarding experiences of aggression by all past romantic partners combined.

Psychological maltreatment by romantic partners. Psychological maltreatment was measured with the Psychological Maltreatment Inventory (PMI; Kasian & Painter, 1992). The PMI is a version of the Psychological Maltreatment of Women Inventory that has been modified for use in younger populations (Tolman, 1989). Respondents were asked to complete this scale twice, first regarding current (or most recent past) romantic partners, and second, about all past romantic partners. This scale contains 40 items. There are five subscales of the PMI including isolation and emotional control (13 items), self-esteem erosion (9 items), jealousy (7 items), verbal abuse (5 items), and withdrawal (6 items). The reliability of all scales has been found to be adequate. Coefficient alphas have previously been found to be .83, .82, .82, .82, and .72, respectively (Kasian & Painter, 1992).

#### Interview protocol

An alternative to collecting longitudinal data to construct pathways or trajectories of change is to have individuals retrospectively construct these

trajectories. This method has been used successfully to examine the development of premarital relationships from first meeting to marriage (Cate, Huston, & Nesselroade, 1986; Surra, 1985).

Retrospective construction of trajectories was used in this study. Changes in time spent with same-sex friends, romantic partners, alone, with family, with groups of peers, and with “other” persons during high school were determined by asking participants a series of questions. Eight estimates of time spent (in the fall and spring of the grade 9, 10, 11, and 12) with best female friends, with romantic partners, alone, with family, with groups of peers, and with others (male friends only, teachers, etc.) were collected retrospectively. To minimize measurement error due to faulty recall, normative and significant events such as the start of each new school year and the sporting events of the season, as well as conversations about those times of life, were used to help focus each participant on the time period in question. Additionally, questioning was in chronological order, rechecking of information was completed throughout the interview, and participants were prompted to provide contextual information about each time period. A series of questions was designed to prompt them to think about details of each time period. Participants were asked about the number of best female and close male friends they had at that time; if they were friends with any of the individuals mentioned in prior years; if they had gone out on a date; if they had a

steady boyfriend, and if so, how old he was and how long the relationship continued; activities they were participating in regularly at each time point such as sports or clubs; and whether they had a job.

After focusing on each point in time, adolescents were asked to "estimate on a scale of 0 to 100, where 0 is no time at all, 50 is about one-half of your free-time, and 100 is every minute of free-time you had, how much time you spent with your best female friends?" Participants were given a visual-analog scale and asked to write a number to indicate the time they select. This procedure was repeated asking about time spent with the steady boyfriend (romantic partner), alone, with family, with a group of people about their same age, and with other people not included in other estimates. Numbers selected were summarized and any discrepancies were discussed with the participant.

The timing of the relatedness orientation transition (RT) was defined as the time during high school when the trajectories of time spent with best female friends and romantic partners first intersected and, in theory, did not cross again. However, it was not always the case that the trajectories intersected at all or that they intersected only one time. Therefore, the RT for each individual was defined as the first time during high school that an individual reported spending more time spent with her romantic partner than with her best female friend(s). Those females who never

experienced the RT were assigned a time of transition higher than all other participants in the study.

It is important to recognize that the RT was not defined as an individual event (such as the initiation of steady romantic relationships), but was the relation between two events. This transition was the first identified change in the previous status of peer relationships as measured by the time spent with close peers (best female friends and romantic partners). It was assumed that when adolescents first reported spending more leisure time with romantic partners than with best female friends, they were potentially indicating more than is identified when independently focusing on the initiation of romantic relationships, or more than a change in the allocation of time with peers. For many adolescents this transition possibly represented a significant shift in their primary source and target of intimacy, attachment, and caregiving (see Furman & Wehner, 1994, 1997). It may also have indicated a turning point in relational, emotional, social, and sexual developmental pathways.

## Descriptive Results and Construct Development

### Description of Participants

#### Age and Activities

The average age of participants was 18.2 (SD = 0.7; see Table 2). Most participants worked at some time during high school (69%) and/or participated in high school activities (77%) such as dance team, volleyball, soccer, key club, student council and yearbook.

#### Dating and Romantic Relationships

A subset of participants (33%; see Table 2) reported that their parents set an age standard for the onset of dating. All but two families set this age at 16. However, only 24% of this group of study participants ( $n = 8$ ) met this standard.

The average age of a first date and a first steady relationship was 14.7 years (SD = 1.5 years and 1.8 years, respectively). Only 1 female had never had a date and 6 reported never having a steady romantic partner (of the opposite- or same-sex). Participants reported a mean of 3.7 (SD = 2.5) romantic partners before and/or during high school. The mean total number of months of involvement with steady romantic partners by grade 12 was 25.9 (SD = 18.6). The average length of a steady relationship was 8.6 months (SD = 7.5), and the mean maximum length of a

steady relationship was 12.3 months ( $SD = 11.4$ ). Twenty participants reported histories of steady relationships of 2 years or longer.

Seventeen participants (18%) reported having a partner who was 21 years of age or older at some time before or during high school. Although all first dates and steady romantic relationships reported were with the opposite-sex, 1 participant reported romantic relationships with females by eleventh grade.

In general, the proportion of females who reported they had romantic partners increased from grade 9 to grade 12 (see Figure 9). While 51% of females reported they had steady romantic partners in the ninth grade, this proportion increased to 59% and 58% in the tenth grade and eleventh grade, respectively. Finally, the proportion increased to 79% by twelfth grade and remained steady in the 48 females interviewed 3-6 months post-high school. Of the 79 females with romantic partners at some time during the twelfth grade, 13 (16%) had partners age 21 or older.

More than one-half ( $n = 58$ ; 57%) of participants reported being involved in steady romantic relationships at the time of the interview. The average length of these current relationships was 13.8 months ( $SD = 11.0$ ). Thirty females reported current relationships that had lasted 12 months or more.

### Best Female Friendships

Almost all participants reported having 1 or more best female friendships at the time of the interview (97%; see Table 2). Three participants reported no current best female friends, but had “very good” or “best” male friends. The mean length of “very best” current female friendships was 59.4 months (SD = 46.6). Exactly 50% of these friendships had been in progress for 4 or more years and 62% of respondents reported they had at least 1 best female friend that was stable from ninth to twelfth grade.

After averaging the reports of the number of best female friends at each of the eight times reported during high school for each participant, the average number of female friends during high school was 3.0 (SD=1.8). The mean number of very good male friends was 2.8 (SD = 2.7). The average numbers of best female and very good male friends in grade 9 were similar (female friends:  $M=3.0$ ,  $SD=2.4$ ; male friends:  $M=2.3$ ,  $SD=3.5$ ).

Nineteen participants (19%) reported having no best female friends at some time during high school. Of these 19, 6 reported no best female friends in early ninth grade only. Another 3 participants reported a random 1/2 of a school year with no best female friends, and the remaining 10 had no best female friends for 1 year or more during high school.



### Menstruation and Physical Maturation

Based upon each participant's estimated month and year of the onset of menstruation, the average age of onset was 12.8 years (SD = 1.4; see Table 2). Females in the first quartile of the sample distribution of age of onset of menstruation were classified as early and females in the fourth quartile were classified as late. There were 27 females in the early group who started to menstruate before 12 years of age, and 21 in the late group who began menstruating at age 14 or after.

Participants were also asked to report how physically mature they looked in grade 9 compared to other girls at that time. The mean rating of physical maturity was slightly above the mid-point of the scale ( $M = 3.1$ ,  $SD = 1.1$ ). Overall, 10% of participants reported they were much older looking than their ninth grade female peers, and 11% reported they were much younger looking.

### Attractiveness

Although self-perceived attractiveness in comparison to other female peers in the ninth grade was highly positively correlated with a similar rating of attractiveness in twelfth grade ( $r = 0.43$ ,  $p < .001$ ), females reported increasing self-perceptions of attractiveness from grade 9 to grade 12 (paired  $t = 5.6$ ,  $p < .0001$ ). In ninth grade, the average rating of attractiveness was 2.6 (SD = 0.9). This rating

increased to a mean of 3.1 (SD = 0.8) when reporting on twelfth grade. Only 2% of females reported they were "much more attractive" than other females in the ninth grade, while 5% reported this when focusing on twelfth grade. Thirteen percent of females reported they were "much less attractive" than other females in the ninth grade, while only 3% reported this when focusing on twelfth grade.

### Popularity

Reporting on ninth grade, the mean ratings of popularity with males and other females were slightly below the mid-point of the scales (Males:  $\underline{M}$  = 2.7, SD = 1.3; Females:  $\underline{M}$  = 2.8, SD = 1.0; see Table 2). About 9% of participants reported they were "much more popular" with males compared to other females in the ninth grade, and 23% reported they were "much less popular." Additionally, 6% of participants reported they were "much more popular" with females compared to other females in the ninth grade, and 11% reported they were "much less popular."

In twelfth grade, the mean ratings of popularity with males and other females were slightly above the mid-point of the scales (Males:  $\underline{M}$  = 3.2, SD = 1.1; Females:  $\underline{M}$  = 3.1, SD = 1.0). About 13% of participants reported they were much more popular with males compared to other females in the twelfth grade, and 7% reported they were much less popular. Five percent of participants reported they

were much more popular with females compared to other females in the twelfth grade, and 9% reported they were much less popular.

Mean rankings of popularity with males increased from ninth to twelfth grade, while popularity with females also increased, but did not quite reach significance (popularity with males: paired  $t = 3.9$ ,  $p < .001$ ; popularity with females: paired  $t = 1.7$ ,  $p = .09$ ). However, the correlation between popularity with males in grade 9 and grade 12 was positive and significant ( $r = 0.38$ ,  $p < .001$ ), while popularity with females in grade 9 and grade 12 were not correlated ( $r = 0.18$ ,  $p > .05$ )

#### Construct Development: Qualities of Peer Relationships

The psychometric properties of the measurement scales were assessed by calculating Cronbach's alpha for each subscale, and examining correlations between subscales and distributions of scores. If reliability of measures were adequate, composite scores were computed using the methods suggested by the authors of the measurement scales.

#### Positive Qualities

Reliability. Because alternative measures of negative qualities were selected for use in this study, only the positive quality subscales of the Networks of Relationship Inventory (NRI; Furman & Buhrmester, 1985; Furman, not dated)

were of interest. Most of these subscales had excellent internal consistency. The reliability coefficient, Cronbach's alpha, of the positive NRI subscales when reporting on the very best female friend and the current or most recent past romantic partner were adequate and ranged between 0.64 and 0.94 (see Table 3). All coefficients were above 0.8 for the scales completed about current or most recent past romantic relationships. When completed with regards to very best female friends, two reliability coefficients were below 0.7 (instrumental aid and admiration).

Correlations. In general, most correlations between the positive qualities of very best female friendships at the time of the interview (see Table 4), and between the positive qualities of the current or most recent past romantic relationship (see Table 5) were significant and positive. However, correlations between the positive qualities of current best female friendships were not as consistently interrelated as correlations between the positive qualities of romantic relationships. For example, companionship with the best female friend was not correlated with affection, reliable alliance, or admiration. In contrast, companionship with the romantic partner was highly positively correlated with all other positive qualities of romantic partners. Companionship was an indication of the amount of interaction with each other. Therefore, amount of interaction between best female friends may not be as related to other positive qualities of friendships such as affection (how much the

friends liked or cared for the participant) or admiration (how much the friend admires, respects, or values the skills of participant). Companionship with the romantic partner was more closely related to these other qualities. However, most correlations between positive qualities were high and significant, and all reliability coefficients were adequate. Therefore, the 21 positive items of the NRI were combined to form a single construct reflecting positive relationship quality in very best female friendships and in current (or most recent past) romantic relationships. These positive quality measures included intimacy, companionship, reliable alliance, instrumental aid, admiration, affection, and nurturance (see Appendix 1).

#### Negative Qualities of Romantic Relationships

Reliability of measures of verbal and physical aggression. Verbal aggression included reports of romantic partners engaging in such acts as insulting or swearing at the respondent, sulking and refusing to talk, threatening to hit or throw things at the respondent, and throwing something at the respondent. Physical aggression included acts by romantic partners such as slapping, hitting, or kicking the respondent. The reliability coefficients of the verbal and physical aggression subscales of the Conflicts Tactics Scale (CTS; Straus, 1979) were excellent when respondents were reporting on past romantic partners' behaviors (above 0.8; see Table 6). However, Cronbach's alpha coefficients for these subscales were lower

when reporting on current or most recent past romantic partners (alpha = 0.66 for verbal aggression and 0.57 for physical aggression, respectively).

Lower reliability coefficients may have occurred because one verbally or physically aggressive behavior measured by the CTS could have been experienced independent of other behaviors. Some items on the CTS are purposefully selected to “increase the diversity of content of the scale rather than to increase internal consistency” (Straus, Hamby, Boney-McCoy, & Sugarman, 1996, p.296). Therefore, these lower coefficients may be an indication that some respondents were experiencing one form of verbal or physical aggression multiple times by current or recent past partners that was not accompanied by other forms. For example, 1 participant reported having been slapped by her current partner 11 to 20 times, but had not experienced any other form of physically aggressive behaviors. Because of this possibility, the relatively low reliability coefficients of some CTS subscales were not considered problematic, so appropriate items from the CTS were averaged to form a measure of experiences with verbal aggression, minor physical aggression, severe physical aggression, and either type of physical aggression (see Appendix 1). Subscale scores for the most recent romantic relationship and for all previous romantic relationships were calculated separately. Items were not weighted to reflect the potential for harm before scores were calculated because few participants reported experiencing physically aggressive behaviors that were

considered to have the highest potential for physical harm (e.g., being threatened with a knife or gun or been injured by a knife or gun).

Correlations between measures of verbal and physical aggression. All subscales of the CTS were correlated (see Table 7). However, the correlation between minor and severe aggressive behaviors by most recent romantic partners was not strong ( $r = 0.31, p < .01$ ). This low correlation is an indication that minor and severe aggression within romantic relationships can occur somewhat independently of the other. There were some cases of participants reporting experiences of minor physical aggression and no severe aggression, and a few cases in which the reverse was true. However, because the distributions of scores for physical aggression by the most recent romantic partner or for physical aggression by all past partners were positively skewed, two indicators were formed and used in all subsequent analyses. Participants were assigned a score of 1 if they had experienced any minor or severe physical aggression by their most recent partners, and assigned a score of 0 if they had not. Participants were also assigned a score of 1 if they had experienced any minor or severe physical aggression by past romantic partners, and assigned a score of 0 if they had not. Indicators of physical aggression and verbal aggression scores were significantly correlated (current or most recent past partner  $r = 0.54, p < .0001$ ; past partner or partners  $r = 0.55, p < .0001$ ).

Psychological maltreatment by romantic partners. Only two subscales of the Psychological Maltreatment Inventory (PMI; Kasian & Painter, 1992) were selected for use in this study. These subscales included the thirteen-item measure of isolation and emotional control, and the seven-item measure of jealousy. These subscales were chosen because the items appeared to most closely reflect actions of a romantic partner taken to limit social activity (see Appendix 1). For example, jealousy items that reflected limits on social activity included ‘my boyfriend monitored my time and made me tell him where I went’ and ‘my boyfriend did not want me to hang out with my friends.’ Isolation items that reflected limits on social activity included ‘my boyfriend tried to turn my family and friends against me’ and ‘my boyfriend tried to keep me from seeing or talking to my family.’ Therefore, these subscales were expected to be most highly associated with other constructs of interest in this study including the amounts of leisure time spent with social network members, and popularity with peers. The correlation between isolation and jealousy was positive and significant, but not as strong as was expected ( $r = 0.46, p < .0001$ ).

The internal consistencies of the isolation and jealousy subscales of the PMI were excellent (Cronbach’s alpha = 0.92 and 0.83, respectively; see Table 6). Averaging the appropriate items formed the isolation and jealousy subscale scores of the PMI (see Appendix 1).



### Descriptive Results: Qualities of Peer Relationships

#### Positive Qualities of Peer Relationships

The relationship with current romantic partners and with very best female friends had similar levels of positive qualities (current romantic partners:  $M = 3.7$ ;  $SD = 0.7$ ; very best female friends:  $M = 3.6$ ,  $SD = 0.6$ ; see Table 8). However, when all participants were included by combining the positive qualities of current romantic partners with the positive qualities reported by the remaining participants about their most recent past romantic partners, the mean level of positive quality fell just slightly below that of the current best female friend ( $M = 3.4$ ,  $SD = 0.9$ ).

#### Negative Qualities of Romantic Relationships

On average, participants experienced higher levels of verbal aggression by past partners ( $M = 2.2$ ,  $SD = 1.9$ ) than in current or most recent past romantic relationships ( $M = 1.0$ ,  $SD = 1.1$ ; see Table 8). Twelve of the 58 females with current partners (20%) reported that this partner had been physically aggressive when in a conflict or upset with them. Five (11%) of these females reported severe aggression. Eighteen percent of participants (17 of 94) reported a history of physical aggression by their most recent partners, while 38% reported physical aggression by some past partner or partners. In sum, 47% of participants (44 of 94)

reported some history of physical aggression by either a current or a past romantic partner. Most of these acts of physical aggression were of low frequency (e.g., 1 or 2 minor physically aggressive acts, such as pushing or slapping).

Average isolation by the current partner was low ( $\underline{M} = 0.1$ ,  $SD = 0.2$ ). When all participants were included by combining isolation with the current partner or the most recent past partners, mean isolation was similar ( $\underline{M} = 0.2$ ,  $SD = 0.5$ ). Average isolation by past partners was slightly higher ( $\underline{M}=0.5$ ,  $SD = 0.6$ ). Jealousy by the current partner was also low ( $\underline{M} = 1.0$ ,  $SD = 1.0$ ). Average amount of jealousy by the current partner or the most recent past partner was similar ( $\underline{M} = 1.0$ ,  $SD = 1.0$ ), but jealousy experienced by past partners was slightly higher ( $\underline{M}=1.5$ ,  $SD = 1.1$ ).

Reports of the qualities of participants' romantic relationships at the time of the interview or the most recent past romantic relationship if no current relationship existed will be used in all further analyses. This will be called 'most recent romantic relationships.' Excluding females with current romantic partners, the majority of the remaining participants had a last romantic relationship in grade 12 (20 of 36; 56%), but some last relationships were in grade 10 or 11 (31%), and the remaining were in grade 9 or before (14%). However, this approach seemed appropriate for two reasons, First, it allowed for a larger sample size, and, second, the mean level or proportions of participants experiencing negative qualities in their

current or most recent past romantic relationships did not differ substantially from reports of those individuals involved in current relationships.

Construct Development: Time Spent with Network Members (Quantity)

To validate the visual analog scale measure of time spent with best female friends, and romantic partners an additional 6 questions were asked of participants. These 6 questions asked for reports of how often females 1) hung out with [best female friends/romantic partners] at one of their homes (own or best female friends / own or steady romantic partners), 2) go out with [best female friends or romantic partners] (shopping, parties, movies, driving around, etc.), and 3) talk on the phone with [best female friends / romantic partners]. A 9-item scale was used ranging from 'less than 1 time a month' to 'every day.'

Responses to the analog scale (ranged 0 to 100) were correlated with answers to these 6 questions at each of the 8 times of measurement during high school (see Table 9). All correlations were positive and significant ranging from 0.49 to 0.92. The lowest correlations were between the amount of leisure time spent with friends and partners reported on the visual analog scale and time spent talking on the phone with these peers. Excluding time on the telephone, Pearson correlations ranged from 0.60 to 0.92. Therefore, reports using the two methods gathered similar information. All further analyses were based upon reports of time spent with peers

(and others) using the 1-item visual analog scale. This scale was used to identify changes in time spent with social network members during high school and to identify the timing of the relatedness orientation transition (RT).

### Description of Population Trajectories of Time Spent

Hierarchical linear modeling (HLM; also called random effects mixed modeling) was completed using the Mixed Procedure in SAS Software (SAS PROC MIXED; SAS Institute, Inc., Cary, NC) to determine patterns of change in time spent with network members and time spent alone during high school, and to estimate parameters of individual change trajectories (e.g., intercepts and slopes of trajectories). HLM was chosen to accommodate repeated measurements of data and to allow analyses of the shapes of the trajectories of change in time spent with network members over time.

### Introduction to HLM

HLM, growth curve analysis, and mixed modeling are very useful methods for analyzing repeated measurements of data (Bryk & Raudenbush, 1992; Bryk, Raudenbush, & Congdon, 1996; Burchinal & Appelbaum, 1991; Connell & Skinner, 1990; Francis, Fletcher, Steubing, Davidson, & Thompson, 1991; ; Rogosa, Brandt, & Zimowski, 1982; Willett, Ayoub, & Robinson, 1991;

Zimmer-Gembeck, in press). The "hierarchical" in HLM arises from the hierarchical structure of the data. Clusters of data are examined as embedded within other clusters. In the case of repeated measures of constructs, times of measurement and the repeated measures of variables are nested within subjects. Each subject participates at multiple points in time and, provides repeated measures of the same variables. Times of measurement are assumed to have been randomly selected from the entire possible collection of times of measurement that were available.

In each of the mixed models completed here, the dependent variable was the amount of leisure time female adolescents spent with certain members of their social networks such as time spent with best female friends, or time spent alone during high school. The independent variable was the within subjects factor, time of measurement. Time of measurement was coded 0 (fall of ninth grade) to 7 (spring of twelfth), and was specified as a fixed effect to estimate the population trajectory. Time of measurement was also specified as a random effect to estimate the linear rates of change (slopes) in the trajectories of time spent with a social network member or sets of network members for each study participant. Hence, the term random effects mixed modeling is used. The intercept was also specified as a random effect to estimate the intercept of the trajectory of the amount of time spent

with social networks or alone for each study participant. SAS PROC MIXED estimated all fixed and random effects simultaneously.

Since time was coded 0 to 7, the intercept in the model represented the initial level of time spent with the specified social network members or time spent alone (Singer, under review). In this case, the initial level (intercept) is fall of grade 9. Time of measurement represented the linear change in the amount of leisure time spent with specified social network members or alone from the fall of grade 9 to the spring of grade 12. Higher order effects of time of measurement (time<sup>2</sup>, time<sup>3</sup>, etc.) were tests of nonlinear shapes of the curves of the amount of leisure time spent with social network members or time spent alone during high school. Specifying the intercept and time of measurement as random effects also allowed for the estimation of the intercept and linear slope of each participant's trajectory of time spent with a social network members or alone during high school.

One of the important tasks of using SAS PROC MIXED is to model the covariance matrix correctly. Most methods of modeling assume independent errors. However, when working with repeated measurements, errors are usually not independent. For example, two adjacent measures in time may be more highly correlated than measures taken farther apart in time. Therefore, determining the appropriate covariance structure of the data was one of the first steps here (Littell, Milliken, Stroup, & Wolfinger, 1996; Singer, under review). Three structures were

tested including "unstructured" (no assumption of an underlying covariance structure), "compound symmetric" (assumes symmetric covariance among all measures), and "autoregressive order one" (correlations are larger for nearby measures than for farther apart measures). The "unstructured" option resulted in the best measures of model fit with all dependent variables (Akaike's Information Criterion and Schwarz' Bayesian Criterion were closer to 0) although results were similar for all three methods. Results assuming an unstructured covariance structure and using restricted maximum likelihood to estimate the variance components are presented in Table 10.

### Population Trajectories

In Figures 10 to 14, average observed and estimated amounts of leisure time spent with best female friends, with romantic partners, alone, with family, and with groups of peers during high school are displayed. Values of time spent with network members for each participant at each time of measurement were estimated by mixed modeling analyses. Average time spent with members of participants' social networks or alone throughout high school are reported in Table 11 for reference.

In Table 10 the 'Unique estimate' of the 'Intercept' displays the estimated level of time spent with social network members (indicated by the dependent variable) in

the fall of ninth grade. The 'Unique estimate' for the 'Time of measurement' indicates the average linear slope in time spent with network members from fall of ninth grade to spring of twelfth grade. The 'Unique estimate' for 'Time squared' is included if there was a significant quadratic shape of the population trajectory. This occurred in the analyses of time spent with family and with groups of peers from fall of grade 9 to spring of grade 12. Associated values of F-statistics and p-values indicate significance of the linear slope and quadratic shape of trajectories. In all models, linear, quadratic, and cubic effects were tested. Nonsignificant effects were removed from the models. Only final models are shown in Table 10. If no time of measurement effects were significant, the linear effect of time was left as a covariate in the model.

Population trajectory of time spent with best female friends. On average, there appeared to be no linear change in time spent with best female friends from grade 9 to grade 12. The average population trajectory of the amount of leisure time spent with best female friends showed no significant linear or higher order changes from ninth grade to twelfth grade (i.e., the unique estimate for the time of measurement was not significant; see Table 10). On average, females started high school spending more than one-half of their leisure time with best female friends (the unique estimate of the intercept was 55.13). This amount of time remained almost stable until the spring of grade 12 as indicated by the small and nonsignificant slope



of time spent with best female friends (unique estimate = -0.66;  $p = .178$ ).

Therefore, the slope of the population trajectory of time spent with best female friends during high school was not significantly different from 0. The average observed amount of leisure time spent with best female friends in fall of ninth grade was 55.7 (about 56% of leisure time) and in spring of twelfth grade it had declined, nonsignificantly, to 51.5 (see Table 11 and Figure 10).

Population trajectory of time spent with romantic partners. On average, females increased the amount of their leisure time they spent with romantic partners substantially from grade 9 to grade 12. The average population trajectory of the amount of leisure time spent with romantic partners started low (16.04) and increased significantly from fall of ninth grade to spring of twelfth grade (see Table 10). The unique estimate of the slope of the trajectory was 2.80. This positive slope was significantly different from 0 ( $p < .001$ ). Therefore, on average, females started grade 9 spending a small amount of their leisure time with romantic partners (about 16%). This time increased an average of almost 3% each one-half year during high school (increasing to 19% by spring of ninth grade, increasing to 22% by fall of tenth grade, etc.; see Table 11 and Figure 11).

Population trajectories of time spent alone, with family, and with groups of peers. The amount of leisure time that females spent alone during high school did not significantly change from grade 9 to grade 12, but time with family and groups

of peers did change. The normative trajectory of the amount of leisure time spent alone started low in fall of ninth grade (26%) and remained steady throughout high school (unique estimate of the slope = -0.05,  $p = .888$ ; see Table 10, Table 11, and Figure 12).

The amount of leisure time that female adolescents spent with family and groups of peers did change during high school. Both the linear and quadratic effects of time of measurement were significant. There was a general linear decline in the amount of leisure time spent with family, but time with family first declined between ninth grade to early tenth grade and then increased slightly (see Table 10, Table 11, and Figure 13). Similarly, time spent with groups of peers declined from ninth grade to fall of eleventh grade and then increased again in the 12th grade to the level reported in grade 9 (see Table 10, Table 11, and Figure 14). Interviews indicated that increases in time spent with groups of peers in twelfth grade were stimulated by the awareness of this being the "last year to be together" and the parties and celebrations that accompany the last year of high school.

#### Construct Development: Individual Parameters of Trajectories of Time Spent

The estimated population trajectories of the amount of leisure time spent with social network members were closely representative of the observed population trajectories (see Table 11 and Figures 10 to 14). However, there is evidence that

random effect mixed modeling with repeated measures may be more robust when estimating population curves than for individual estimates of trajectory parameters (McLean, Sanders, & Stroup, 1991). Although population trajectories were of interest in this study, another purpose of using random effects mixed modeling was to obtain individual estimates of trajectory parameters (intercepts and slopes of trajectories) to use as individual difference variables in further analyses. Therefore, the next step was to assess the appropriateness of using individual estimates in further analyses, and to assess the accuracy of these individual estimates.

First, to determine the appropriateness of using individual estimates of intercepts and slopes as individual difference variables, the variations of the intercepts and slopes of individual participant's trajectories of time spent with network members were assessed. There was significant variation among individual parameter estimates in all cases (all  $p < .001$ ). Therefore, these parameters differed significantly among individual participants and could potentially be used to indicate individual differences in intraindividual change in the amount of time spent with social network members during high school.

Second, to determine the accuracy of the estimation of these individual parameters, observed and estimated values of time spent with best female friends and romantic partners in fall of ninth grade and the same estimates in the spring of twelfth grade were compared. For example, Figure 15 shows a plot of observed

and estimated values of time spent with best female friends in fall of ninth grade. It appears the model had difficulty with accurate predictions in some cases. Most often the difficulty occurred when repeated values within an individual were highly discrepant (e.g., when an individual reported 0 time spent in fall of tenth grade and then 80 in spring of tenth grade). Discrepancies such as these were not unique and could be a substantial problem. Intercepts and, especially, slopes of the trajectories of time spent with network members may not adequately represent the variation among individuals and the individual patterns of change that occurred.

Third, to further assess accuracy of individual estimates, individual observed and estimated patterns of change in time spent with best female friends and romantic partners of participants, and the associated intercept and slope estimates were visually inspected. The patterns of change of 3 participants are shown in Figures 16 to 18. These figures revealed that intercept estimates were sometimes very accurate, but more often represented a combination of time spent in the first year or year and a half of high school. These figures also indicated that the slope estimates could not often capture all the information about patterns of change. By definition, slopes only provide an understanding of general linear increase or decline from grade 9 to grade 12, but other substantial short-term gains and losses during high school were often lost. Therefore, when using and discussing intercept and slope parameters in further analyses, careful interpretation will be required to

ensure the emphasis on these general trends from grade 9 to grade 12, and to acknowledge the potential loss of information.

#### Descriptive Results: Estimated Parameters of the Trajectories of Participants

Means and standard deviations of the estimated intercepts and slopes of individual trajectories of time spent with social network members are shown in Table 12. The means are the same as the unique estimates for the intercepts and times of measurement shown in Table 10. Linear rates of change for time with family and groups of peers were estimated after accounting for the significant quadratic shape of the population trajectories.

Correlations between estimated intercepts and linear rates of change of time spent with social network members, and average levels of time spent with best female friends and time spent alone are shown in Table 13. The intercept and linear slope estimates were negatively correlated in all cases (see bold correlations in Table 13). However, most correlations were not so strong as to be concerned about multicollinearity problems in planned multiple regression models. The strongest correlation was between the intercept and slope estimates of the trajectories of time spent with best female friends ( $r = -0.69, p < .001$ ). This correlation indicated that increasing estimated initial values of time spent with best female friends were associated with smaller rates of change in time spent across high school.

Overall, there were particularly high correlations between estimated intercepts and slopes of the amount of time spent with best female friends and the amount of time spent alone during high school. In both of these cases the effects of time of measurement in the random effects mixed models were not significant. This suggested that there were no significant linear changes in time with friends or time alone from grade 9 to grade 12. Therefore, average levels of time spent with best female friends and alone were calculated for each participant.

Average levels were the average of the 8 measures of time spent with best female friends or alone during high school for each participant. Correlations between the average levels of time spent with friends and alone, and all estimated intercept and slopes of time spent with social network members are also shown in Table 13. Average levels of time spent with friends and time spent alone were highly positively correlated with the estimated intercepts of each of these trajectories ( $r = 0.91$  and  $r = 0.92$ , respectively, both  $p < .001$ ). The average level of time spent with best female friends was also negatively correlated with estimated slopes of the trajectories of this variable ( $r = -0.33$ ,  $p < .01$ ). It appears that average levels of time spent with best female friends were very similar to intercepts. Additionally, there was potentially a ceiling effect occurring with time spent with best female friends. Respondents who reported high levels of time spent with best female friends tended to have smaller rates of linear change in time spent with

friends during high school. This probably occurred because they had less chance to report any increase. They started high school spending a large amount of their leisure time with their female friends and this time remained high. Because of these findings, the average level of participants' ratings of time spent with best female friends and alone at all times during high school will be used in further analyses in place of the estimated individual intercepts and slopes of these two trajectories. The average level will be called 'ambient level' in further analyses involving individual parameters of trajectories.

#### The Relatedness Orientation Transition

The relatedness orientation transition (RT) was defined as the first time during high school that participants reported spending more time with romantic partners than with best female friends. Each participant was assigned a score to indicate the timing of the RT. A score of 1 indicated spending more time with romantic partners than best female friends at the first time of measurement (fall of grade 9), while a score of 2 indicated the RT in spring of grade 9, etc. A score of 8 was assigned to indicate spring of grade 12, and a score of 9 was assigned to indicate no RT during high school.

## Construct Development and Descriptive Results: Other Characteristics

### Dating and Romantic Relationships

Age and timing. The distribution of the age of dating onset was examined to classify participants as "early", "on-time" or "late" daters in comparison to their peers. The first quartile of age of dating onset was classified as early. This group included 23 females who dated before 13.5 years of age. The late group included 19 participants in the 4th quartile of the age of dating onset. These females dated for the first time after 16 years of age. The remaining participants were classified as on-time. All participants who followed their parents' age guidelines for dating were classified as late.

By definition, the timing of the onset of dating was highly correlated with the age of dating onset ( $r = .90, p < .0001$ ). In addition, 47% of participants reported simultaneous onset of dating and steady romantic relationships and the correlation between these measures was high ( $r = 0.65; n = 95$ ). Therefore, the timing of the onset of dating was used in all subsequent analyses to maximize sample size and to reduce the number of analyses.

Involvement with romantic partners. Three variables were chosen as indicators of the amount of involvement with romantic partners before and/or during high school. These included the amount of time spent with romantic partners in grade 9, the total number of romantic partners reported before and/or during high school,



and the total number of months involved with romantic partners before and/or during high school. Later onset of dating was accompanied by spending less time with romantic partners in grade 9, having fewer steady romantic relationships before and/or during high school, and having spent fewer total months involved in steady romantic relationships ( $r = -0.34$ ,  $r = -0.40$ , and  $r = -0.39$ , respectively;  $p < .01$  in all cases; see Table 14).

Age of romantic partners. An indicator of having at least one older romantic partner was developed, because of the potential influence of having older romantic partners on the amount of time spent with partners. Older partners often have access to more resources including finances and vehicles that prompt adolescents to spend time away from home. Further, older partners may have more autonomy such as having later curfews, more lenient family rules, and being allowed to make more of their own decisions. Females involved with older romantic partners may be prompted to seek more behavioral autonomy from their parents. This greater autonomy may be reflected in increased time spent with older romantic partners.

A group of female adolescents was identified who had been involved with at least one older romantic partner. Older romantic partner were defined as being approximately three years older than female respondents. Specifically, this was defined as a romantic partner who was 18 or older when the respondent was in grade 9, 19 or older when in grade 10, 20 or older when in grade 11, and 21 or older

when in grade 12. Overall, 25 (25%) females reported having at least one older romantic partner during high school.

Females who had an older partner tended to date earlier and to spend more months involved with romantic partners. Having an older romantic partner was negatively correlated with the timing of the onset of dating ( $r = -.21, p < .05$ ), and positively correlated with the total months involved with romantic partners ( $r = 0.25, p < .05$ ). However, having an older romantic partners was not correlated with the amount of time spent with partners in grade 9, or the total number of romantic partners reported (see Table 14). Overall, it appeared that having an older partner did not mean that an adolescent tended to have more partners, but having an older partner was associated with more lasting relationships.

### Female Peer Social Network

Early and consistent involvement with females. The two measures of involvement with female friends included the number of best female friends reported in grade 9, and time spent with best female friends in grade 9. Having at least one best female friend who was stable throughout high school was the measure of a consistent female relationship throughout high school. These three variables were interrelated (see Table 14). Higher numbers of best female friends in grade 9 was accompanied by spending more time with these friends in grade 9 ( $r$

= 0.37,  $p < .001$ ). Additionally, the number of best female friends in grade 9 was positively correlated with having at least 1 stable friend throughout high school ( $r = 0.38, p < .001$ ).

Popularity with other females. Popularity with other females was reported for the ninth and the twelfth grades. As popularity in grade 9 increased so did the number of best female friends. Popularity with females in grade 9 was positively correlated with the number of friends in grade 9 ( $r = 0.26, p < .01$ ). However, popularity in grade 9 was unrelated to other characteristics of female friendships (see Table 14). Popularity with females in grade 9 was not related to popularity with females in grade 12. The amount of time spent with friends in grade 9 or having a stable best female friend during high school were also not related to popularity in grade 12.

#### Male Peer Social Network: Early Involvement and Popularity

The number of very good male friends in grade 9 was chosen as the measure of early involvement with males other than romantic partners. In grade 9, as the number of male friends increased so did popularity with males. Involvement with males in grade 9 was positively correlated with popularity with males in grade 9 ( $r = 0.25, p < .05$ ). In turn, popularity with males in grade 9 was also positively correlated with popularity with males in grade 12 ( $r = 0.38, p < .001$ ).

### Individual Characteristics: Physical Maturity and Attractiveness

There were three measures of physical maturity including the age of onset of menstruation, the timing (early, on-time, or late) of the onset of menstruation, and a measure of self-perceived mature physical appearance in comparison to female peers in grade 9. These three measures were interrelated. As would be expected, the age and timing of the onset of menstruation were highly correlated ( $r = 0.89$ ,  $p < .001$ ). Mature appearance was negatively correlated with both the age and timing of the onset of menstruation ( $r = -0.32$ ,  $p < .01$  and  $r = -0.24$ ,  $p < .05$ , respectively). As menstruation occurred later, the rating of mature appearance declined. Because these three measures were interrelated and the appearance of physical maturity was expected to be most predictive of the responses of peers, measures of the age and timing of onset of menstruation were not pursued further.

There were two questions asking respondents to report their physical attractiveness compared to other females. Self-perceived attractiveness in grade 9 was positively related to self-perceived attractiveness in grade 12 ( $r = 0.43$ ,  $p < .001$ ; see Table 14). A rating of attractiveness made by the author was not associated with self-perceived attractiveness in grade 9, but was associated with self-perceived attractiveness in grade 12. Because the primary interest in this study

was in attractiveness early in high school as a predictor of later events, self-perceived attractiveness in grade 9 was used in subsequent analyses.

### Summary of Associations

Figure 19 summarizes many of the bivariate correlations between the timing of the onset of dating, characteristics of steady romantic relationships, characteristics of peer relationships, and individual characteristics. Overall, the significant correlations between these variables provided an interesting pattern of links between dating, friendships, appearance, and popularity throughout high school.

Attractiveness, popularity with both sexes, physical maturity in the ninth grade, and timing of the onset of dating were interrelated. Timing of the onset of dating, was negatively associated, and physical maturity in ninth grade was positively associated with self-perceived attractiveness and popularity with both males and/or females during that same year. In turn, increasing attractiveness and popularity in ninth grade were accompanied by more best female friends in grade 9, more romantic partners before and/or during high school, more months of involvement in steady romantic relationships, and having had an older romantic partner.

Popularity, self-perceived attractiveness, and the number of friends in grade 9 appear to have been markers of early sociability that resulted in more peer

involvement. This greater sociability and involvement with peers then predicted more steady romantic relationships and involvement with older males.

By twelfth grade the systems of female relationships, and male friendships or romantic relationships seemed more separated. Both the number of steady romantic partners reported during high school, and the number of months involved with steady romantic relationships were associated with self-perceived attractiveness and popularity with males in twelfth grade. In contrast, popularity with males, popularity with females, and individual characteristics in grade 9 were not associated with popularity with females in grade 12. Only popularity with males in grade 12 predicted popularity with females in grade 12.

In sum, the number of steady romantic relationships and time spent in steady romantic relationships predicted popularity with males by grade 12, while neither predicted popularity with other females in grade 12. In addition, self-perceived attractiveness in the ninth grade was related to popularity with both males and females in the ninth grade, but by twelfth grade, attractiveness was no longer related to popularity with females. Attractiveness and popularity seemed to have a strong effect on relationships with both males and females in the ninth grade, but by twelfth grade popularity with other females appeared more independent from early attractiveness and relationships with males.

## Results of Tests of Hypotheses

### Hypotheses about Trajectories, Tradeoffs, and Reorganization

#### Hypothesis 1. Do Female Adolescents Trade Time with Friends for Time with Romantic Partners?

Three approaches were used to investigate associations between the amounts of leisure time spent with best female friends and romantic partners during high school. The first two approaches focused on individual times of measurement (8 times; fall of ninth grade to spring of twelfth grade). These cross-sectional comparisons were then summarized to speculate about change over time and to compare to results of the next analyses. In the next analyses, change over time was the target of the analysis.

Therefore, these three approaches included 1) correlations between measures of the amount of leisure time spent with best female friends and romantic partners at each retrospective time of assessment, 2) comparisons between the average amount of leisure time spent with best female friends at each retrospective time of measurement of groups of females with and without romantic partners, and 3) associations between repeated measures of the amount of leisure time spent with best female friends and time spent with romantic partners during high school (trajectories of time spent) using random effects mixed modeling. In addition, some information on associations between time spent with peers, alone, with the

family, and with groups of peers was also provided to illustrate how participants' entire networks of social relationships may have been in transition throughout high school.

Do tradeoffs emerge in late high school? Some females were expected to be more interested in, involved with, and attractive to both female and male peers early in high school. These females would have been most likely to spend more leisure time with both best female friends and romantic partners in grade 9. Therefore, when focusing on concurrent measures of time spent with peers, it was expected that the amount of leisure time spent with female friends in grade 9 would be positively associated with the amount of time spent with romantic partners in grade 9. However, it was expected that with age, leisure time with female friends would begin to be traded for leisure time with romantic partners. So, when focusing on concurrent measures of time spent in later high school years, time spent with female friends and romantic partners would not be related in grade 10, and would be negatively correlated by grade 11 or 12.

These predictions were not supported. There were no associations between the concurrent measures of the amount of leisure time spent with female friends and the amount of leisure time spent with romantic partners at any time of measurement during high school (see Table 15). Therefore, simply correlating concurrent measurements of time spent with peers did not reveal any reorganization or tradeoff



of time with best female friends for time with romantic partners or provide any suggestion of a reorganization of the allocation of leisure time during high school. However, the pattern of correlations between time spent alone and time spent with best female friends, and between time spent alone and time spent with romantic partners did suggest the possibility of some reorganization of time priorities beginning in tenth or eleventh grade.

In grade 9, there was a significant negative correlation between time spent with best female friends and time spent alone ( $r = -0.31$ ,  $p < .01$ ; see Table 15), but, by tenth grade, there was no longer a consistent pattern of negative correlations between these two measures. Instead, there were significant negative correlations between time spent with romantic partners and time spent alone in tenth, eleventh, and twelfth grades. In addition, time spent with best female friends and groups of peers (peers about the age of the respondent that could have included best female friends and romantic partners) were always highly positively correlated, but time spent with romantic partners was rarely related to the amount of leisure time spent with groups of peers. Further, there was rarely a significant correlation between time spent alone and with a group of peers. Therefore, early in high school, the amount of time spent alone may have been extra time that was traded for increased time with best female friends, if requested, needed or desired, but somewhat later in

high school time alone was traded for time with romantic partners when needed. In contrast, time spent alone did not appear to be traded for time with groups of peers.

Do females with romantic partners spend less time with friends than other females? If a tradeoff of time with friends for time with romantic partners was occurring, this should be evident when comparing the time that females with partners spent with their best female friends to the time females without partners spent with friends. Therefore, this next set of analyses was conducted to compare the mean amount of time that females with and without romantic partners spent with their best female friends at each time of measurement during high school. If females with romantic partners spent less of their leisure time with best female friends this was evidence that some tradeoffs of time with female friends for time with romantic partners may have occurred.

Participants were stratified into two groups at each time of measurement. The first group contained those females who reported no romantic partner at that time. The second group contained those females who report having a romantic partner at that time. At each time of measurement the average amount of leisure time the groups spent with their best female friends was compared.

In general, participants did begin to reduce the amount of their leisure time they spent with their best female friends when they had romantic partners beginning in the eleventh grade. There were no differences in the average amount of time spent

with friends in ninth grade or tenth grade when comparing mean time with friends of participants with romantic partners to those without romantic partners (see Table 16). Females with romantic partners appeared to spend significantly less time with their best female friends than those without romantic partners beginning in about the eleventh grade. However, this difference was not significant at each time of measurement in eleventh and twelfth grades. There were significant differences between average time spent with best female friends when comparing females with romantic partners to those without partners in the spring of eleventh grade and the spring of twelfth grade. For example, in the spring of eleventh grade, the average amount of leisure time females with romantic partners spent with their best female friends was 45%, while the average rating by females without romantic partners was 13 points higher (57%,  $p < .05$ ). These findings suggest two patterns. The first pattern of increasing time with romantic partners and decreasing time with friends may have occurred over the complete course of high school, while a second pattern of increasing time with partners and reducing time with friends was occurring during each school year. Females tended to increase their time with romantic partners slowly during the entire 4 years of high school, but they also started each school year (at least beginning in about eleventh grade) spending less time with romantic partners than they had the spring before, and increased this time during the school year.

Do females who increase the amount of time they spend with romantic partners more rapidly also trade more time with friends? Instead of focusing on concurrent measures of time spent with peers, the next analysis focused on change in time spent with peers during high school. Change in time spent with peers during high school should also have reflected a tradeoff of time with female friends for time with romantic partners. Specifically, the association between trajectories of the amount of leisure time spent with best female friends and the amount of leisure time spent with romantic partners during high school was expected to reflect this tradeoff of time with friends for time with partners. Female adolescents who gained more time with romantic partners during high school were also expected to have larger losses in time with best female friends.

To test the possibility of tradeoffs of time with friends for time with partners, random effects mixed modeling was used. This model was a test of the association between two linear trajectories. The first trajectory was amount of leisure time that was spent with best female friends from grade 9 to grade 12. The second trajectory was the amount of leisure time spent with romantic partners from grade 9 to grade 12. A negative correlation between linear rates of change of these two trajectories would be an indication of a tradeoff of time with best female friends for time with romantic partners.

In this mixed model, the dependent variable was the amount of leisure time spent with best female friends during high school. Independent variables included the main effect of time spent with romantic partners, the main effect of time of measurement, and the interaction between time spent with romantic partners and time of measurement. Time of measurement was repeated within subjects and was a test of a significant linear rate of change in the amount of leisure time spent with best female friends after accounting for the effect of time spent with romantic partners. The main effect of the amount of leisure time spent with romantic partners was a test of the association between time spent with partners and the amount of time spent with best female friends in the fall of grade 9 (when time of measurement was 0). The interaction between time of measurement and time spent with romantic partners was a test of the association between the linear rate of change in time spent with partners and the linear rate of change in time spent with friends during high school. Therefore, if the parameter estimate of the interaction effect was significant and negative, this was evidence of a tradeoff of time with friends for time with partners during high school.

There was a significant negative parameter estimate of the interaction between time of measurement and time with romantic partners (unique estimate = -0.02,  $p < .05$ ; see Table 17). This indicated that linear change in time spent with romantic partners did have a significant inverse association with linear change in

time spent with best female friends during high school. As the trajectory of time spent with romantic partners increased in slope, the trajectory of time spent with friends decreased in slope. Specifically, for a gain of 1.0 in the linear growth rate of time spent with partners, the growth rate of time spent with friends declined by -0.02. Therefore, time spent with romantic partners did have a small, but direct and significant influence on the linear rate of change in time spent with best female friends during high school. Time spent with best female friends did appear to be traded for time with romantic partners. As the slope of the trajectory of time spent with partners increased (changing from stability or a slight increase to a steeper increase), the trajectory of time with friends decreased in slope resulting in a trajectory that, rather than being stable throughout high school, had an increasingly negative slope.

In addition to the tradeoffs of time with friends for time with romantic partners that occurred during high school, females who spent more time with partners in the fall of grade 9 also spent less time with their best female friends. This was indicated by the negative unique estimate of the main effect of time spent with romantic partners (unique estimate = -0.12,  $p < .05$ ; see Table 17). It appears that either tradeoffs of time with friends for time with partners had occurred for some adolescents prior to high school, or some females who spent lower amounts of time

with friends prior to high school had also added partners to their social networks prior to high school.

Summary of results of Hypothesis 1: Tradeoffs between peer relationships.

Overall, to test hypothesis 1, both concurrent measures of the amount of leisure time spent with friends and partners, and change in time spent with peers were investigated. Although at each time of measurement time spent with best female friends and romantic partners was not correlated, females with romantic partners reported spending less time with their best female friends beginning in grade 11 when compared to females without romantic partners. It seems that correlating concurrent measures of time with peers may not have been adequate when the purpose was to identify a reorganization of peer relationships or a tradeoff between time with different peers. However, correlating measures of time with peers with time spent alone, and comparing the average amount of time spent with friends between females with and without partners provided some evidence of differences. For example, females with romantic partners spent less time with friends than other females.

Finally, the potential foundation of these differences became clearer after the next analysis. Focusing on change trajectories, it was found that females who gained more time with partners also tended to lose more time with friends during high school. In sum, associations between time with peers and time spent alone,

and differences between groups of females with and without partners provided hints of reorganization and tradeoff of peer relationships. However, the small tradeoff of time with friends for time with romantic partners that occurred during high school was not clear until directly focusing on change trajectories.

### Hypothesis 2. Association between Time Spent with Peers and the RT

Is the Relatedness Orientation Transition simply a marker for increasing time with romantic partners? The RT was defined as the first time during high school that females spent more time with their romantic partners than with their best female friends. However, it remained unclear what aspects of these trajectories of time spent with best female friends and romantic partners were necessary to define the RT. For example, it remained unclear whether the amount of leisure time spent with romantic partners was sufficient to determine the RT. In other words, was time with female friends so stable that it was only the pattern of the amount of leisure time that was spent with romantic partners during high school that resulted in the timing of the RT? Alternatively, was it both patterns of change in the amount of time spent with romantic partners and time with best female friends that combined to result in the timing of the RT? Because this was unclear, hypothesis 2 focused on empirically determining the predictors of the RT. It was expected that 1) the initial level of time spent with romantic partners, 2) the rate of change in time



spent with romantic partners, and 3) the level or change in time spent with best female friends would all predict the RT.

It was expected that female adolescents who started high school spending more time with romantic partners and/or those with steeper inclines in the amount of leisure time they spent with romantic partners would experience the RT earlier. Additionally, females who had a higher ambient level of time with friends would experience the RT later. To test this, individual parameter estimates of the trajectories of time spent with romantic partners (intercepts and slopes), and the ambient level of participants' trajectories of time spent with best female friends were included in a multiple regression model. In this model, the timing of the RT was the dependent variable and parameters of the trajectories of time spent with friends and partners were included as independent variables.

Results of this analysis confirmed all hypothesized relationships between trajectories and the RT (see Table 18). Estimated intercepts and slopes of the trajectories of time spent with romantic partners, and the ambient level of the amount of leisure time spent with best female friends during high school were all significantly associated with the timing of the RT. These relationships were in the expected directions. Both the intercepts and slopes of the trajectories of time spent with romantic partners were negatively related to the RT. This indicated that spending more time with romantic partners in the fall of grade 9 and a steeper linear

trajectory of time with partners from grade 9 to grade 12 resulted in an earlier RT. Conversely, the ambient level of time that was spent with best female friends was positively associated with the RT indicating that adolescents who, on average, spent more time with best female friends throughout high school had a later RT. Therefore, the amounts of leisure time spent with female friends and romantic partners both predicted the timing of the RT. It was not the case that the amount of time spent with romantic partners was the only influence on the timing of the RT.

When do female adolescents first spend more time with partners than with friends? The mean RT was in about the middle of grade 11 ( $M = 5.6$ ,  $SD = 2.8$ ). About 63% ( $n = 64$ ) of females experienced the RT during high school. Twelve females experienced the RT in spring of ninth grade, while 18 females reported the RT in tenth grade, 21 experienced it in eleventh grade, and 13 experienced it in twelfth grade.

Another 8% ( $n = 8$ ) of participants reported spending more time with romantic partners than best female friends at the first time of measurement (fall of grade 9). The remaining 29% ( $n = 30$ ) of participants never reported spending more time with romantic partners than with best female friends. So, overall, 38 females had no RT during high school.

Based upon the distribution of the timing of the RT, participants were classified as early, average, or late. The early RT group contained 20 females who had an

earlier transition compared to other respondents (in ninth grade or, possibly, before). The late RT group contained the 30 females who never spent more time with romantic partners than best female friends during high school. The remaining 52 females were considered average. These adolescents spent more time with romantic partners than with best female friends for the first time in grade 10, 11, or 12.

Relatedness Orientation Transition groups and involvement with peers. The next set of analyses was undertaken to more fully describe the peer involvement of females who experienced the RT at different times during high school. To complete this set of analyses, mixed modeling was used to compare the trajectories of females classified as having an early, average, or late RT. The first model compared the average linear trajectories of the amount of leisure time spent with best female friends between the three RT groups. The second mixed model compared the average linear trajectories of time spent with romantic partners between the three groups.

The early and late RT groups spent similar amounts of their leisure time with best female friends in fall of 9th grade and throughout high school (see Figure 20). When compared to the early and late RT groups, the average RT group started out spending a similar amount of their leisure time with female friends in the fall of grade 9, but they were the only group of females who significantly reduced the

amount of leisure time they spent with best female friends during high school. In particular, there were no significant differences in time spent with friends in the fall of grade 9 when comparing those females who experienced an early or an average RT to those with a late RT (43.05<sup>1</sup> in the early group and 60.92 in the average group versus 54.14 in the late group;  $p = .189$  and  $p = .312$ , respectively; see Table 19 and Figure 20). Yet, females in the average group lost time with female friends during high school (slope = -1.58), while those in the late transition group had a virtually stable trajectory of time spent with friends (slope = 0.74). The linear rate of change for the early group was in-between these two RT groups (slope = -0.75), but did not differ significantly from the late RT group.

Although not unimportant, there were fairly small differences between the three RT groups in their average trajectories of time spent with best female friends. There were larger differences between the three RT groups in their average trajectories of the amount of leisure time they spent with romantic partners during high school. Females with an early RT spent the most time with romantic partners in the fall of grade 9, but they reduced this time with partners during high school (see Figure 20). In contrast, the average and late RT groups spent similar amounts of time with romantic partners in the fall of grade 9, but the average group increased their time during high school, while the late group did not. In particular,

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<sup>1</sup> Since estimates are made with respect to the comparison group, this value is the estimated intercept of the late transition group (54.14) plus the estimate of the early group (-11.09).

females who had an early RT reported spending much more time with romantic partners in the fall of grade 9 compared to those participants who experienced a late RT (50.05 in the early RT group versus 5.03 in the late RT group,  $p < .001$ ; see Table 20 and Figure 20). Participants in the average and late RT groups did not differ (8.22 in the average group versus 5.03 in the late group,  $p = .430$ ). However, those females with an early RT reported declining time with romantic partners (slope = -2.35,  $p < .05$ ), while those who had an average RT increased the amount of time they spent with romantic partners over the course of high school (slope = 5.91;  $p < .001$ ). In contrast, females with a late RT had an almost flat normative trajectory of time spent with romantic partners during high school (slope = 0.88).

Differences in the average trajectories within the three RT groups indicated that these groups of young women had different experiences within their peer social systems. Females who had an early RT spent almost equal amounts of time with female friends and romantic partners throughout high school (average level of time with female friends = 42.2, average level of time with romantic partners = 42.1; see Figure 20). However, this group consistently spent less time with friends than the other two RT groups and slightly reduced their time with romantic partners from ninth to twelfth grade. In contrast, the average and late RT groups spent more time with female friends than the early group during high school (average level of time

with female friends of average transition group = 55.6 and average level of time with female friends of late transition group = 55.8). However, the average RT group dramatically increased their time with romantic partners during high school and maintained time with their female friends, while the late RT group also maintained time with their friends, but had very little involvement with romantic partners. Eventually, females with an average RT spent more time with romantic partners than those in the early RT group. Therefore, it seemed that it was possible to continue to spend a large amount of time with female friends while involvement with romantic partners increased as long as the RT occurred later in high school (in tenth grade or later). Females who were spending a large amount of time with romantic partners early in high school may a) have not spent as much time with friends as other adolescent females in middle or junior high school, b) had more trouble maintaining time with friends after the transition to high school, or c) reduced their time with friends prior to high school because of choice or persuasion by their partners.

### Hypotheses about Antecedents of Trajectories of Time Spent with Peers

#### Hypothesis 3. What Predicts How Rapidly Females Increase the Amount of Time They Spend with Romantic Partners?

Simple Pearson correlations and a multiple linear regression model were used to test the association between hypothesized antecedents and slopes of trajectories of time spent with romantic partners during high school. Because there were many hypothesized antecedents, those that were found to have significant simple correlations ( $p < .10$ ) with slopes of time with romantic partners were included in a multiple regression model. Independent variables that were not significant in this model were eliminated until all remaining variables were significantly associated ( $p < .05$ ) with the dependent variable.

Do early relationships with females slow the rate with which females become involved with romantic partners? Characteristics of the female peer social network in grade 9 were also expected to influence rates of change in time spent with romantic partners during high school. Being sociable and popular with females early in high school was expected to slow the increase in time spent with romantic partners during high school. Female adolescents who were more sociable and popular with females were expected to strive to maintain these relationships. Maintaining these female relationships would then temper the rate of linear change in time spent with romantic partners, because females who were maintaining their

friendships with other females were likely to continue to spend more time with their best female friends throughout high school leaving less time to spend with romantic partners.

Sociability with females was measured as the number of best female friends and time spent with best female friends in grade 9. Therefore, steeper slopes of the trajectories of amount of leisure time spent with romantic partners during high school were expected to be predicted by fewer best female friends in grade 9, spending less time with best female friends in grade 9, and being less popular with females in grade 9.

None of these hypotheses was verified. Instead of being negatively associated as expected, the number of female friends in ninth grade was significantly positively correlated with the slopes of the trajectories of time spent with romantic partners during high school (see Table 21). Having more female friends in the ninth grade prompted more rapid gains in time with romantic partners. Further, popularity with females and time spent with best female friends in ninth grade were not associated with the slope of the trajectories of time spent with romantic partners during high school.

B. Do early relationships with males, and individual characteristics speed up the rate with which females become involved with romantic partners? Sociability with males early in high school and being noticed by males early in high school



were expected to lead to a steeper increase in the amount of time that female adolescents spent with romantic partners during the high school years. In other words, females who increased their time with romantic partners most rapidly during high school were expected to have been more attractive and to have looked older in grade 9, to have had larger numbers of male friends in grade 9, and to have been more popular with males in grade 9. If these predictions were verified, self-perceived attractiveness in grade 9, a mature appearance in grade 9, the number of male friends in grade 9, and popularity with males in grade 9 would be positively correlated with the slope of the trajectory of the amount of time spent with romantic partners during high school.

Does later onset of dating slow the rate with which females become involved with romantic partners? Earlier initiation of dating was expected to lead to a steeper increase in the amount of time that female adolescents spent with romantic partners during the high school years. In other words, females who increased their time with romantic partners most rapidly during high school were expected to have started dating earlier. Since the onset of dating was coded so that lower numbers indicated earlier dating, the onset of dating was expected to be negatively correlated with slopes of trajectories of time spent with romantic partners. Earlier onset would result in higher estimated linear rates of change in time spent with partners.

Does having older romantic partners speed up the rate with which females become involved with romantic partners? Having at least one romantic partners that was 3 or more years older was expected to lead to a steeper increase in the amount of time that female adolescents spent with romantic partners during the high school years. In other words, females who increased their time with romantic partners most rapidly during high school were expected to have had at least one older romantic partner before or during high school. An indicator of having at least one older partner was expected to be positively correlated with slopes of trajectories of time spent with romantic partners. Having an older partner would result in higher estimated linear rates of change in time spent with partners.

Bivariate associations. Overall, when examining simple bivariate correlations, few of these relationships were verified. Only the number of male friends in the ninth grade and having at least one older romantic partners were positively related to slopes of the trajectories of the amount of time spent with romantic partners during high school (see Table 21). Popularity with males in grade 9, attractiveness in grade 9, appearance of physical maturity in the grade 9, and the timing of the onset of dating were not associated with the rate of linear change in the amount of time spent with romantic partners. However, recall that popularity with males and self-perceived attractiveness in ninth grade were positively correlated with the amount of time spent with romantic partners in grade 9 (see Table 13). In addition,

the timing of the onset of dating was negatively correlated with the amount of leisure time spent with partners in grade 9. Therefore, increasing popularity and attractiveness in grade 9, and an earlier onset of dating were associated with higher levels of time spent with romantic partners in grade 9. In contrast, only the number of male friends in grade 9 and having at least one older romantic partner predicted linear change in the amount of time spent with romantic partners from grade 9 to grade 12. More male friends in grade 9 and having an older partner resulted in steeper linear increases in time with partners during high school.

Exploring other characteristics of friendships and romantic relationships.

Associations between other characteristics of the female social network and romantic relationships, and slopes of trajectories of time spent with romantic partners were also explored. These additional characteristics included the existence of at least one stable friend throughout high school, the number of romantic partners before and/or during high school, and months involved with romantic partners.

Having at least one stable best female friendship was not related to slopes of the trajectories of the amount of leisure time spent with romantic partners (see Table 21). However, the number of romantic partners and the number of months involved in romantic relationships were both positively associated with linear change in the amount of leisure time spent with romantic partners during high school. Having

more partners, and spending more months involved with partners were associated with steeper inclines in time spent with partners from grade 9 to grade 12.

Unique antecedents. Because the number of male friends and the number of female friends were highly correlated ( $r = 0.42, p < .0001$ ), all characteristics of the male and female social networks, and individual characteristics were regressed on estimated linear rates of change in the amount of time spent with romantic partners during high school in a single multivariate linear regression model. Additionally, although five variables had simple correlations with slopes of the trajectories of time spent with romantic partners, only the three hypothesized relationships were included as possible predictors in this model. Two variables, having at least one older romantic partner and the number of male friends in ninth grade, were uniquely associated with slopes of trajectories of time spent with partners (see Table 22). Females who reported at least one older partner had an adjusted average slope of 1.35 ( $SE = 0.5$ ), while other females reported an adjusted average slope of -0.44 ( $SE = 0.3$ ). When the number of male friends in ninth grade increased by 1, the slope of the trajectory of time spent with romantic partners increased 0.38. Hence, in multivariate analysis, the number of female friends in grade 9 was no longer associated with the slopes of the trajectories of time with romantic partners.

#### Hypothesis 4. What Predicts a Lower Level of Involvement with Friends?

Simple Pearson correlations and a multiple linear regression model were used to test associations between hypothesized antecedents and the ambient level of time spent with best female friends during high school. Because there were many hypothesized antecedents, those that were found to have significant simple correlations ( $p < .10$ ) with ambient levels of time spent with female friends were included in a multiple regression model. Independent variables that were not significant in this model were eliminated until all remaining variables were significantly associated ( $p < .05$ ) with the dependent variable.

Do early relationships with males result in a lower level of involvement with female friends? Female adolescents who had more male friends in grade 9 increased their time with romantic partners more rapidly during high school. This steeper increase in the amount of time spent with partners during high school was expected to result in a reduction in the amount of time these females would spend with their best female friends, on average, throughout high school. Therefore, females who were more involved and popular with males and romantic partners early in high school were also expected to spend a lower ambient level of time with females across the high school years. The number of male friends in grade 9, popularity with males in grade 9, and the amount of leisure time spent with

romantic partners in grade 9 were expected to be negatively correlated with the ambient level of time with female friends during high school.

Do early relationships with female friends result in a higher level of involvement with female friends? Females who were more involved and popular with females in their peer network were expected to maintain a higher level of time, on average, with female friends throughout high school. The number of female friends in grade 9, popularity with females in grade 9, and having at least one stable friend throughout high were expected to be positively associated with the ambient level of time spent with best female friends during high school.

Does later onset of dating result in a higher level of involvement with female friends? Females that dated earlier were expected to spend increase their time with romantic partners more rapidly during high school. Therefore, earlier onset of dating was expected to also result in spending less time with best female friends, on average, throughout high school. The timing of the onset of dating was expected to be positively associated with the ambient level of time spent with best female friends during high school. Females who began dating later were expected to maintain a higher ambient level of time with friends throughout high school.

Bivariate associations. When simple bivariate correlations were examined, this hypothesis was only partially verified. Characteristics of the male peer social network in grade 9 or involvement with romantic partners in grade 9 were either not

associated with the ambient level of time spent with best female friends or were associated, but were opposite of expected. Popularity with males in ninth grade, time spent with romantic partners in ninth grade, and the timing of the onset of dating were not associated with the ambient level of time spent with best female friends. Opposite of what was expected, the number of male friends in ninth grade was positively associated with the ambient level of time spent with best female friends during high school (see Table 23). Having more male friends in grade 9 also meant spending a higher ambient level of time with best female friends throughout high school.

As hypothesized, the number of female friends in grade 9 was positively associated with the ambient level of time spent with best female friends during high school (see Table 23). However popularity with females in ninth grade, and the existence of at least 1 stable female friend during high school were not associated with the ambient level of time spent with females. In summary, only one of the hypothesized antecedents of the amount of leisure time spent with female friends during high school, the number of female friends in grade 9, was verified.

However, the number of male friends in grade 9 was also associated with the ambient level of time spent with best female friends during high school, but the direction of this association was opposite of expected. Females with more male

friends in grade 9 also spent more time with their best female friends instead of less time as predicted.

Exploring other characteristics of dating and romantic relationships, and individual characteristics. Other possible antecedents of the ambient level of time with best female friends were explored. One set included other characteristics of romantic relationships including the number of romantic partners, the number of total months involved in romantic relationships, and having at least one older romantic partner. The two individual characteristics, mature appearance and self-perceived attractiveness in grade 9, were also explored. Only having a more physically mature appearance in the ninth grade was associated with higher ambient levels of time with friends (see Table 23). Adolescents who appeared more physically mature in the ninth grade compared to other females in ninth grade also spent more time, on average, with best female friends during high school.

Unique antecedents. Again, because of associations among antecedents, all characteristics of the male and female social networks and individual characteristics were regressed on the ambient level of time spent with best female friends in a single multiple linear regression model. All nonsignificant independent variables were removed resulting in the model shown in Table 24. The number of best female friends in grade 9 and appearance of physical maturity were independently associated with the ambient level of time with friends. Both variables were



positively associated with the ambient level of time spent with best female friends, and together they accounted for 18% of the variance. The number of male friends in grade 9 was no longer associated with the ambient level of time spent with best female friends in this multivariate model. It seems that the number of male friends in grade 9 may have been associated with the ambient level of time spent with friends because of the tendency of those with more male friends in grade 9 to also have more female friends.

#### Hypothesis 5. What Predicts the Timing of the Relatedness Orientation Transition?

The previous sections described associations between characteristics of dating and romantic relationships, male and female social networks, and individual characteristics with level of time spent or linear change in time spent with friends and partners. Yet, these analyses only focused on the level or change in the amount of leisure time spent with one type of peer at a time (best female friends or romantic partners). These analyses did not test antecedents of the combination of patterns of change in these two types of peer microsystems.

The combination of time spent with friends and partners was represented in this study as the timing of the RT. The RT provided a summary indicator of how simultaneous changes in time with friends and time with partners combined to prompt a reorganization of peer relationships. Accordingly, to understand the

predictors of the combined changes and reorganization in time spent with best female friends and romantic partners, associations between social and individual characteristics and the timing of the RT were examined.

Simple Pearson correlations and a multiple linear regression model were used to test the association between hypothesized antecedents and the timing of the RT. Because there were many hypothesized antecedents, those that were found to have significant simple correlations ( $p < .10$ ) with the timing of the RT were included in a multiple regression model. Independent variables that were not significant in this model were eliminated until all remaining variables were significantly associated ( $p < .05$ ) with the dependent variable. It was found that many characteristics of dating and romantic relationships, characteristics of male and female social networks, and individual characteristics were associated with the timing of the RT (see Table 25).

Do early relationships with males result in an earlier Relatedness Orientation Transition? Females who had more male friends and who were more popular with male peers early in high school were expected to have earlier RTs. Females had more male friends and who were more popular with males in grade 9 were expected to have an earlier RT. Number of male friends and popularity with males in grade 9 were predicted to be negatively correlated with the timing of the RT.

Do early relationships with friends result in a later Relatedness Orientation

Transition? Participants who were more sociable with females and involved with female friends early in high school were expected to spend a greater amount of their leisure time with these friends for a longer period of time. By maintaining time with friends, these females would continue to spend more time with friends than partners later into high school. In particular, females who had more best female and were more popular with females in grade 9 were expected to have a later RT. Also, females with at least 1 stable female best female friend throughout high school were expected to have a later RT. Number of female friends, popularity with females in grade 9, and an indicator of having at least 1 stable female friend throughout high school were predicted to be positively correlated with the timing of the RT.

Does later onset of dating result in a later Relatedness Orientation Transition?

Females who began dating later were expected to increase their time with romantic partners more slowly during high school. This would result in these females continuing to spend a greater amount of leisure time with their best female friends. Therefore, females who were older when they had their first date were expected to continue to give precedence to their best female friends over their romantic partners for a longer period of time. These females were anticipated to have later RTs. As

the age of dating onset increased, the timing of the RT would also increase. Age of dating onset was expected to be positively correlated with the timing of the RT.

Bivariate associations. Early sociability and popularity with males and females predicted the timing of the RT. Females with more male friends in grade 9, and who rated themselves higher in popularity with males and females in grade 9 also had a RT that tended to be earlier (see Table 25). The number of female friends in grade 9 and having at least one stable best female friend throughout high school were not correlated with the RT. Finally, a later onset of dating were associated with a later RT. However, appearance of physical maturity in grade 9 was not related to the RT.

Exploring other characteristics of dating and romantic relationships, and individual characteristics. Early, extended, and the variety of involvement in dating and romantic relationships resulted in an earlier RT. In particular, the number of romantic partners, and the number of months involved in romantic relationships were associated with the timing of the RT (see Table 25). Female adolescents with more romantic partners, and those who had been involved in romantic relationships for more months experienced an earlier RT. In addition, a lower self-perceived attractiveness in grade 9 was associated with a later RT.

Unique antecedents. Unique early antecedents of the RT were explored in a multivariate regression model. This model did not include potential predictors of

the RT that did not always occur early in high school including the number of romantic partners, months involved in romantic relationships, and the timing of the onset of dating. Therefore, characteristics of the early male and female social networks, and individual characteristics were potential independent variables in this model.

Individual characteristics did not predict the timing of the RT. However, characteristics of the male and female peer social networks were associated with the timing of the RT (see Table 26). Popularity with females, and the number of male friends in grade 9 were both negatively associated with the timing of the RT. In addition, although the associations did not quite reach significance ( $p < .10$ ), popularity with males was also negatively associated, and the number of female friends in grade 9 was positively associated with the timing of the RT. Being more popular with both males and females, and having more male friends early in high school predicted an earlier RT. However, after accounting for popularity and the number of male friends in grade 9, having a higher number of female friends in grade 9 predicted a later RT. These four variables accounted for 19% of the variance in the timing of the RT.

Summary of the Results of Hypotheses 3, 4, and 5: Antecedents of Trajectories of Time Spent with Peers

Of the hypothesized antecedents of the linear rates of change in the amount of time spent with romantic partners during high school, only having more male friends in ninth grade was associated with faster gains in time spent with romantic partners during high school. In contrast, looking more physically mature in grade 9 was associated with spending more time with female friends during high school. In addition to a mature appearance, only the number of best female friends in grade 9 was uniquely associated with the ambient level of time with friends. No male social network characteristics were associated with the ambient level of time spent with friends during high school, and no female social network characteristics were associated with the rate of linear increase in the amount of leisure time spent with romantic partners during high school.

In summary, early popularity with females and males did not predict trajectories of the amount of time spent with best female friends or romantic partners when focusing on predicting patterns of change in one trajectory at a time. However, popularity did predict reorganization of peer relationships as reflected in the timing of the RT. In addition, the number of female friends in grade 9 did not slow the rate of linear increase in the trajectory of time spent with romantic partners during high school as predicted, but it did slow the timing of the RT after other early peer

social network variables were taken into account. Overall, early characteristics of the male and female peer social networks seem to have had important influences on the reorganization of peer relationships during high school as it was reflected in the combined patterns of time with best female friends and romantic partners.

However, these associations could have been overlooked if the focus had been limited to either testing the antecedents of one change trajectory or the other.

#### Hypotheses about Quality of Peer Relationships

Links between patterns of time spent with peers and subsequent qualities of relationships were also hypothesized. In particular, do patterns of change in the quantity of time spent with peers across the high school years, and the antecedents of change, contribute to later positive qualities in best female friendships, and positive and negative qualities of romantic relationships?

#### Hypothesis 6. Associations between Qualities of Peer Relationships

Do Positive Qualities of Female Friendships Predict Positive Qualities of Romantic Partnerships? The first step in beginning to include relationship quality in these analyses was to understand the concurrent associations between the positive qualities of participants' very best female friendships, and the positive and negative qualities of their most recent romantic relationships at the time of the

interviews. It was expected that females with higher quality female friendships at the times of the interviews would also have romantic relationships with higher levels of positive qualities and fewer negative qualities. Specifically, females who reported their current very best female friendships had higher levels of positive qualities would be expected to have had a pattern of female friendships that provided support and experiences that resulted in recognizing and maintaining romantic relationships that were of higher positive quality and lower in verbal aggression, physical aggression, jealousy, and isolation. However, this was not the case.

Do positive qualities of female friendships predict positive and negative qualities of romantic partnerships? Positive qualities of friendships, positive qualities of romantic relationships, verbal aggression in romantic relationships, physical aggression in romantic relationships, and psychological maltreatment in romantic relationships were correlated using simple Pearson correlations. There were no associations between the composite measure of positive qualities of participants' very best female friendships, and the positive and negative qualities of their most recent romantic relationships including verbal aggression, physical aggression, isolation, or jealousy (see Table 27).

When subscales were explored, some significant associations between qualities of very best female friends and romantic relationships did emerge (see Table 28).



In particular, nurturance, affection, and admiration in both relationships were positively correlated. For example, participants who reported higher levels of affection in their current relationships with their very best female friends also reported higher levels of affection in relationships with their most recent romantic partners. Further, females who experienced more verbal aggression in their most recent romantic relationships also reported lower positive qualities of reliable alliance and admiration within their relationships with current very best female friends. Overall, there appeared to be some links between the positive qualities of best female friendships and the positive or negative qualities of romantic relationships, but composite indicators of quality allowed no firm conclusions.

There were other significant associations between qualities of friendships and qualities of romantic relationships when these analyses were limited to only those participants involved in current romantic relationships at the time of the interviews ( $n = 58$ ). Females who reported more isolation and jealousy behaviors, and more verbal aggression by their current romantic partners also tended to report fewer positive qualities in their current very best female friendships. Isolation, jealousy, and verbal aggression by current romantic partners was negatively associated with positive qualities of current very best female friendships when including all females in current romantic relationships (isolation:  $r = -0.31$ ,  $p < .05$ ; jealousy:  $r = -0.25$ ,  $p < .05$ ; verbal aggression:  $r = -0.27$ ,  $p < .05$ ).

Hypothesis 7. Do Patterns of Time Spent with Peers and the RT Predict Qualities of Peer Relationships?

Hypothesis 7 stated that patterns of involvement with best female friends and romantic partners, and the timing of the RT would influence the positive and negative qualities of these relationships in later adolescence. Therefore, this section was divided into three parts. First, the focus was on trajectories of time spent with romantic partners during high school. It was expected that females who increased their time with romantic partners more rapidly from grade 9 to grade 12 would also report higher positive and higher negative qualities in their romantic relationships, as well as lower positive qualities in their female friendships.

Second, the focus was on ambient level of time spent with best female friends during high school. Females who maintained a higher ambient level of time with their best female friends throughout high school were expected to have more positive qualities in their current very best female friendships, and to have less experience with physical aggression, verbal aggression, isolation, and jealousy in past and most recent romantic relationships. Finally, the focus turned to the timing of the RT. Female adolescents who experienced the RT at a later age were expected to have higher positive qualities in their very best female friendships at the time of their interviews, and to have had less experience with physical

aggression, verbal aggression, and psychological maltreatment in past and their most recent romantic relationships.

Simple correlations were used to test these associations. In correlational analyses, slopes of the trajectories of time spent with romantic partners, the ambient level of amount of time spent with best female friends, and the timing of the RT were correlated with 1) positive qualities of current very best female friendships, 2) positive qualities of most recent romantic relationships, and 3) negative qualities of most recent romantic relationships.

Do trajectories of time spent with romantic partners predict qualities of peer relationships? It was expected that slopes of the trajectories of time spent with romantic partners would be positively associated with both positive and negative qualities of most recent romantic relationships. Slopes of trajectories of time spent with romantic partners were also expected to be negatively correlated with positive qualities in current best female friendships.

Overall, there were some relationships between slopes of the trajectories of time spent with romantic partners and qualities of romantic relationships, but there were no associations with qualities of female friendships. Slopes of time spent with romantic partners during high school were associated with positive qualities of romantic relationships and physical aggression in the most recent romantic relationships (see Table 29). Females with steeper linear increases in the amount of

time they spent with romantic partners from grade 9 to grade 12 also reported higher positive qualities and more experience with physical aggression in their most recent romantic relationships. There were no significant correlations between slopes of the trajectories of time spent with romantic partners and positive qualities of very best female friendships, or with verbal aggression, isolation, or jealousy in the most recent romantic relationships.

It was also possible that experiencing verbal aggression, physical aggression, isolation, and jealousy in past romantic relationships may have resulted in a reduced social network and spending increased amounts of a time with romantic partners early in high school. Just as likely, spending more time with partners early in high school may have placed females at risk for these negative experiences. To explore these possibilities, correlations between the amount of leisure time spent with romantic partners early in high school (intercepts) and past experiences with negative qualities in romantic relationships were also completed. Female adolescents who were spending more of their leisure time with romantic partners early in high school also reported more experiences with physical aggression and jealousy in their past romantic relationships (see Table 29). In summary, female adolescents who had increased the amount of time they spent with romantic partners more rapidly from grade 9 to grade 12 also reported higher levels of positive qualities in their most recent romantic relationships, and they were more

likely to have experienced physical aggression by these partners. In addition, spending more time with romantic partners early in high school was associated with more of a history of involvement with romantic partners who were physically aggressive and jealous.

Does the ambient level of time spent with friends predict qualities of peer relationships? It was expected that the ambient level of time spent with best female friends during high school would contribute to positive qualities of current very best female friendships and negative qualities of romantic relationships. However, this was not the case. The ambient level of time with best female friends was also not associated with positive qualities of current very best female friendships, or negative qualities of the most recent romantic relationships including verbal aggression, physical aggression, isolation, and jealousy (see Table 29).

Does the timing of the Relatedness Orientation Transition predict qualities of peer relationships? An additional interest was in whether the timing of the reorganization as indicated by the RT was an important determinant of positive or negative qualities of peer relationships at the time of the interviews. To examine this, the timing of the RT was correlated with positive qualities of friendships and romantic relationships, and negative qualities of romantic relationships (see Table 30). The timing of the RT was not related to the level of positive qualities in current very best female friendship or any negative qualities in most recent

romantic relationships. However, the timing of the RT was negatively associated with the amount of positive qualities in these romantic relationship. The timing of the RT was also negatively related to the verbal aggression, physical aggression, and jealousy by all past romantic partners. In sum, females who experienced the RT earlier also reported more experience with verbal aggression, physical aggression, and jealousy in past romantic relationships. These same females also reported a higher level of positive qualities in their most recent romantic relationships.

### Results of Exploratory Analyses of Pathways

An investigation of the differences between groups of participants concluded the analyses. These analyses were completed to provide a better description of the pathways to certain qualities of peer relationships, levels of involvement with peers, or timing of the reorganization of peer relationships. Specifically, the average experiences of adolescent females within the following groups were explored:

- a. High or low positive qualities of most recent romantic relationships, excluding females with no history of romantic relationships
- b. History of experiencing physical aggression in romantic relationships, excluding females with no history of romantic relationships
- c. High or low average levels of time spent with best female friends and romantic partners during high school
- d. The timing of the RT during high school.

Between group differences in sets of characteristics were determined using multivariate analysis of variance models. Up to six sets of characteristics were compared. The first three sets of variables were measures of qualities of peer relationships. The first set contained measures of positive qualities in current very best female friendships and most recent romantic relationships. The second set contained measures of verbal aggression, physical aggression, and psychological maltreatment by most recent romantic partners. The third set contained measures

of verbal aggression, physical aggression, and psychological maltreatment by all past romantic partners.

The fourth set of dependent variables contained characteristics of dating and romantic relationships before and/or during high school. The final two sets were characteristics of the peer social network, and individual characteristics early in high school. If a set of constructs differed between groups, then univariate comparisons were completed. Finally, simple analysis of variance was used to compare the average timing of the RT between groups, and random effects mixed modeling was used to describe and compare group differences in patterns of time spent with social network members or alone during high school.

### Participants Stratified by Quality of Romantic Relationships

#### Positive Qualities within Romantic Relationships

In this section, the average prior experiences of females reporting high or low positive qualities in their most recent romantic relationships were first explored. Adolescents who had never had steady romantic relationships were excluded, and the remaining adolescents were placed into two groups. The first group contained those females who reported higher positive qualities in romantic relationships based upon being in the upper half of the distribution of scores (positive quality scores above 3.57;  $n = 47$ ). The remaining adolescents were those who reported lower



levels of positive qualities in their romantic relationships ( $n = 47$ ). The mean positive quality score in the low group was 2.7 ( $SD = 0.7$ ), while the mean positive quality score in the high group was 4.1 ( $SD = 0.7$ ). Differences between these two groups of females were explored by comparing the mean levels of other qualities of their current or most recent peer relationships, their dating and romantic relationship history, early female and male peer social network characteristics, and their individual characteristics.

Comparisons of other positive and negative qualities of peer relationships.

Simple or multiple analysis of variance was used to compare these two groups on three measures of qualities of peer relationships including 1) positive qualities in current very best female friendships, 2) negative qualities of most recent romantic partners (verbal aggression, physical aggression, isolation, and jealousy), and 3) negative qualities of past romantic partners. There were no differences in the two groups in the average level of positive qualities in their very best female friendships, and in the average amount of negative qualities they had experienced in either their most recent romantic relationships or in past romantic relationships. In addition, females with lower positive qualities in their most recent romantic relationships did not report different experiences of physical aggression, verbal aggression, isolation, or jealousy in these romantic relationships than other females.

Comparisons of social network and individual characteristics in grade 9.

Multiple analysis of variance was used to compare the two groups on three additional sets of variables. These sets included 1) characteristics of dating and romantic relationships (timing of the onset of dating, time spent with partners in grade 9, number of partners, months involved with partners, and having at least one older romantic partner), 2) characteristics of the female and male social networks in grade 9 (number of best female friends, number of very good and best male friends, popularity with females, and popularity with males), and 3) individual characteristics in grade 9 (attractiveness and appearance of physical maturity). Characteristics of dating and romantic relationships differed between the two groups (Wilk's lambda = 0.88,  $F(1,91) = 2.9$ ,  $p < .05$ ). There were no differences in characteristics of the male and female social networks or individual characteristics in grade 9.

In univariate comparisons, only the average total months involved in romantic relationships before and/or during high school differed between the two groups. Female adolescents who reported lower levels of positive qualities in their most recent romantic relationships reported fewer months involved in romantic relationships than females with high positive qualities in their most recent romantic relationships ( $M = 23.7$  and  $30.9$ , respectively,  $F(1,91) = 4.2$ ,  $p < .05$ ).

Comparisons of the timing of the RT and trajectories of time spent. The average timing of the RT and average trajectories of time spent with best female friends, romantic partners, alone, with family, and with groups of peers were compared between the two groups. The average timing of the RT was similar in the two groups (low quality group  $M = 5.8$ , high quality group  $M = 5.1$ ,  $F(1,91) = 1.7$ ,  $p = .19$ ). There were also no differences in patterns of time spent with best female friends, time spent alone, and time spent with groups of peers. There were differences in trajectories of the amount of time spent with romantic partners during high school. Although both groups started high school spending similar amounts of time with romantic partners, females who reported higher qualities in their most recent romantic relationships also reported steeper inclines in the time they spent with romantic partners from grade 9 to grade 12 (slope = 4.2 in the high quality group vs. slope = 2.0 in the low quality group,  $p = .05$ ; see Figure 21).

Summary of differences. In summary, females who had romantic relationships that were high in positive qualities compared to those that had lower positive qualities in their most recent romantic relationships only differed in their length and intensity of involvement with partners in the past. Specifically, the average total number of months involved with romantic partner was higher in the group with higher positive qualities in their most recent past romantic relationships.

Additionally, this group increased the amount of their leisure time that they spent with romantic partners more rapidly from grade 9 to grade 12. These results did not change when the analyses were limited to females in current romantic relationships.

#### History of Physical Aggression by Romantic Partners

The next interest was in comparing the high school experiences of female adolescents who had experienced physical aggression in romantic relationships to those females who had not had this experience. Excluding adolescents who never had steady romantic relationships, two groups were formed based on whether females had any experience with physical aggression by one or more past or current romantic partners. Overall, 51 females had not experienced any physical aggression in romantic relationships, while 44 females had experienced at least one act of physical aggression by at least one past or current romantic partner.

Comparisons of other relationship qualities. Multiple analysis of variance was used to compare the two groups on three sets of variables measuring quality of relationships. These sets included 1) positive qualities of current very best female friendships and romantic relationships, 2) other negative qualities in most recent romantic relationships (verbal aggression, isolation, and jealousy), and 3) other negative qualities in past romantic relationships. There were no differences in the

two groups in the average amount of positive qualities they had experienced in their current best female friendships and their most recent romantic relationships. There were also no differences in average experiences of negative qualities within most recent romantic relationships when comparing these two groups. There were significant differences, however, in the experiences of verbal aggression, isolation, and jealousy experienced by these two groups in past romantic relationships (Wilk's  $\Lambda = 0.84$ ,  $F(1,91) = 8.1$ ,  $p < .001$ ). The group of females who had experienced physical aggression also reported more experiences with verbal aggression, isolation, and jealousy in past romantic relationships (see Table 31).

#### Comparisons of social network and individual characteristics in grade 9.

Multiple analysis of variance was next used to compare groups of females who had or had not experienced physical aggression by romantic partners. These two groups were compared on three additional sets of variables including 1) characteristics of dating and romantic relationships, 2) characteristics of the female and male social networks in grade 9, and 3) individual characteristics in grade 9. Characteristics of dating and romantic relationships differed between the two groups (Wilk's  $\Lambda = 0.85$ ,  $F(1,91) = 3.8$ ,  $p < .01$ ). There were no differences in characteristics of the male and female social networks or individual characteristics in grade 9.

In univariate comparisons, timing of the onset of dating, and total months involved in romantic relationships before and/or during high school differed

between the two groups. Female adolescents who reported experiencing physical aggression in romantic relationships began dating earlier and had spent more months involved in romantic relationships (see Table 31). In addition, although the comparison did not reach significance ( $p = .12$ ), 20% of the females who had not experienced physical aggression had at least one older romantic partner, while 34% of females who had experienced physical aggression reported having had at least one older partner.

Comparisons of the timing of the RT and trajectories of time spent. The average timing of the RT and average trajectories of time spent with best female friends, romantic partners, alone, with family, and with groups of peers were compared between the two groups who had and had not experienced physical aggression by romantic partners. There was a trend toward an early timing of the RT in the group of females who had experienced physical aggression by romantic partners (see Table 31). On average, females who had experienced at least one act of physical aggression had experienced the RT between the spring of grade 10 and the fall of grade 11. Those who had not experienced any physical aggression by romantic partners experienced the RT about one-half year later (1-point difference indicated one-half of a school year).

There were no differences in patterns of time spent with best female friends, time spent alone, time spent with family, and time spent with groups of peers.

However, females who had experienced physical aggression by romantic partners also started high school spending more time with romantic partners (intercept = 22.5 in the group who had experienced physical aggression vs. intercept = 12.9 in the other group,  $p < .05$ ; see Figure 22). However, linear rates of change in time spent with romantic partners from grade 9 to grade 12 did not differ when comparing these two groups.

Summary of differences. Overall, females who had experienced physical aggression by at least one partner in a past or current romantic relationship also had more past experience with verbal aggression, jealousy, and isolation in past romantic relationships. This group also began dating earlier, had spent more months involved with romantic partners before and/or during high school, and spent more time with romantic partners in grade 9 than other females. Females who had experienced physical aggression were also more likely to have had at least one partner who was about three years older than they were, and to have reorganized their peer relationships sooner as indicated by an earlier RT.

#### Females Stratified by Time Spent with Friends and Partners

A third interest was in exploring the average experiences of females who spent low or high amounts of time with best female friends and romantic partners, on average, throughout high school. Therefore, four groups were formed based on the

distributions of the ambient levels of time spent with best female friends and romantic partners. The first group contained female adolescents in the lower one-half of the distribution of time spent with both best female friends and romantic partners (ambient level of time with friends  $< 50.5$  and ambient level of time with partners  $< 20.6$ ;  $n = 31$ ). The second group spent a low amount of time with friends, but a high amount of time with romantic partners ( $n = 20$ ). The third group spent a high amount of time with friends, but low time with romantic partners ( $n = 21$ ), and the fourth group spent a high amount of time with both friends and partners ( $n = 30$ ). Average ambient levels of time spent with best female friends and romantic partners within the four groups are shown in Table 32.

#### Comparisons of Relationship Qualities

These four groups of female adolescents were then compared on three sets of variables indicating quality of relationships using multiple analysis of variance. These sets included 1) positive qualities of current very best female friendships and most recent romantic relationships, 2) negative qualities in most recent romantic relationships, and 3) negative qualities in past romantic relationships. No group differences in the average positive or negative qualities of current very best female friendships or of the most recent romantic relationships were found. However, clear differences were found when comparing the negative experiences within past



romantic relationships of these four groups (Wilk's Lambda = 0.80,  $F(3,91) = 2.1$ ,  $p < .05$ ; see Table 32).

After univariate comparisons, the groups differed when comparing their mean levels of experience with verbal aggression by past romantic partners. The group who spent both a high amount of their leisure time with female friends and with romantic partners throughout high school had experienced the most verbal aggression by past partners. It also appears that experiences of verbal aggression in past relationships were higher if females spent a low amount of time with female friends, regardless of the amount of time that was spent with romantic partners. The group who spent much time with friends, but little time with partners had experienced the least amount of verbal aggression in past romantic relationships.

There were no differences in the proportions of females in these four groups who had experienced physical aggression or jealousy by most recent romantic partners or in only past romantic relationships. However, these groups did differ when comparing the proportions of females who had ever experienced physical aggression and when comparing the mean level of their experiences of jealousy by all romantic partners. Approximately 34% of females who spent a low amount of time with romantic partners had experienced physical aggression by romantic partners, but almost 60% of females who spent a high amount of time with romantic partners had experienced physical aggression. Similarly, females in both

groups who had spent a low amount of time with romantic partners throughout high school reported much less jealousy by romantic partners, on average, than other females (see Table 32).

### Comparisons of Social Network and Individual Characteristics in Grade 9

Multiple analysis of variance was used to compare the four groups on three additional sets of variables. These sets included 1) characteristics of dating and romantic relationships, 2) characteristics of the female and male social networks in grade 9, and 3) individual characteristics in grade 9. Characteristics of dating and romantic relationships (Wilk's Lambda = 0.45,  $F(3,91) = 9.0$ ,  $p < .0001$ ), characteristics of the male and female social networks in grade 9 (Wilk's Lambda = 0.85,  $F(3,98) = 1.8$ ,  $p = .070$ ), and individual characteristics in grade 9 all differed between groups (Wilk's Lambda = 0.90,  $F(3,98) = 3.5$ ,  $p < .05$ ).

After univariate comparisons, timing of the onset of dating, the number of romantic partners, total months involved in romantic relationships, and having at least one older romantic partner all differed between groups (see Table 32).

Overall, female adolescents who spent a high amount of time with romantic partners, especially those who also spent a lot of time with best female friends, also dated earlier, had more romantic partners, were involved with romantic partners for more months, and were more likely to have had older partners. The timing of the

onset of dating was earlier, the mean number of romantic partners, the mean level of months involved in romantic relationships, and the proportion of females who had an older romantic partner was higher in the two groups who spent a high amount of time with romantic partners regardless of the amount of leisure time they spent with best female friends. For example, females who spent a high amount of time with romantic partners tended to start to date more than one year earlier than other female adolescents ( $p < .001$ ). Additionally, the group who spent a high ambient level of time with both best female friends and romantic partners during high school, had 2 to 3 more boyfriends, and spent about 10 to 15 more months involved in romantic relationships before and/or during high school than females in the two groups who spent a low ambient level of time with romantic partners. Almost one-half of the females who spent a high amount of time with both best female friends and romantic partners had at least one older partner during high school compared to 5%-10% of the members in these other two groups.

Social network characteristics in grade 9 and Individual characteristics in grade 9 also differed between groups (see Table 32). It seemed that those females who were more popular, sociable, attractive, and looked older to their male and female peers in grade 9 also spent a higher amount of time, on average, with both best female friends and romantic partners during the remainder of high school. In particular, the average number of best female friends and male friends, mean

popularity with females and males, average self-perceived attractiveness, and mean mature appearance in the ninth grade were highest in the group who spent a high amount of their leisure time, on average, with both their best female friends and their romantic partners across the high school years.

However, there was not a single group who was lowest on all of these social network and individual characteristics. The group who spent a high amount of time with female friends and a low amount of time with romantic partners during high school had fewer male friends and perceived themselves to be less attractive in grade 9. Average popularity with males and females was almost the same in the two groups who spent a low amount of time with romantic partners regardless of whether or not they spent a lot of time with best female friends.

#### Comparisons of the Timing of the RT and Trajectories of Time Spent

The average timing of the RT and average trajectories of time spent with best female friends, romantic partners, alone, with family, and with groups of peers were compared between the four groups. The average timing of the RT also differed when comparing the four groups (see Table 32). The group who spent a high amount of time with romantic partners, but a low amount of their leisure time with female friends, experienced the RT earliest. On average, this group of female adolescents experienced the RT slightly after ninth grade. Females who spent

much time with their friends, but little time with partners were the last group to experience the RT. On average, these females did not experience the RT during high school.

There were also differences when comparing the trajectories of time spent alone, and time spent with groups of peers. Both groups of female adolescents who spent a low amount of time with romantic partners reported spending much more time alone early in high school when compared to females who spent a high amount of time with both friends and partners (intercept of time spent alone in both low romantic partner groups about 30 vs. 21,  $p < .05$  for both comparisons). However, there were no differences in the linear rates of change of time spent alone from grade 9 to grade 12 when comparing the four groups.

The group who spent a high amount of time with both friends and partners reported spending much more time with groups of peers early in high school, but decreased this time slightly during high school (see Figure 23). The groups who reported spending a high amount of their leisure time with either best female friends or romantic partners increased the amount of their leisure time they spent with groups of peers during high school. Finally, the group who spent a low amount of time with both friends and partners started high school spending a somewhat low amount of time with groups of peers, and decreased this time even further from grade 9 to grade 12. There were no differences in either the initial

levels of time spent with family or rates of change in time spent with family between these four groups.

### Summary of Differences

The characteristics of the two groups who spent a high ambient level of time with romantic partners throughout high school, and either a low or high amount of time with best female friends throughout high school were quite similar. They spent less time alone, were involved with romantic partners earlier and more intensely, were more likely to have been involved with older partners, were more popular with both males and females in grade 9, were more attractive, and had more experience with negative qualities of physical aggression and jealousy in romantic relationships. However, differences appeared when comparing the size of peer networks, mature appearance, and time spent with groups of peers. The group who spent a high amount of time with both their female friends and a high amount of time with their romantic partners had male and female friendship networks that were larger, they reported that they looked much older than other females in grade 9, and they spent more time with groups of peers throughout high school. They also experienced the highest amount of verbal aggression in past romantic relationships. It seems that the groups of females who spent much time with

partners and less time with friends had smaller friendship networks and were spending more time in dyads, particularly with their partners.

In contrast, similarities were not as common when comparing the two groups who had a low ambient level of time with romantic partners throughout high school, but were differentiated by the low or high amount of time they spent with female friends. Both of these groups reported similar numbers of very good male friends, and similar popularity with males and females in grade 9. Yet, the group who spent a low amount of time with both female friends and romantic partners seemed to be slightly more involved with partners as indicated by having a greater number of partners before and/or during high school, and spending more months involved in partnerships. They also seemed to have fewer female friends in grade 9, perceived themselves to be more attractive, but less mature looking in grade 9, and experienced the RT earlier than the other group of females who spent a low amount of time with romantic partners. It seems that attractiveness, interest and involvement in romantic partners, and the number of female friends early in high school differentiated these groups even though both groups spent a low ambient level of time with romantic partners during high school.

### Participants Stratified by the Timing of the Relatedness Orientation Transition

A final interest was in exploring the potential pathways of females who experienced the RT early, average, or late. The early group experienced the transition in grade 9 ( $n = 20$ ). The average group experienced the transition in tenth, eleventh grade or twelfth grade ( $n = 52$ ), while the late group included those females who never spent more time with romantic partners than female friends during high school ( $n = 30$ ). These three groups were compared using multiple analysis of variance.

### Comparisons of Relationship Qualities

First, the three RT groups were compared on three sets of variables including 1) positive qualities of best female friendships and romantic relationships, 2) negative qualities in the most recent romantic relationships, and 3) negative qualities in past romantic relationships. There were no differences between the groups when comparing the average negative qualities of the most recent romantic relationships. In contrast, there were differences in the average amount of positive qualities in peer relationships (Wilk's Lambda = 0.95,  $F(2,91) = 2.5$ ,  $p = .090$ ), and when comparing experiences with negative qualities in past romantic relationships (Wilk's Lambda = 0.79,  $F(2,91) = 3.5$ ,  $p = .003$ ). The early and average RT groups



reported higher positive qualities in their most recent romantic relationships, and experienced more verbal aggression and jealousy in past romantic relationships than the late RT group (see Table 33). Positive qualities in current very best female friendships did not differ.

#### Comparisons of Social Network and Individual Characteristics in Grade 9

Multiple analysis of variance was used to identify differences between the three RT groups on four additional sets of variables including 1) characteristics of dating and romantic relationships, 2) popularity with peers in grade 9, 3) the size of male and female social networks in grade 9, and 4) individual characteristics in grade 9. Characteristics of dating and romantic relationships differed between the three groups (Wilk's Lambda = 0.68,  $F(2,91) = 6.2$ ,  $p < .0001$ ), as did popularity with peers (Wilk's Lambda = 0.90,  $F(2,98) = 5.4$ ,  $p < .01$ ), and individual characteristics (Wilk's Lambda = 0.95,  $F(2,98) = 2.6$ ,  $p = .09$ )

In univariate comparisons, female adolescents in the early RT group started to date earlier when compared to adolescents in the average and late RT groups (see Table 33). On average, the early RT group had 1 more romantic partner before and/or during high school than the average RT group and 3 more partners than the late RT group. Further, the early and average RT groups had spent many more months involved in romantic relationships than the late group, and a higher

proportion of females in the average RT group reported having at least one older romantic partner (37%). Only 7% of the late RT group reported having an older partner.

The early RT group perceived themselves to be more attractive in grade 9 and was more popular with both sexes than the other two RT groups (see Table 33). In contrast, the late RT group perceived themselves to be the least attractive in grade 9 and were the least popular with both sexes early in high school.

#### Comparison of Trajectories of Time Spent

Average trajectories of time spent with best female friends and romantic partners within RT groups were previously described. Therefore, the amount of leisure time spent alone, with family, and with groups of peers were compared here to further describe the experiences of females in the three RT groups.

Females with an average RT significantly decreased the amount of time they spent alone from the fall of grade 9 to the spring of grade 12 when compared to those female respondents with a late RT (see Figure 24). Therefore, all three RT groups initially reported spending similar amounts of their leisure time alone, but the average RT group also reduced the amount of time they spent alone during high school. The early and late RT groups had almost flat linear trajectories of time spent alone during high school.

There were no differences in the amount of leisure time female adolescents spent with their families when comparing females who had an early or average RT to those in the late RT group. Neither initial levels of time spent with family in fall of ninth grade or rates of linear change in time spent with family during high school differed when comparing these three groups.

Finally, there was only one difference when comparing time spent with groups of peers between females grouped by the timing of the RT. Those females in the early RT group reported, on average, a lower initial level of time spent with groups of peers in the fall of ninth grade than females with a late RT (23.8 compared to 40.3,  $p < .05$ ). No other differences in initial levels or linear rates of change in time spent with groups of peers were found.

### Summary of Differences

Overall, the three RT groups were differentiated by characteristics of their dating and romantic relationships, popularity with peers in grade 9, attractiveness in grade 9, and changes in the amount of time they spent alone from grade 9 to grade 12. The size of friendship networks and positive qualities of their current very best female friendships did not differ. Specifically, females in the early RT group dated earlier, had the greatest number of romantic partners overall, had spent the highest

number of months involved in romantic relationships, and perceived themselves to be the most popular and attractive in grade 9.

In comparison, females in the average RT group added partners to their peer networks during high school and decreased the amount of time they spent alone from grade 9 to grade 12. This group was also the most likely to have had older romantic partners. Females in the late RT group had lower positive qualities in their most recent romantic relationships, but they had experienced less verbal aggression and jealousy in past relationships. They had the least number of romantic partners, and had spent very little time involved in romantic relationships. Very few members of the late RT group had ever had an older partner. They also perceived themselves to be the least popular with both males and females in grade 9, and to be of lower attractiveness in grade 9.

## Discussion

The purpose of this study was to investigate the variety of ways that female adolescents negotiate the addition of romantic relationships to their existing peer social networks and to understand if and when this negotiation involves changes in relationships with their best female friends. An additional purpose was to understand some of the early antecedents and consequences of these patterns of change. A summary of the results of this study is provided in Table 34.

### Summary of Results

For the average female adolescent, the amount of involvement with romantic partners during high school starts low at about 16% of her leisure time in fall of grade 9, and this time increases substantially to about 35% by spring of grade 12. Additionally, the average female adolescent appears to spend about 50% of her leisure time with best female friends throughout high school. Hence, for the average female adolescent, these trajectories do not cross, so romantic partners never take precedence over best female friends during high school.

Nevertheless, female adolescents do trade some of their time with best female friends for time with their romantic partners during high school. When compared to those without romantic partners, young females with romantic partners spend less of their leisure time with their best female friends beginning in about grade 11.

Additionally, larger linear gains in the amount of leisure time that is spent with romantic partners from grade 9 to grade 12 are associated with larger linear declines in time with best female friends during the same time period (see Figure 25).

Although these normative trajectories are informative, this study also emphasizes individual patterns. Calculating and describing individual trajectories of the amount of leisure time spent with peers during high school (including intercepts, slopes, and ambient levels of trajectories) reveals that there is significant variation among individuals. In particular, there is great variation among adolescents in their patterns of the amount of leisure time spent with friends and partners, and in the timing of the RT during high school.

#### Romantic Partners do take Precedence over Friends for Some Adolescents

Although average trajectories of involvement with friends and romantic partners reveals no RT, the majority of females do experience the RT during high school (63%) and the average timing of the RT is in about the middle of grade 11. Nevertheless, the exact time during high school that this transition occurs varies considerably. Some of this variety in adolescents' experiences within their peer social systems is apparent after classifying females into early, average, or late RT groups. Comparisons of these groups highlight three important points.

First, only about one-half of females exhibit the patterns of involvement with peers that are often described as normative during high school (Csikszentmihalyi & Larson, 1984; Dunphy, 1963). This RT group includes females who dramatically increase their time with romantic partners during high school and maintain or slightly reduce time with their best female friends. About another one-fourth of females exhibit patterns of involvement with friends and partners that suggests the RT was accomplished prior to or early in high school. This RT group spends almost equal amounts of time with best female friends and romantic partners throughout high school. They also spend less time with friends than other female adolescents, and slightly reduce their time with romantic partners from ninth to twelfth grades. The final one-fourth of female adolescents exhibit patterns of involvement with peers that suggest romantic partners are not yet a significant source of companionship. This RT group maintains time with their best female friends throughout high school, and has very little involvement with romantic partners.

A second point that is highlighted by the comparison of the three RT groups is that romantic partners do not typically replace friends in female adolescents' social networks. It is possible to continue spending a high amount of leisure time with best female friends while adding romantic partners to the network of social relationships. Nevertheless, some females do not seem to be as involved with

friends when they have romantic partners. This suggests that there may be individual or social influences that result in some females maintaining involvement with their best female friends, while others are prompted to trade or limit more of their time with friends when they become involved with romantic partners.

A third point highlighted by the RT groups is that, for some females, romantic partnerships do not emerge during high school or appear to be a low priority. However, most of these females do have high levels of involvement with best female friends. In the future, it will be important to further investigate the antecedents of different patterns of involvement with romantic partners. It will also be beneficial to understand the implications of delaying involvement in romantic relationships. This delay may be problematic, beneficial, or may result in little difficulty or benefit for females in late adolescence (college years or after high school) and young adulthood.

#### Predictors of Involvement with Friends and Partners

This study finds that some early characteristics of peer social relationships and individuals do predict patterns of involvement with best female friends, patterns of involvement with romantic partners, and/or timing of the RT. In general, females who have greater gains in the amount of leisure time they spend with romantic partners in high school also have larger male friendship networks in grade 9 and



have at least one older romantic partner before and/or during high school (see Figure 26). Females who spend more of the leisure time, on average, with their best female friends throughout high school also have larger networks of female friends and look more mature in grade 9 (see Figure 27). Therefore, only male network characteristics predict time with romantic partners, while the size of the female friendship network predicts time with best female friends.

Nevertheless, the timing of the RT is predicted by sociability with both males and females in grade 9 (see Figure 28). Females with more male friends in grade 9, and those who are more popular with both males and females in grade 9 have earlier RTs. In contrast, after accounting for popularity with males and females and the number of male friends, having more female friends in grade 9 delays the timing of the RT. Contrary to predictions, timing of the onset of dating, attractiveness in grade 9, and having at least one stable female friend throughout high school did not predict patterns of involvement with peers or timing of the RT.

### Predictors of Qualities of Romantic Relationships

After establishing the early antecedents of patterns of involvement with peers, this study determined if qualities of most recent romantic relationships are a) associated with concurrent qualities in very best female friendships, b) the consequence of patterns of involvement with peers during high school and c) the

consequence of the timing of the RT. Classic and contemporary theorists propose that adolescents' capacities for intimacy, trust, support, and alliance within family relationships and same-sex friendships are transferred to or influence these qualities in the romantic relationships they form (Bowlby, 1969; Collins, Hennighausen, Schmit, & Sroufe, 1997; Douvan & Adelson, 1966; Furman & Wehner, 1994, 1997; Hazan & Saver, 1987; Sharabany, 1994; Sullivan, 1953). These theories hypothesize that we learn about relationships and form models of relationships in early relationships with caregivers (Bowlby, 1969). Others have extended these theories to consider later relationships with family and peers (Ainsworth, 1989; Collins, et al., 1997; Hazan & Shaver, 1987; Sharabany, 1994). These early experiences are believed to shape the future relationships we form (including romantic relationships).

#### Qualities of Friendships Predict Some Qualities of Romantic Relationships.

The findings in this study provide only partial support for theories that assert that relationships with friends shape relationships with romantic partners. Females who report more nurturance, affection, and admiration in their current very best female friendships also report more of these qualities in their most recent romantic relationships. In contrast, a composite measure of positive qualities including intimacy, nurturance, reliable alliance, admiration, affection, companionship, and instrumental aid in current very best female friendships has no association with the

same measure of composite positive qualities in most recent romantic relationships. Overall, it seems that only a subset of the positive qualities measured in same-sex friendships may be transferred to romantic relationships (see Figure 29).

There are also some interrelationships between positive qualities of current very best female friendships and negative qualities of romantic relationships, but these associations are only clear when females without current romantic relationships are excluded. Within the group of females with current romantic relationships, those who report lower positive qualities in their current very best female friendships also report more isolation, jealousy, and verbal aggression by their current partners (see Figure 29). One possible explanation is that lower positive qualities in female friendships are transferred to romantic relationships as negative qualities. An alternative explanation is that there are reciprocal effects between female friendships and romantic relationships. Female friendships influence qualities of romantic relationships, but romantic relationships also influence qualities of female friends. It seems likely that one reciprocal effect of involvement in romantic relationships in which the partner more often attempts to isolate the participant from friends and family and denigrates her verbally has effects on the qualities of female friendships. For example, these experiences of isolation and jealousy within current romantic relationships might result in adolescents modifying their involvement with very best female friends at the request or insistence of their

partners. These modifications might include fewer chances for companionship and intimacy with friends. In general, it is likely that when females are involved in romantic relationships during high school, one of the mechanisms of change in levels of intimacy, companionship, and other positive qualities within friendships with females may be persuasion and other actions of romantic partners.

Patterns of Involvement with Romantic Partners Predict Qualities of Romantic Relationships. This study finds no support that positive or negative qualities in most recent romantic relationships are predicted by previous patterns of the amount of leisure time spent with best female friends during high school. Conversely, qualities of most recent romantic relationships are predicted by patterns of time spent with romantic partners during high school (see Figure 29). Females who form romantic relationships earlier, spend more time with romantic partners earlier, and/or have more rapid increases in the amount of leisure time they spend with romantic partners during high school, also have higher positive qualities in their most recent romantic relationships, more experiences with physical aggression in their most recent romantic relationships, and are more likely to have experienced negative qualities in past romantic relationships (such as physical aggression).

Similarly, females with an earlier RT report more positive qualities in their most recent romantic relationships and have a greater chance of having experienced negative qualities within past romantic partners. Therefore, higher quality romantic

relationships in late adolescence are partially the result of patterns of involvement with romantic partners as indicated by earlier onset of romantic relationships, more rapid increases in time spent with romantic partners, and higher intensity of involvement in romantic relationships, as well as earlier reorganization of peer relationships. However, these same experiences also put females at risk of experiencing aggression and other negative qualities within romantic relationships before or during high school. Possible explanations for this pattern will be discussed later.

#### Comparisons of Groups of Females (Potential Pathways)

This study also compared the average characteristics of female adolescents grouped on the basis of a) the positive qualities in their most recent romantic relationships, b) whether they had experienced physical aggression by romantic partners, c) the ambient level of time with best female friends and time with romantic partners, and d) the timing of the RT. There are many differences between these groups on qualities of peer relationships; characteristics of dating and romantic relationships; characteristics of peer social networks; and individual characteristics. Only differences in the RT groups will be summarized here.

The early RT group. Being more attractive and being more popular with both males and females early in high school prompts earlier and more intense

involvement in romantic relationships. These experiences, in combination with lower involvement with females and (possibly) more tradeoff of time with females for time with partners, are then responsible for an earlier reorganization of time with peers. Earlier reorganization of peer relationships is associated with higher positive qualities in subsequent romantic relationships and more past experience with romantic relationships marked by negative qualities such as physical aggression, verbal aggression, and jealousy. Therefore, the early RT group appears to gain some benefits from this early and intense involvement, but also has higher risk of aggression by romantic partners.

The average RT group. The average RT group is of medium popularity and attractiveness early in high school. In many other ways, this group appears similar to the early RT group. In general, the average and early RT groups have similar positive qualities in their most recent romantic relationships and have had similar past experiences with aggression in romantic relationships. However instead of starting high school involved with romantic partners as the early RT group did, females in the average RT group gradually increase the time they spend with partners during high school, while slightly decreasing their time with best female friends and decreasing the amount of time they spend alone.

The late RT group. The late RT group is lowest in popularity and attractiveness early in high school, but not being as popular did not result in having fewer male

and female friends than other females. Therefore, they still spend quite a bit of time with their best female friends and with groups of peers, and they do not increase the amount of time they spend alone during high school. These experiences contribute to little involvement in romantic relationships, and lower positive qualities in those romantic relationships that do occur. However, the late RT group also has little experience with negative qualities in past or current romantic relationships. Therefore, only females in the late RT group have had significantly fewer experiences with aggression and jealousy in romantic relationships than other females.

#### Study Limitations

Before discussing these findings further or proposing future directions for research, some of the limitations of this study are discussed. The limitations arising from the characteristics of the sample are first discussed briefly. For the most part, the remaining limitations that are discussed stem from the design of the study, in which longitudinal trajectories were reconstructed from retrospective self-reports. These limitations include recall bias, limited ability to measure some constructs, self-report of relationship characteristics by one individual, and restricted episodes of measurement.

### Sample

The first limitation of this study is the small size of the sample, and the homogeneity of the sample. Only a small number of selected white female adolescents are included in this study. Therefore, some analyses relied on small groups and the ability to generalize this study to a broader population of adolescents (nonwhite, males, adolescents residing in other settings, etc.) is limited. Findings should be replicated with a larger and more diverse sample of female adolescents.

### Limitations Resulting from the Research Design

Studies focusing on change trajectories must be longitudinal in design with, at least, more than two times of measurement. Longitudinal studies are usually expensive and are difficult to complete in a timely manner. Therefore, a retrospective data collection method was used in this study. Collecting retrospective information is a limitation of this study because of the well-known problems with accuracy when relying on recall of information, and the limits that relying on recall places on measurement including the constructs that can be measured and the periods of time that can potentially be targeted for measurement.

Recall Bias. Although it is recognized that the possibility of inaccurate recall of information is a limitation throughout this study, it did appear that, for the most



part, adolescents were recalling information accurately. In particular, relationships with peers, especially with romantic partners, seemed to be very salient experiences in the lives of female adolescents. During the face-to-face interviews, participants appeared to be very thoughtful about past experiences of these relationships, and they usually changed their reports from one time of measurement to the next. In addition, normative trajectories of increasing time with romantic partners, declining time with family, and declining time with groups of peers appear consistent with past research (Csikszentmihalyi & Larson, 1984; Dunphy, 1963; Hartup, 1989; Larson, Richards, Moneta, Holmbeck, & Duckett, 1996).

If the study participants were not adequately modifying their responses from one time of measurement to the next, inflated stability of involvement with peers could have been the result. This was potentially a problem in the reporting of time that was spent with best female friends and time that was spent alone. Inflation of stability did not appear to have been a problem when reporting the amount of leisure time spent with romantic partners.

Although it was found that a small amount of time with best female friends was traded for time with romantic partners during high school, one possible effect of inflated stability of the amount of time with friends could have been an underestimation of the tradeoffs that occurred during high school. In addition, this study found few associations between patterns of time spent with best female

friends during high school and later qualities of peer relationships. Inflated stability of time with best female friends may have reduced the possibility of clearly demonstrating these links.

Measurement of quantity instead of quality. The retrospective research design also limited the constructs that could be measured. In particular, it was expected that participants could recall the amount of their leisure time they spent with peers with greater accuracy than they could recall the qualities of these past relationships (such as intimacy, closeness, nurturance, or reliable alliance). The inability to measure qualities of past peer relationships is a limitation because it may not provide a complete understanding of the patterns of these relationships. Time spent may not accurately reflect other qualities of relationships. In fact, the amount of time spent with some social network members may be more representative of quality than the amount of time spent with other social network members.

In this study, time spent with most recent romantic partners was highly correlated with the positive qualities in these romantic relationships ( $r = 0.53$ ,  $p < .0001$ ), but this correlation was not nearly as strong when focusing on current very best female friendships ( $r = 0.22$ ,  $p < .05$ ). Also, the 'companionship' subscale of the positive quality measure, which was most similar to the amount of time spent, was not correlated with three other subscales of the measure of positive quality when reporting on qualities of very best female friendships. All positive quality

subscales were highly intercorrelated when reporting on the most recent romantic partners. Other research has also found that the amount of time spent with others does not always predict other qualities of those same relationships (e.g., see Laursen & Williams, 1997).

Equivalence of measurement. Because of these differences in the associations between time spent and qualities of relationships, it is possible that the measures of time spent with friends and time spent with partners were not equivalent. Time spent with romantic partners may be a better indicator of qualities of these relationships, while time spent with best female friends may not accurately reflect qualities in all cases. It seems that it is possible to spend less time with best female friends, but still report that positive qualities of those friendships remain high. In contrast, it does not seem as possible to spend less time with romantic partners and maintain the same levels of positive quality. In sum, the amount of leisure time that is spent with best female friends is less likely than time with romantic partners to accurately reflect positive qualities within these relationships.

Nonequivalence of measurement of the amount of time spent with peers might have led to some of the findings in this study. For example, few links between patterns of time spent with best female friends during high school and current qualities of relationships were found, but more associations were identified between patterns of time spent with romantic partners and current qualities of

relationships. These findings may be partially a result of the different information relayed by time spent with best female friends and time spent with romantic partners.

Individual Self-report. Another limitation of this study is the reliance on one individual to report on the experiences within both their best female friendships and their romantic relationships. This may have resulted in shared method variance and inflated correlations. Multiple reporters would have been preferable. However, including both members of friendship dyads or romantic partnerships in studies is often difficult and this is even more complicated when the design is retrospective. Yet, including friends of participants and their romantic partners may provide more accurate information on qualities of relationships in the future.

Restricted Episodes of Measurement. Another limitation of this study is the selection of certain historical time periods to assess. This was necessary to be able to consistently direct each participant to the selected time during high school, and to use reminders and discussions about the first few months and the last few months of school each year. It was expected that this consistency and the clear differences in fall and spring of school years would improve the accuracy of reporting.

Nevertheless, the retrospective times of measurement that were selected may have missed important transitions or changes. These periods of time may not

provide information about the important episodes for understanding reorganization of peer relationships. For example, focusing on the start and end of each romantic relationship (including summers) may illuminate more reorganization of female friendships. Previous research has reported that increased instability and conflict occurs between female friends when romantic relationships are initiated (Aneshensel & Gore, 1992; Douvan & Adelson, 1966; Shulman, 1993). This information might be more easily gathered when relationships are the episodes of study.

Lack of information on the years before high school is also a limitation of this study. Recall was expected to degrade if questions were asked about junior high or middle school. However, having additional information on the junior high or middle school years would have been beneficial. For example, this study found that some females begin high school spending more time with romantic partners than best female friends. It is not known if these females experienced the RT before high school or added romantic partners to social networks with fewer female friendships. These two groups may have very different experiences in their peer relationships, but it was not possible to discriminate between these groups in this study.

## The Study of the Relatedness Orientation Transition

### Limits of the Operationalization of the Relatedness Orientation Transition

As a whole, the limitations of this study made it difficult to fully capture many features of the Relatedness Orientation Transition (RT). The operationalization of the RT that was designed for this study was the first time during high school that adolescents reported spending more time with their romantic partners than with their best female friends. This operational definition of the RT was developed within the limits of this retrospective study design. Two of these limitations were 1) the expectation that adolescents would be more capable of accurately recalling quantity of peer involvement (i.e., time spent) than other aspects of peer relationships (e.g., qualities) and 2) the restricted episodes of measurement that were chosen to ensure more accurate recall by participants. These limitations made it impossible to directly assess the experience of the RT. However, even with the limitations, the RT appeared to be valuable as a simple marker of a shift in salience and reorganization of peer relationships. The RT was able to identify groups of individual that appeared to use different strategies to negotiate their involvement in romantic relationships, and who had different involvement with peers during high school.

Upon further exploration, it was clear that there are multiple patterns that females could follow and still be classified in the same RT group (i.e., early,

average, or late). For example, an adolescent might exhibit a pattern that is similar to the average found in this study. This female spends an average and stable amount of time with her best female friends and gradually increases time with romantic partners until the RT occurs in eleventh grade. This pattern results in being classified as having an average RT. Another adolescent might have one best female friend who she spends little time with, but has a romantic partner starting in tenth grade who becomes her constant companion. This experience also results in an average transition. A third adolescent might have many friends who she spends a lot of time with early in high school and throughout high school, but also has serial romantic partners who spend all their time with the target adolescent and her friends. In this case, the RT may or may not occur during high school, but a large amount of time is spent with both female friends and romantic partners. Therefore, the RT possibly marks a significant transition and reorganization of peer involvement, focus, or experience. Yet, the RT as defined in this study did not directly examine how each adolescent approaches this transition, and how the transition might result in different ways of reorganizing (or not reorganizing) the social world.

As a consequence, this study did not provide an understanding of how adolescents experienced the RT. Further, this study did not attempt to understand adolescents' experiences of the RT as a developmental process. It is likely that the

RT is a process and a better understanding of this process is a next step toward the development of better measurement of the RT and future research on the development of romantic relationships.

### Design of a Study to Understand Process

The process of the RT will be best understood by a study design that includes self-reports of adolescents at times of significant change in their peer relationships. Therefore, the information collected from adolescents should be designed with the goals of both understanding adolescents' experiences of the RT and as a way to identify alternative techniques for operationalizing the RT. Young people could be capable of directly reporting information on the salience or precedence of peer relationships as a measure of the RT, but we may also need additional indirect and supporting evidence. For example, adolescents might directly report choices they make between friends and partners, broken dates and engagements, who they most often go to for emotional support, and who they most often tell about their intimate thoughts. Also, indirect or supporting evidence of changes in precedence of relationships might include time spent with peers, the amount of time they spend alone with partners and friends, differences in functions of relationships, reports of who adolescents feel most attached or connected to, and reports of the peers that they believe understand or know them best.



Further, in the future, times of initiation and dissolution of relationships should be episodes to consider when gathering this direct and indirect information of the experience of the RT. It is at these times that relationships may be modified and peer social networks reorganized. These times of change and reorganization could provide a greater understanding of the experiences of adolescents as they approach and experience the RT.

Including reports of other members of dyadic peer relationships would also be a beneficial part of the future study of the RT as a developmental process. Reports of important others would also aid the development of measures of the RT. Information from others could provide additional direct or indirect evidence of changes in the precedence of target individuals' relationships. Gathering information from friends and partners could also help to more fully describe how individual changes in precedence might affect and change others. Overall, including both members of important relationships should ensure a fuller understanding of the process of the RT, and could potentially allow for more accurate measurement of the RT.

Characteristics of the experience and negotiation of the RT. A better understanding of the experience and process of the RT will include the investigation of whether, in general, this is an abrupt or a gradual process, and whether this is a distressing experience for adolescents. Multiple questions about

the speed of the reorganization of peer relationships and the timing of events in this process could be asked. For example, as adolescents experience romantic relationships, do they gradually begin to view these partners as primary attachment figures so that it is difficult to actually pinpoint a single point of significant change or reorganization such as the RT? Conversely, is the RT usually abrupt, easily identified, and a result of individual or environmental factors such as features of current romantic partners? As an analogy, thinking of the RT as a developmental process might be similar to the biological changes of puberty. When adolescents experiences pubertal development it can be a short or a long process depending on the individual (1.5 to 5 years from start to full development), but yet there are often events that can be singled-out as significant (e.g., menarche).

A more complete understanding of the experience of the RT will also include gathering information on the emotional experiences of adolescents while they are negotiating the development of romantic relationships. It will be important to determine if the process of the RT is accompanied by emotional distress. Is the RT only associated with positive experiences of these emerging romantic relationships or are there negative experiences and distressing events that adolescents also are consciously aware of and confronting?

Variation in the experience and negotiation of the RT. In general, adolescents' experiences of the RT may vary. It will be important to understand the average

adolescent's experience, but it will also be important to describe the variety of experiences of the RT. In particular, this process may be gradual for some adolescents and abrupt for others, the RT may be undetectable or an easy process for some adolescents and distressing for other adolescents, and adolescents may have developed a variety of strategies to accomplish the developmental task of romantic relationships and to manage the RT.

Part of the experiences of the RT that should be a significant part of further research includes documenting the variety of negotiation strategies female adolescents use to modify and reorganize their peer relationships as they become involved with romantic partners. It will be important to investigate what these strategies may be and how individuals may use different strategies to negotiate this process. For example, some girls may have found particular methods for integrating romantic partners into their existing social networks that provide them a greater variety of positive peer relationships. Such strategies might include promoting friendships between their partner and their female friends, or attempting to persuade their friends to date their partners' friends. Other female adolescents might not have found strategies that allow them to maintain their friendships while becoming involved in romantic relationships. One goal of understanding the variety of strategies that are used to negotiate the developmental task of romantic relationships should be to determine if there are benefits or risks associated with

certain strategies. Knowing the benefits and risks will help us provide suggestions that might assist future adolescents as they approach and manage this task.

### Future Directions

Despite the limitations of this study, it is demonstrated that the development of romantic relationships during adolescence could benefit from considering this task in the context of existing and changing friendships with peers. Specifically, the RT appears important, and this type of construct deserves complete and careful exploration in the future.

### The Development and Experience of High and Low Quality Relationships

Patterns of qualities within peer relationships. This study focuses on patterns of involvement with peers as indicated by the amount of time spent with friends and partners. In future research, determining the pathways of qualities and functions in multiple peer relationships, and shifts in these qualities and functions will also be important.

Rutter (1989) described the concept of pathways of life-span development by highlighting the timing of life events, individual experiences, continuity, discontinuity, life transitions, and risk and protective factors to each individual life course and final outcomes. He states that "the impact of some factor in childhood

may lie less in the immediate behavioral change it brings about than in the fact that it sets in motion a chain reaction in which one 'bad' thing leads to another, or, conversely, that a good experience makes it more likely that another one will be encountered" (p. 27). This may be the case when attempting to predict the qualities of peer relationships in late adolescence and young adulthood or beyond.

For example, research has found that when some adolescents become involved with romantic partners this has been accompanied by elevated negative interactions with friends. Girls who were becoming involved in opposite-sex romantic relationships have been found to have more conflicts with their friends over feelings of competition, jealousy, and disloyalty (Douvan & Adelson, 1966). Shulman (1993) described three main reasons why friendships between adolescents were terminated: conflicts, mistrusts, or personal changes such as intrusion of a third person like a boyfriend or girlfriend. These negative interactions with friends could have implications for adolescents' continuing expectations of friendships and romantic relationships.

For instance, Furman and Wehner (1994, 1997) have proposed that the 'views' (conscious or unconscious perceptions of particular relationships) that adolescents develop of their friendships are important influences on how they come to view their romantic relationships. If past experiences with friendships are conflictual or marked by lack of trust or other difficulties, this could negatively influence

conceptions of future friendships and, perhaps, romantic relationships. Conversely, as was suggested in the results of this study, negative qualities within romantic relationships may restrict access to the support and companionship of others. Accordingly, future studies should make an attempt to not only understand trajectories of time spent with peers and other social network members, but should also include measures of the quality of these relationships and how these qualities change, influence each other, and predict tradeoffs between friends and partners in time spent, intimacy, support, companionship or other aspects of relationships.

Why both more positive and more negative experiences in romantic relationships? This study finds that early involvement, more intense involvement with romantic partners before and/or during high school, and an earlier timing of the RT are associated with both higher positive qualities in most recent romantic relationships and more experiences with negative qualities in past romantic relationships. These experiences may seem somewhat paradoxical, but they may not be in opposition. So, why might early and more rapid increases in involvement with romantic partners, and an earlier reorganization of peer relationships result in more positive qualities in romantic relationships in later adolescence, but also be accompanied by a greater chance of experiencing aggression and other negative qualities in past romantic relationships?

Previous research has also found that there is some continuity in the quality of relationships (Connolly & Johnson, 1997; Furman & Wehner, 1994, 1997; Laursen & Williams, 1997; Lev-Ran & Sharabany, 1981). It may be that females who initiate or are approached to begin romantic relationships earlier and then increase their involvement more rapidly develop a higher capacity for such relational qualities as intimacy or nurturance. Therefore, more experience and a greater variety of experiences results in higher capacities for intimacy. This higher capacity is then evident in romantic relationships that are of higher quality than those of other age mates.

Alternatively, it may also be the case that females with higher quality romantic relationships in later adolescence had more choices and alternatives during high school than other females. These young women may have been involved in romantic relationships earlier, more rapidly, and more intensely because they had more options and choices of partners or were selected by partners more often. In sum, they could potentially be more selective in their partnerships by ending those with negative qualities more easily, and maintaining those partnerships with more positive qualities.

Having a higher risk of experiencing negative qualities in past romantic relationships could also simply be due to having a greater variety of partners and choices in partners. This variety and intensity of involvement may increase the risk

of coming in contact with a partner who is more aggressive, isolating, and jealous. Many adolescents, particularly males and females who are in early adolescence, may not have developed the capacity to manage conflict or cope with relational challenges that occur within these contexts. Peer interactions are complicated by media images that idealize love, inadequate knowledge and understanding of sexuality, dealing with the burden of managing peer status and reputation, and coping with rejection (Brown, et al., 1994; Downey & Feldman, 1996; Eder, 1985; Franzoi, et al., 1994; Martin, 1996). Many male and female adolescents, especially earlier in adolescence, may not yet have the cognitive ability or the emotional maturity to handle difficult situations and conflicts through negotiation, communication, and problem-solving (Keating, 1990). They may resort to aggression, manipulation, and name-calling when they feel wronged, threatened, or inadequate. All of these aspects of early and middle adolescence, combined with a higher number of attempts at forming and dissolving relationships, may put adolescents at higher risk of experiencing isolation, jealousy, verbal aggression, and physical aggression in their romantic relationships.



## Disentangling Age of Onset from Amount of Involvement in Romantic

### Relationships

In general, benefits and risks accompany early and elevated involvement in romantic relationships, and earlier reorganization of peer relationships during high school. Therefore, females in the late RT group get little benefit and risk. They do not have as many positive qualities in their most recent romantic relationships (benefits), and they have had little experience with negative qualities in past or current romantic relationships (risks). However, in the future, romantic relationships of the late RT group may be just as positive as the current romantic relationships of the early and average RT groups. In addition, the late RT group may establish these positive relationships in the future without experiencing the risks of the other two RT groups. Conversely, it is also possible that the late RT group may experience similar difficulties in the future when they have had similar involvement with romantic partners.

However, the influence of age of onset of romantic relationships, amount of experience in romantic relationships (e.g., steeper trajectories, more partners, more months involved in romantic relationships), and reorganization of peer relationships are all embedded. All of these factors are associated with qualities of romantic relationships partially because of these interrelationships. The age of onset of romantic relationships is linked to the amount of involvement in romantic

relationships. Involvement is then linked to the reorganization of peer relationships. For example, on average, females in the early RT group had romantic partners at 76% of the times of measurement, while the average RT group had partners 54% of the time, and the late RT group had partners at 18% of the times of measurement.

These embedded constructs result in the need to develop a research design that is initiated at the age of onset of romantic relationships or before. The design would also include an extended time frame and a larger sample. The extended time frame would be needed to ensure that all participants had similar amounts of experience with romantic partners and had experienced the RT. This would allow the comparison of adolescents within onset of dating cohorts who have similar amounts of involvement in romantic relationships or timing of the RT. For example characteristics of the relationships of females who have their first romantic relationship in grade 9 and have three years of involvement with romantic partners could be compared to the same characteristics among females who have their first romantic relationships in grade 12 and have three years of involvement with romantic partners.

Such an extended research design would increase the ability to understand the mechanisms of past experiences with aggression and other negative qualities within romantic relationships. In particular, this design would allow for the separation of

the age of onset of romantic relationships from the amount of involvement in romantic relationships. It may be that when conflicts occur among younger romantic partners, young males are more likely to react with aggression. Therefore, it may be age of onset of heterosexual romantic relationships that predicts experiencing aggression in past relationships and the mechanism may be young aggressive males.

Alternatively, it may be that the age of partners does not matter, but that early relationships are always more difficult. For example, it may be that early romantic relationships start out with more aggression, and later relationships get better as individuals develop their capacities for intimacy and improve their coping and negotiation skills. In this case, it is intensity of involvement that predicts experiencing aggression in past romantic relationships and the mechanism may be limited experience with intimacy, and reduced relational skills. The proposed research design could help answer these questions.

#### Are Female Friendships Important to the Development and Maintenance of Positive Romantic Relationships?

There is no association between patterns of the amount of leisure time spent with friends during high school and subsequent positive or negative qualities in the most recent romantic relationships in this study. In addition, the group of females

who had experienced physical aggression in past or current romantic relationships did not report lower positive qualities in their current very best female friendships in comparison to females who experienced physical aggression. In sum, there is only limited evidence that involvement or time spent with friends promotes the development of positive romantic relationships or provides a buffer for negative romantic relationships.

The ability of higher quality friendships to promote positive romantic relationships and to buffer the experience of negative qualities in other peer relationships may be more complicated. For example, early supportive, intimate, and trustworthy female friends who remain relatively stable throughout adolescence may not be enough to eliminate negative experiences within other relationships, but this may reduce the risk of maintaining these negative relationships. These relationships may not actually buffer involvement in lower quality relationships, but may limit their length. Further research, particularly research that focuses on a pattern of qualities within friendships, will be important.

#### Antecedents of Patterns of Relationships and Concurrent Processes

One purpose of this study was to understand antecedents of a change process instead of focusing on, for example, associations between single events or behaviors. The interest in process including patterns of relationships, reciprocal

influences between or among relationships, and tradeoffs between or among relationships results in further questions regarding antecedents of this process. It also results in questions of concurrent individual developmental change that may prompt or be influenced by changing social systems. This study did identify some antecedents of the process of peer relationships during high school, but a few other antecedents that may be functionally related to these change processes will be proposed here.

Rejection sensitivity. Individual characteristics including dimensions of temperament and personality may also affect patterns of involvement in relationships. One particular personality characteristic, rejection sensitivity, may be particularly important to the prediction of relational patterns (Downey & Feldman, 1996). Rejection sensitivity is a personality characteristic that possibly arises from experiences with rejection in early relationships and may be a component of working models or views of relationships (Ainsworth, 1989; Bowlby, 1969; Furman & Wehner, 1994, 1997). Rejection sensitivity is associated with a proclivity to interpret the actions of others as more rejecting and negative, and results in individuals anxiously expecting others to reject them (Downey & Feldman, 1996). A person who is more sensitive to rejection may experience a social system with more marked fluctuations, drastic changes, and tradeoffs than an individual who is not as sensitive. However, as Downey and Feldman (1996)

discuss, overcoming this sensitivity to rejection may be possible after more supportive experiences within relationships that do not meet negative expectations. Taking a more person-oriented approach may help identify how individuals who have a high level of rejection sensitivity maintain or modify their sensitivity through multiple relationships. It would also identify characteristics of relationships that exacerbate or alleviate this propensity to view relationships as places that are prone to negative interactions and rejection. This may be particularly important to understanding patterns of dating and family violence. Some theorists believe that a similar construct, fear of abandonment, may be linked to family violence (Perlman & Fehr, 1987).

Involvement with family, academics, activities, and work. Many studies have identified other individual and social factors that are associated with the timing of the onset of dating and romantic relationships that were not addressed in this study. These characteristics include investment in peer relationships, interest in dyadic romantic relationships or the importance of dating, and family turmoil or monitoring (Aseltine, et al., 1994; Connolly, et al., 1995; Newcomb, et al., 1986; Simon, et al., 1992). It is possible that some of these variables that have been associated with a single event or behavior could also predict change and reorganization of peer relationships. In particular, family or academic orientation, the intensity of involvement in recreational activities, or time spent working at a

job or volunteering could influence the process of peer relationships. The presence of one or more of these factors may predict patterns of involvement in or qualities of romantic relationships and other relationships, and whether there are tradeoffs between peer relationships.

### Consequences of Patterns of Relationships

This study emphasized the connections between patterns of involvement in peer relationships during high school and quality of peer relationships in later adolescence. It will also be important to determine if patterns of involvement with peers during adolescence have important consequences for other aspects of adolescent development and functioning beyond the qualities of their relationships including, for example, the exploration and commitment process of identity formation (Erikson, 1968; Marcia, 1966), depression, loneliness, and problem behaviors.

Identity formation. Friendships are crucial for many aspects of development (Hartup, 1989; Sullivan, 1953; Samet & Kelly, 1987). Sullivan (1953) believed that same-sex friendships were particularly crucial to the development of identity formation, because friendships provide encounters with differences that enrich one's perceptions and sense of self. Others suggest that ending these friendships prematurely or initiating romantic relationships too early may limit individual

development. For example, emotional involvement in romantic relationships before emotional maturity may serve to create a premature crystallization of identity “hindering an actualization of one’s full potential with a variety of people” (Samet & Kelly, 1987, p.244; Zani, 1993).

Maintaining friendships with other females may be especially crucial for the identity development of females. For example, equal power in peer relationships is thought to afford practice in sharing opinions relatively freely and making independent decisions (Hartup, 1989). However, boys report that they experience an increase in relative power in romantic relationships as they age, while females report a decrease (Furman & Buhrmester, 1992). This may reflect other differences in the experience within these relationships for females and males. There is evidence that females, compared to males, may not experience the same level of support for autonomy, independent decision-making, and opportunities for identity exploration within romantic relationships. For example, in a study of late adolescents by Craig-Bray and colleagues (Craig-Bray, Adams, & Dodson, 1988), females’ identity exploration and level of intimacy in romantic relationships were not associated, but identity exploration and females’ level of intimacy with female friends were positively associated.

Therefore, the most opportune context for the development of autonomous thinking, competence, and identity may not be within early romantic relationships



for females, but may be more likely to be promoted within intimate friendships with other females. Early involvement in steady relationships, especially if those relationships isolate females from friendships with other females, could be limiting to young women's long-term personal and social development. In sum, patterns of involvement with peers during high school, especially among females, may be associated with identity search and predictive of identity formation.

Depression, loneliness, and problem behaviors. Douvan and Adelson (1966) state that, "once a girl begins to date, her interests change and she finds little to share with girlfriends who have not yet entered the dating phase" (p.215). Being out of sync with the majority of peers, as may occur in those with early or late reorganization of peer relationships, may leave adolescents feeling they do not have much in common with their female friends. For example, 73% of females in the average RT group in this study had a stable female friend throughout high school, yet the early RT group and the late RT group were less likely to have had stable female friends (63% and 52%, respectively). Changes in friendships may result in the reduced possibility of having confidants and companions of the same age and sex. In particular, little or very high levels of involvement with romantic partners accompanied by exceptional changes in female friendships or loss of these friendships may put adolescents at risk for a range of difficulties such as depression, loneliness, and problem behaviors.

There has been some evidence that this may occur. For example, support from friends has been found to be negatively related to depressed affect during the adolescent years and is particularly beneficial for those individuals who have high family stress (Aseltine, et al., 1994). Wright (1982) reported that individuals who began dating early (before age 14) had more alcohol use, drug use, and delinquent behavior, while those who began dating late (16 years or after) reported more suicidal thoughts. Others have also found that early and more frequent dating was associated with more alcohol and drug use (Thomas & Hsiu, 1993).

A future research goal will be to determine if patterns of involvement with friends and romantic partners, and tradeoffs or reorganization of these relationships improve our ability to predict positive or negative aspects of later functioning. Future research should investigate whether early reorganization of peer relationships is associated with earlier and increased use of alcohol and drugs. Future research should also examine if late reorganization of peer relationships is associated with depression and suicidal thoughts.

### Conclusion

This study expands the previous literature on romantic relationships. Overall, the majority of adolescents do add romantic partners to their social networks during adolescence, but this does not happen for all adolescents. Further, initiating and

developing romantic partnerships has potential benefits and difficulties, including the benefits of having new intimate friends and the difficulties of experiencing physical aggression. However, the one of the most important contributions of this study was the identification of the Relatedness Orientation Transition (RT) as a change in precedence of peer relationships. This conceptualization has implications for the definition of the developmental task of romantic relationships during adolescence and for future research examining this task.

#### The RT as a System Reorganization

The RT was an attempt to move from an approach that identifies links between a single individual developmental process and a behavioral outcome to a systems approach as proposed by Bronfenbrenner (1979) and Sameroff (1983). This systems approach includes analyzing the interrelationships between developmental factors or processes. The RT was conceptualized as the interrelationship between two changes in peer relationships. This may be a significant time of transition during adolescence when system-wide reorganization and developmental shifts occur as a result of changes in important existing parameters. The RT may be a time of developmental transition when individuals may be shifting from a stable mode of functioning to a new mode (Thelen, 1989).

The RT was proposed based on the assumption that the task of establishing romantic relationships is accomplished within a context consisting of other friendship relations. Yet, considering the development of romantic relationships and friendships at the same time does not suggest that friendships are just a background for the addition of a new form of relationship. Instead, it is proposed that friendship relationships are altered and managed when romantic partners are added, and that existing friendships can influence, shape, and aid how the development of romantic relationships will progress.

This study also suggests that the notion of the RT, in which the salience of relationships with romantic partners approaches the importance of relationships with same-sex friends, is useful in bringing clarity to the complexity of this transition. In this study, even a simple quantitative indicator was useful in identifying different patterns of negotiation between friends and partners, and in distinguishing between RT groups on social and individual characteristics. This study also suggests that a complete characterization of the RT includes a description of the individual characteristics of the female adolescents and their previous relationships with both other females and males, as well as the speed, rate, and importance of her involvement with romantic partners.

Friendships shape the development of romantic relationships. In the future, research should expressly focus on describing how existing friendships actually

shape adolescents entry into romantic relationships, patterns of involvement in romantic relationships, and exit from these relationships. In other words, how much do existing friendships serve as control parameters that drive the initiation of romantic relationships and the RT (Thelen, 1989)?

There are many specific questions that will need to be answered. Do existing friendships influence the rate or speed of entry into romantic relationships? Do existing high quality friendships help maintain higher quality romantic relationships? Does the actual or perceived absence or loss of friendship lead to premature entry into romantic relationships? Do friends help with the pragmatic tasks of engaging in romantic relationships such as support in times of break-ups? For some females, does the presence of high quality friendships slow the rate of involvement in romantic relationships, allow for selectivity when searching for potential partners, or allow adolescents to enter relationships when they are “ready?”

Romantic relationships shape the development of female friendships. Future research should also focus on how entry into romantic relationships changes friendship relations. As romantic relationships are initiated, friendships may change in multiple ways. Research should investigate whether involvement in romantic relationships reduces resources (time, support, etc.) available for friendships. Another focus could be on whether involvement in romantic

relationships changes the function of existing relationships. For example, do female friendships become more focused on discussing and supporting these romantic relationships? Additionally, research should investigate if establishing romantic relationships changes the way adolescents think about the nature of their existing friendships. Do the same characteristics define 'intimate' and 'close' friendships? For example, was time spent with friends a good indicator of close friendships prior to romantic relationships, but no longer an adequate indicator after romantic relationships emerge? Additionally, it will be important to investigate if adolescents select or end friendships based on differential interest in or access to romantic partners.

Reorganization of the peer system. It also must be recognized that the peer system that is in place at the start of the developmental task of romantic relationships may be changed or reorganized. Therefore, the final peer system may be qualitatively different from the earlier peer system after this task is completed. Individual peers, including friends and partners, and the entire peer mesosystem may change as this task is initiated and accomplished. This assertion may be difficult to address directly in future research, but it is a possibility that must be recognized. Additional attempts to understand some of these changes would be beneficial.

Active individuals. Future research should also note that active individuals are negotiating these processes. Early characteristics of individuals will influence how the developmental task of initiating and managing romantic relationships is accomplished. The individual will also be changed based upon how this task is negotiated. Further, this task can include feelings of stress for some individuals, but for others it may be easy and almost unnoticeable.

The RT as process. Further, research should examine whether the RT is a psychological process rather than an individual event. The change in precedence of peer relationships may occur over a longer period of time. A detailed look at this process will be very informative to our future understanding of the development of romantic relationships. For example, do adolescents 'practice' the RT in early romantic relationships? In early romantic relationships, do they feel that romantic relationships are most important (emotional precedence), but not really rely on them for support or companionship (behavioral precedence)? Conversely, do both the emotional and behavioral aspects of precedence of romantic relationships evolve over time? Is there a continuous re-adaptation of friendships as these new relationships evolve (e.g., are friendships modified or 'recalibrated') and are there qualities of friendships that would allow them to be modified or recalibrated without abandoning or losing these friendships? Are there particular ways that

adolescents have developed that allow them to add romantic partners while maintaining existing friendships?

Re-defining the developmental task of romantic relationships. Future goals of research depend on an acknowledgement by theorists and researchers of a new definition of the developmental task of romantic relationships during adolescence. This task should not be defined as the initiation and development of romantic relationships. Instead, it should be defined as the initiation and development of romantic relationships while managing, maintaining, and reorganizing existing close friendships. This definition may help to secure a more varied network of friends. More positive relationships with multiple individuals may allow adolescents more stability and flexibility in their current and future peer relationships.

Defining the task of development of romantic relationships in terms of interacting social systems makes it clear that it will often be even more difficult to determine what is an antecedent of the process, what is a concurrent process, and what is a consequence of the process. Yet, choosing to focus on the interrelationships of levels of social experience and changes in these social experiences will be important for better understanding of the rich experiences that combine to contribute to how romantic relationships and friendships develop, how active individuals influence these relationships, how relationships with others



influence individuals, and how experiences within a set of social interactions influence current and future social interactions. Therefore, this shift in focus is proposed as an initial step towards the construction of methods that could be used to investigate how different networks of relationships emerge and change, how adolescents manage the variety of relationships they have, and what consequences might follow from these complex experiences and their management.

In summary, female adolescents experience a range of changes and challenges within and between their peer relationships during high school. This study provides some evidence that the onset of romantic relationships and patterns of involvement in romantic relationships and best female friendships during high school are far from universal. These different patterns result in three groups of adolescent females who have different amounts of involvement with best female friends and romantic partners during high school and who, potentially, reorganize their peer relationships at varied times during or after high school. These patterns of involvement with peers and the resulting changes in precedence of peer relationships are predicted by peer social network characteristics and individual characteristics and have some implications for quality of peer relationships in later adolescence. Enhanced understanding of changes in precedence and reorganization of peer relationships, including the successes and challenges that come with managing these changes, may have important implications for understanding future

social and individual development, and help us identify additional sources of risk and resilience during adolescence and into early adulthood.

Table 1. Summary of Measures

Construct	Number of items
Trajectory of leisure spent with best female friends	8
Intercept of curve	estimated
Slope of curve	estimated
Trajectory of leisure spent with romantic partners	8
Intercept of curve	estimated
Slope of curve	estimated
Timing of relatedness orientation transition	estimated
Female and male social network	
Number of female friends in grade 9	2
Number of male friends in grade 9	2
Stable female friendship*	8
Popularity with females in grade 9 and 12	2
Popularity with males in grade 9 and 12	2
Dating and romantic relationship history	
Number of steady relationships	not fixed
Months in steady relationships	not fixed
Older boyfriend*	not fixed
Timing of first date (age)	1
Timing of first steady boyfriend (age)	1
Work history*	8
Activity history (sports, clubs, etc.)*	8
Individual characteristics	
Timing of first menstrual period (early, on-time or late)	1
Physical appearance	1
Attractiveness	
Self-perceived attractiveness in grade 9 and 12	2
Observer rating of attractiveness	1

Table 1. Summary of measures, continued

Construct	Number of items
Networks of Relationships Inventory - quality of peer relationships	36
Positive quality	24
Reliable alliance	3
Enhancement of worth	3
Affection	3
Companionship	3
Instrumental aid	3
Intimacy	3
Nurturance	3
Negative interactions	9
Conflict	3
Punishment	3
Antagonism	3
Satisfaction	3
Relative power	3
Conflicts Tactics Scale -aggression by romantic partners	
Verbal aggression	6
Minor physical aggression	3
Severe physical aggression	6
Psychological Maltreatment Inventory - maltreatment by romantic partners	40
Isolation and emotional control	13
Self-esteem erosion	9
Jealousy	7
Verbal abuse	5
Withdrawal	6

\* Item will be coded binary indicating yes or no.

Table 2. Characteristics and Histories of Participants

Characteristic	Mean (SD)	N (%)
Age	18.2 (0.7)	
Activities		
Paid employment		70 (69%)
Participated in school activities		78 (77%)
Parent's set a minimum dating age		33 (33%)
Dating age was set at 16 years		30 (91%)
Met parent's standard		8 (24%)
Dating history and history of steady romantic relationships		
Age of dating onset	14.7 (1.5)	
Age of onset of first steady relationship <sup>a</sup>	14.7 (1.8)	
Number of romantic partners	3.7 (2.5)	
Never dated		1 (1%)
Never had a steady romantic partner		6 (6%)
Total months involved in steady relationships	25.9 (18.6)	
Average age of steady romantic partners	17.5 (1.8)	
Number having an older romantic partner <sup>b</sup>		25 (25%)
Current steady romantic relationships		
Number involved in current steady romantic relationships		58 (57%)
Length of current romantic relationship, months	13.8 (11.0)	
Length of current steady relationship 1 year or more		30 (52%)
Current very best female friendship		
Have a current very best female friendship		99 (97%)
Length of current best female friendship, months	59.4 (46.6)	
History of friendships with females and males		
Stable female best friend throughout high school		62 (65%)
Average number of female friends during high school	3.0 (1.8)	
Average number of male friends during high school, on a	2.8 (2.7)	
Average number of female friends in grade 9	3.0 (2.4)	
Average number of male friends in grade 9	2.3 (3.5)	
Menstruation and maturation		
Age of onset of menstruation, years <sup>c</sup>	12.8 (1.4)	
Early menstruation (less than 12 years of age)		27 (27%)
Late menstruation (after 14 years of age)		21 (21%)

Table 2. Characteristics and Histories of Participants, continued

Characteristic	Mean (SD)	N (%)
Mature appearance rating, 9th grade <sup>d</sup>	3.1 (1.1)	
"Much older" looking than 9th grade female peers		10 (10%)
"Much younger" looking than 9th grade female peers		13 (13%)
Attractiveness <sup>d</sup>		
Self perceived attractiveness, grade 9	2.6 (0.9)	
"Much more" attractive		2 (2%)
"Much less" attractive		13 (13%)
Self perceived attractiveness, grade 12	3.1 (0.8)	
"Much more" attractive		5 (5%)
"Much less" attractive		3 (3%)
Popularity <sup>d</sup>		
Popularity with females, grade 9	2.8 (1.0)	
"Much more" popular		6 (6%)
"Much less" popular		11 (11%)
Popularity with females, grade 12	3.1 (1.0)	
"Much more" popular		5 (5%)
"Much less" popular		9 (9%)
Popularity with males, grade 9	2.7 (1.3)	
"Much more" popular		9 (9%)
"Much less" popular		23 (23%)
Popularity with males, grade 12	3.2 (1.1)	
"Much more" popular		13 (13%)
"Much less" popular		7 (7%)

N ranged from 48 (for information about the current partner) to 102.

<sup>a</sup>1 participant reported a first steady romantic partner at 7 years of age. 47% of participants reported simultaneous onset of dating and the first steady relationship.

<sup>b</sup>partner greater than 17 years of age in grade 9, greater than 18 in grade 10, greater than 19 in grade 11 or greater than 20 in grade 12.

<sup>c</sup>Calculated from estimated month and year of first menstruation and date of birth.

<sup>d</sup>1=Much less, 2=Sort of less, 3=About the same, 4=Sort of more, 5=Much more.

Table 3. Reliability of The Network of Relationships Inventory Subscales

Construct	Reliability coefficients	
	Best female Friendship (current)	Romantic Partners (current or most recent past)
Companionship	.84	.81
Instrumental aid	.67	.84
Intimacy	.90	.92
Nurturance	.78	.82
Affection	.88	.94
Admiration	.64	.83
Reliable alliance	.92	.94
Positive qualities <sup>a</sup>	.89	.94

Note.  $N=99$  for female friendships.  $N=93$  for romantic partners.

<sup>a</sup>Includes all subscales listed.

Table 4. Correlations between the Networks of Relationships Inventory  
Subscales Completed about Very Best Female Friends

Positive qualities	1	2	3	4	5	6
1. Companionship	1.00					
2. Instrumental aid	.30**	1.00				
3. Intimacy	.21*	.44***	1.00			
4. Nurturance	.39***	.36***	.50***	1.00		
5. Affection	.14	.14	.40***	.39***	1.00	
6. Reliable allianc	.19	.30**	.35***	.28**	.60***	1.00
7. Admiration	.04	.23*	.33***	.31**	.66***	.54***

N=100.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



Table 5. Correlations between the Networks of Relationships Inventory  
Subscales Completed about Most Recent Steady Romantic Partners

Positive qualities	1	2	3	4	5	6
1. Companionship	1.00					
2. Instrumental aid	.59***	1.00				
3. Intimacy	.51***	.54***	1.00			
4. Nurturance	.56***	.56***	.57***	1.00		
5. Affection	.52***	.42***	.62***	.60***	1.00	
6. Reliable allianc	.49***	.40***	.57***	.49***	.70***	1.00
7. Admiration	.39***	.34***	.56***	.46***	.74***	.47***

N=94.

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

Table 6. Reliability of the Subscales of the Psychological Maltreatment Inventory and the Conflict Tactics Scale

Construct	Reliability coefficients	
	All past romantic partners	Current or most recent past romantic partners
<b>Conflict Tactics Scale</b>		
Verbal aggression (6 items)	.88	.66
Physical aggression (8 items)	.82	.57
<b>Psychological Maltreatment Inventory</b>		
Isolation/emotional control (13 items)	.91	.92
Jealousy (7 items)	.86	.83

Note.  $N=94$  for current or most recent past partners.  $N=81$  for all past partners.

Table 7. Correlations between Subscales of the Conflict Tactics Scale Completed about Most Recent Romantic Partners

	1	2	3	4
1. Verbal aggression	1.00			
2. Minor physical aggression	.55**	1.00		
3. Severe physical aggression	.31**	.52**	1.00	
4. Minor or severe physical aggression	.54**	-	-	1.00

N=94.

\*\* $p < .01$ . \*\*\* $p < .001$ .

Table 8. Mean Qualities of Very Best Female Friends and Romantic Partners

Characteristic	Mean (SD) or %
<b>Positive Qualities in Relationships<sup>a</sup></b>	
Current very best female friend	3.6 (0.6)
Current or most recent past romantic partner	3.4 (0.9)
Current romantic partner only	3.7 (0.7)
<b>Negative Qualities of Romantic Relationships</b>	
<b>Verbal aggression<sup>b</sup></b>	
Current or most recent past romantic partner	1.0 (1.1)
Current romantic partner only	1.0 (1.1)
All past partners combined	2.2 (2.0)
<b>Physical aggression (yes or no)<sup>b</sup></b>	
Yes by the current or most recent past romantic partner	18%
Yes by the current romantic partner only	21%
Yes by some past partner or partners	37%
<b>Isolation<sup>c</sup></b>	
Current or most recent past romantic partner	0.2 (0.5)
Current romantic partner only	0.1 (0.2)
All past partners combined	0.5 (0.6)
<b>Jealousy<sup>c</sup></b>	
Current or most recent past romantic partner	1.0 (1.0)
Current romantic partner only	0.9 (0.9)
All past partners combined	1.5 (1.1)

$n=99$  for current best female friend.  $n=94$  for current or most recent past romantic partners.  $n=58$  for current romantic partners.  $n=89$  for all past romantic partners.

<sup>a</sup>Positive qualities were measured with The Networks of Relationship Inventory (NRI, Furman & Buhrmester, 1985). Scores range from 1 to 5.

<sup>b</sup>The Conflicts Tactics Scale (CTS; Straus, 1979) measured verbal and physical aggression. Verbal aggression scores range from 0 to 6.

Physical aggression was coded 1 if any experience was reported and 0 otherwise.

<sup>c</sup>Measured with the Psychological Maltreatment Inventory a modified version of the Psychological Maltreatment of Women Scale (Kasian & Painter, 1992).

Isolation and Jealousy are two subscales of the Inventory. Scores range from 0 to 5.

Table 9. Correlations between Measures of Time Spent with Peers

Time Spent (0-100)	Friends- Homes	Friends- Out	Friends- Phone	Partner- Home	Partner- Out	Partner- Phone
<i>9th Fall (N=102)</i>						
Best female friend(s)	.80**	.69***	.65**	.08	.06	.08
Romantic partner (n=35)	.10	.13	.10	.92**	.84**	.68***
<i>9th Spring (N=102)</i>						
Best female friend(s)	.76**	.75**	.51**	-.13	-.03	.01
Romantic partner (n=42)	-.01	.00	.24*	.87**	.82**	.76***
<i>10th Fall (N=101)</i>						
Best female friend(s)	.74***	.67**	.58**	-.13	-.07	-.02
Romantic partner (n=45)	-.03	.01	.15	.92**	.88**	.84***
<i>10th Spring (N=100)</i>						
Best female friend(s)	.77**	.72**	.63**	-.08	-.07	-.03
Romantic partner (n=49)	.06	.08	.17	.89**	.90**	.80***
<i>11th Fall (N=98)</i>						
Best female friend(s)	.70**	.72**	.54**	-.21*	-.12	-.15
Romantic partner (n=43)	-.19	-.10	.11	.86**	.89**	.83***
<i>11th Spring (n=98)</i>						
Best female friend(s)	.66**	.60**	.49**	-.26*	-.26*	-.21*
Romantic partner (n=50)	-.14	.00	-.07	.91**	.88**	.82***
<i>12th Fall (n=98)</i>						
Best female friend(s)	.73**	.65**	.51**	.01	.03	-.01
Romantic partner (n=58)	-.08	-.09	-.16	.86**	.81**	.77***
<i>12th Spring (n=98)</i>						
Best female friend(s)	.67**	.65**	.57**	-.27**	-.29**	-.21*
Romantic partner (n=62)	-.24*	-.25*	-.09	.85**	.83**	.77***

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 10. Final Hierarchical Linear Model Results Predicting Time Spent with Social Network Members

Dependent Variable: Repeated Measures of Time Spent with Best Female Friends During HS

	Unique estimate	SE (unique estimate)	F
Intercept	55.13	3.02	-
Time of measurement	-0.66	0.49	1.84

Dependent Variable: Repeated Measures of Time Spent with Romantic Partners During HS

	Unique estimate	SE (unique estimate)	F
Intercept	16.04	2.56	-
Time of measurement	2.80	0.54	26.41***

Dependent Variable: Repeated Measures of Time Spent Alone During HS

	Unique estimate	SE (unique estimate)	F
Intercept	26.32	2.21	-
Time of measurement	-0.05	0.32	0.02

Table 10. Final Hierarchical Linear Model Results Predicting Time Spent with Social Network Members, continued

Dependent Variable: Repeated Measures of Time Spent with Family During HS

	Unique estimate	SE (unique estimate)	F
Intercept	32.33	2.27	-
Time of measurement	-2.14	0.63	11.64**
Time squared (quadratic shape)	0.21	0.08	6.91**

Dependent Variable: Repeated Measures of Time Spent with Peer Groups During HS

	Unique estimate	SE (unique estimate)	F
Intercept	42.32	3.01	-
Time of measurement	-3.43	0.97	12.49***
Time squared (quadratic shape)	0.48	0.12	15.02***

Note. Time of measurement coded 0 to 7 where 0=fall of 9th grade and 7=spring of 12th grade.

HS=High School.

\*\* $p < .01$ . \*\*\* $p < .001$ .

Table 11. Average Time Spent with Members of the Social Network or Alone during High School

		Mean (SD)							
		Grade 9, Fall	Grade 9, Spring	Grade 10, Fall	Grade 10, Spring	Grade 11, Fall	Grade 11, Spring	Grade 12, Fall	Grade 12, Spring
<b>Group of Peers</b>									
	Observed	55.7 (31.3)	55.9 (29.8)	52.4 (30.8)	52.4 (31.0)	53.3 (30.5)	51.1 (28.4)	51.4 (28.6)	51.5 (28.0)
	Estimated	55.1 (25.7)	54.5 (23.6)	53.8 (21.9)	53.1 (20.4)	52.5 (19.3)	51.8 (18.7)	51.2 (18.6)	50.5 (19.0)
<b>Group of Peers</b>									
	Observed	13.9 (24.6)	20.2 (30.2)	22.7 (31.9)	27.1 (33.2)	25.6 (34.0)	28.2 (33.7)	32.7 (35.9)	36.5 (36.4)
	Estimated	16.0 (16.5)	18.8 (16.2)	21.6 (16.4)	24.4 (17.0)	27.2 (18.1)	30.0 (19.5)	32.8 (21.2)	35.6 (23.2)
<b>Group of Peers</b>									
	Observed	26.8 (22.2)	24.5 (20.6)	26.5 (23.1)	26.7 (24.3)	26.3 (22.4)	26.1 (21.7)	27.3 (23.0)	24.6 (19.7)
	Estimated	26.3 (19.9)	26.3 (18.9)	26.2 (18.1)	26.2 (17.5)	26.1 (17.2)	26.1 (17.2)	26.0 (17.5)	26.0 (18.0)
<b>Group of Peers</b>									
	Observed	32.6 (24.0)	30.5 (23.3)	28.3 (21.6)	28.1 (21.0)	27.8 (20.8)	28.0 (24.1)	27.6 (23.8)	27.6 (22.1)
	Estimated	32.3 (20.3)	30.4 (19.7)	28.9 (19.3)	27.8 (19.0)	27.2 (19.0)	26.9 (19.1)	27.1 (19.3)	27.7 (19.7)
<b>Group of Peers</b>									
	Observed	41.3 (31.0)	40.6 (29.2)	38.8 (29.9)	35.1 (29.0)	35.7 (28.4)	37.1 (26.6)	39.3 (28.8)	42.0 (26.8)
	Estimated	42.3 (25.6)	39.4 (24.2)	37.4 (23.0)	36.4 (22.1)	36.3 (21.5)	37.3 (21.2)	39.2 (21.4)	42.0 (21.8)

Note. Time spent was estimated on a scale from 0 to 100 where 0=no time at all and 100=every minute of free time.



Table 12. Average Estimated Intercepts and Slopes of Trajectories of Time Spent with Social Network Members or Alone during High School

Time Spent With	Mean (SD)	
	Intercept (fall of grade 9)	Slope (linear rate of change from fall of grade 9 to spring of grade 12)
Best Female Friends	55.13 (11.01)	-0.66 (2.36)
Romantic Partners	16.04 (11.92)	2.80 (2.72)
Alone	26.30 (6.97)	-0.05 (1.53)
Family	32.33 (6.19)	-2.14 (1.33)
Group of Peers	42.32 (9.43)	-3.43 (2.04)

Table 13. Correlations between Estimated Intercept and Slopes of Trajectories of Time Spent with Social Network Members or Alone during High School

	1	2	3	4	5	6	7
1. Best female friends intercept	1.00						
2. Best female friends slope	-.69***	1.00					
3. Romantic partners intercept	.13	-.13	1.00				
4. Romantic partners slope	.23*	-.17	-.20**	1.00			
5. Alone intercept	-.19	.24*	-.30**	.05	1.00		
6. Alone slope	.20*	-.32**	.17	-.36***	-.51***	1.00	
7. Family intercept	.00	.09	-.16	.26**	.50***	-.24*	1.00
8. Family slope	.24*	-.29**	.21*	-.25*	-.34***	.49***	-.36***
9. Group intercept	.56***	-.30**	-.02	.25*	.05	.09	.22*
10. Group slope	-.26**	.35***	.00	.05	-.03	-.35***	-.16
11. Average time with best female friends <sup>a</sup>	.91***	-.33**	.10	.20*	-.12	.08	.05
12. Average time alone	-.13	.14	-.27**	-.10	.92***	-.13	.46***

Table 13. Correlations Between Estimated Intercept and Slopes of Trajectories of Time Spent with Social Network Members or Alone during High School, continued

	8	9	10	11	12
1. Best female friends intercept					
2. Best female friends slope					
3. Romantic partners intercept					
4. Romantic partners slope					
5. Alone intercept					
6. Alone slope					
7. Family intercept					
8. Family slope	1.00				
9. Group intercept	.18	1.00			
10. Group slope	-.31**	-.56***	1.00		
11. Average time with best female friends <sup>a</sup>	.15	.56***	-.14	1.00	
12. Average time alone	-.17	.10	-.18	-.10	1.00

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

<sup>a</sup>ambient level

Table 14. Correlations between Characteristics of Dating and Romantic Relationships, Peer Social Networks, and Individuals

	Dating and steady romantic relationships					Female peer social network				
	1	2	3	4	5	6	7	8	9	10
<b>Dating and steady romantic relationships</b>										
1. Timing of the onset of dating	1.00									
2. Time spent with romantic partners, grade 9	-.34***	1.00								
3. Total number of steady romantic rels	-.40***	.40***	1.00							
4. Total months involved in steady romantic rels	-.39***	.58***	.58***	1.00						
5. At least one older steady romantic partner	-.21*	.15	.19	.25*	1.00					
<b>Female peer social network</b>										
6. Stable female friend throughout high school	.07	.09	.04	.10	.11	1.00				
7. Time spent with best female friends, grade 9	-.04	.09	.02	.10	.19	.17	1.00			
8. Number of best female friends, grade 9	-.10	.04	.08	.16	.29**	.38**	.37***	1.00		
9. Popularity with females, grade 9	-.28**	.33***	.22*	.33*	.31**	.13	.16	.26**	1.00	
10. Popularity with females, grade 12	-.14	.15	.03	.17	.08	.10	.08	.11	.11	1.00
<b>Male peer social network</b>										
11. Number of male friends, grade 9	-.09	.19	.04	.32**	.08	.20*	.22*	.42***	.18	.18
12. Popularity with males, grade 9	-.23*	.41***	.32**	.39**	.25*	-.04	.20*	.25*	.52***	.18
13. Popularity with males, grade 12	-.10	.14	.23*	.28**	.17	-.11	.13	.17	.10	.42***
<b>Individual characteristics</b>										
14. Mature appearance	-.04	.18	.11	.14	.32***	.21*	.28**	.22*	.08	.12
15. Self-perceived attractiveness, grade 9	-.23*	.26**	.28**	.25*	.27**	.03	.02	.17	.44***	.15
16. Self-perceived attractiveness, grade 12	-.07	.20*	.26**	.32**	.10	.01	.07	.08	.16	.18

Table 14. Correlations Between Characteristics of Dating and Romantic Relationships, Peer Social Networks, and Individuals, continued

	Male peer social network			Individual characteristics	
	11	12	13	14	15
<b>Dating and steady romantic relationships</b>					
1. Timing of the onset of dating					
2. Time spent with romantic partners, grade 9					
3. Total number of steady romantic rels					
4. Total months involved in steady romantic rels					
5. At least one older steady romantic partner					
<b>Female peer social network</b>					
6. Stable female friend throughout high school					
7. Time spent with best female friends, grade 9					
8. Number of best female friends, grade 9					
9. Popularity with females, grade 9					
10. Popularity with females, grade 12					
<b>Male peer social network</b>					
11. Number of male friends, grade 9	1.00				
12. Popularity with males, grade 9	.25*	1.00			
13. Popularity with males, grade 12	.29**	.38***	1.00		
<b>Individual characteristics</b>					
14. Mature appearance	.16	.27**	.17	1.00	
15. Self-perceived attractiveness, grade 9	.06	.52***	.25*	.29**	1.00
16. Self-perceived attractiveness, grade 12	.11	.31**	.31**	.22*	.43***

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

Table 15. Correlations between Concurrent Reports of Time Spent with Network Members and Alone during High School

Time spent with	Grade								9	10	11	12
	9, fall	9, spr	10, fall	10, spr	11, fall	11, spr	12, fall	12, spr				
Best Female Friends & Romantic partners	.13	-.02	-.04	-.01	-.09	-.15	.00	-.17†	.09	.02	-.04	.00
Best Female Friends & Alone	-.30**	-.32**	-.14	-.25*	-.13	-.01	-.18†	-.05	-.31**	-.15	-.03	-.14
Best Female Friends & Groups of peers	.46***	.57***	.61***	.54***	.53***	.42***	.40***	.41***	.57***	.59***	.52***	.46***
Romantic partners & Alone	-.14	-.20*	-.24*	-.35**	-.45**	-.48**	-.25*	-.13	-.15	-.32**	-.50**	-.20*
Romantic partners & Groups of peers	-.01	.01	-.13	-.03	.00	.06	.08	.22*	-.02	-.08	.09	.26*
Alone & Groups of peers	-.02	-.09	.10	-.11	-.03	-.09	-.20*	-.13	-.04	.06	-.07	-.16

†p<.10. \*p<.05. \*\*p<.01. \*\*\*p<.001.

Table 16. Comparisons of Average Time Spent with Best Female Friends  
by Female Adolescents with and without Romantic Partners  
during High School

Time of Measurement	Mean (SE) of Time Spent with Best Female Friends		F
	Females with a romantic partner	Females without a romantic partner	
Grade 9			
Fall	60.0 (5.3)	53.4 (3.8)	1.01
Spring	54.0 (4.6)	57.3 (3.9)	0.31
Grade 10			
Fall	51.2 (4.6)	53.3 (4.1)	0.11
Spring	48.3 (4.4)	56.3 (4.3)	1.70
Grade 11			
Fall	46.8 (4.6)	58.3 (4.1)	3.52†
Spring	44.9 (3.9)	57.4 (4.0)	4.97*
Grade 12			
Fall	50.2 (3.8)	53.0 (4.4)	0.25
Spring	44.6 (3.4)	62.7 (4.3)	10.77**

† $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

Table 17. Results of Random Effects Mixed Models of the Association between Time Spent with Romantic Partners and Time Spent with Best Female Friends During High School

Independent variables	Unique estimate	SE (unique estimate)	F
Intercept	56.54	3.21	-
Time of measurement	0.52	0.56	0.87
Time spent with romantic partners	-0.12	0.05	4.79*
Interaction: Time of measurement X Time spent with romantic partners	-0.02	0.01	4.55*

Note. The dependent variable was time spent with best female friends during high school.

\* $p < .05$ .



Table 18. Results of Multiple Linear Regressions Assessing the Association between Trajectories of Time Spent with Best Female Friends and Time Spent with Romantic Partners during High School with the Relatedness Orientation Transition

Independent variables	$\beta$	t
Average time spent with best female friends during HS	0.37	5.60***
Slope of time spent with romantic partners during HS	-0.22	-3.32**
Intercept of time spent with romantic partners	-0.75	-11.42***

Note. The dependent variable was the time of the Relatedness Orientation Transition coded from 1 to 9 where 1=fall of 9th grade, 2=spring of 9th grade, ..., and 9=noRelatedness Orientation Transition during high school.

Model  $R^2=.60$ ,  $F=48.8$ ,  $p < .0001$

HS=High school.

\*\* $p < .01$ . \*\*\* $p < .001$ .

Table 19. Results of Random Effects Mixed Models Assessing the Association between the Timing of the Relatedness Orientation Transition and Time Spent with Best Female Friends during High School

Independent variables	Unique estimate	SE (unique estimate)	F	t
Intercept	54.14	5.41	-	
Time of measurement	0.74	0.85	1.21	
Relatedness Orientation Transition			2.88†	
Early	-11.09	8.39		-1.32
Average	6.78	6.67		1.02
Late	Comparison group			
Interactions: Relatedness Orientation Transition			2.49†	
Early X Time of measurement	-1.49	1.32		-1.13
Average X Time of measurement	-2.32	1.04		-2.23*
Late X Time of measurement	Comparison group			

Note. The dependent variable in both models was repeated measures of time spent with best female friends during high school. †p<.10. \*p<.05.

Table 20. Results of Random Effects Mixed Models Assessing the Association between the Timing of the Relatedness Orientation Transition and Time Spent with Romantic Partners during High School

Independent variables	Unique estimate	SE (unique estimate)	F	t
Intercept	5.03	3.27	-	
Time of measurement	0.88	0.79	10.56**	
Relatedness Orientation Transition			49.76***	
Early	45.02	5.07		8.89**
Average	3.19	4.03		0.79
Late	Comparison group			
Interactions: Relatedness Orientation Transition			32.52***	
Early X Time of measurement	-3.23	1.24		-2.61*
Average X Time of measurement	5.03	0.97		5.17***
Late X Time of measurement	Comparison group			

Note. The dependent variable in both models was repeated measures of time spent with romantic partners during high school. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 21. Correlations Between Estimated Slopes of Trajectories of Time Spent with Romantic Partners, Characteristics of Dating and Romantic Relationships, Peer Social Networks, and Individuals

	Slope of trajectories of time spent with romantic partners
<i>Associations predicted in Hypothesis 3</i>	
Characteristics of dating and steady relationships	
Timing of the onset of dating	.08
At least one older romantic partner	.31**
Characteristics of the female peer social network	
Number of female friends, grade 9	.20*
Time spent with best female friends, grade 9	.17
Popularity with females, grade 9	.01
Characteristics of the male peer social network	
Number of male friends, grade 9	.28**
Popularity with males, grade 9	.00
Individual characteristics	
Physical maturity compared to peers, grade 9	.01
Attractiveness, grade 9	.00
<i>Additional associations explored</i>	
Characteristics of dating and steady relationships	
Number of romantic partners	.39***
Months involved in romantic relationships	.69***
Characteristics of the female peer social network	
Stable friendship	.00

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

$N$  ranges from 96 to 102.

Table 22. Final Results of Multiple Linear Regressions of the Association between Characteristics of Dating and Romantic Relationships, Peer Social Networks, Individuals, and Slopes of the Trajectories of Time Spent with Romantic Partners during High School

Independent variables	$\beta$	t
At least one older romantic partner	0.27	2.94**
Number of male friends in 9th grade	0.38	4.07***
Intercepts of trajectories of time spent with romantic partners	-0.40	-4.09

Note. The dependent variable was the estimated slopes of the trajectories of time spent with romantic partners during high school obtained from random effects mixed modeling using SAS PROC MIXED (SAS Institute, Cary, NC).

Timing of the onset of dating, the number of best female friends in grade 9, time spent with best female friends in grade 9, having at least 1 stable female friendship throughout high school, popularity with females in grade 9, popularity in males in grade 9, maturity of physical appearance, and self-perceived attractiveness in grade 9 were not associated with the dependent variable.

Model  $R^2=.23$ ,  $F=10.0$ ,  $p < .0001$

\*\* $p < .01$ . \*\*\* $p < .001$ .

Table 23. Correlations between the Ambient Level of Time Spent with Best Female Friends during High School, and Characteristics of Dating and Romantic Relationships, Peer Social Networks, and Individuals

	Ambient level of time spent with best female friends
<i>Associations predicted in Hypothesis 4</i>	
Characteristics of dating and steady relationships	
Timing of the onset of dating	.03
Time spent with romantic partners, grade 9	.04
Characteristics of the female peer social network	
Number of female friends, grade 9	.35***
Stable female friendship throughout high school	.16
Popularity with females, grade 9	.07
Characteristics of the male peer social network	
Number of male friends, grade 9	.22*
Popularity with males, grade 9	.14
<i>Additional associations explored</i>	
Characteristics of dating and steady relationships	
Number of romantic partners	-.06
Months involved in romantic relationships	.03
At least one older romantic partner	.11
Individual characteristics	
Physical maturity compared to peers, grade 9	.30**
Self-perceived attractiveness, grade 9	.03

Note. The ambient level of the amount of leisure time spent with best female friends during high school was the average of the 8 estimates of the time spent with best female friends.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .  $N$  ranged from 96 to 102.

Table 24. Final Results of Multiple Linear Regressions of the Association between Characteristics of Dating and Romantic Relationships, Peer Social Networks, and Individuals, and the Ambient Level of Time Spent with Best Female Friends during High School

Independent variables	$\beta$	t
Number of best female friends in 9th grade	0.30	3.18**
Physical maturity in 9th grade compared to other 9th grade females	0.24	2.53*

Note. The dependent variable was the average of the 8 reports of time spent with best female friends.

Timing of the onset of dating, time spent with romantic partners in grade 9, having at least 1 older romantic partner, having at least 1 stable female friendships throughout high school, popularity with females in grade 9, the number of male friends in grade 9, popularity in males in grade 9, and self-perceived attractiveness in grade 9 were not associated with the dependent variable.

Model  $R^2=.18$ ,  $F=10.57$ ,  $p < .0001$

\* $p < .05$ . \*\* $p < .01$ .

Table 25. Correlations between the Relatedness Orientation Transition, Characteristics of Dating and Romantic Relationships, Peer Social Networks, and Individuals

	Timing of the Relatedness Orientation Transition
Characteristics of dating and romantic relationships	
Timing of the onset of dating	.35***
Number of romantic partners	-.44***
Months involved in romantic relationships	-.63***
Having at least one older romantic partner	-.19
Characteristics of the female peer social network	
Number of female friends, grade 9	-.02
Stable female friendship during high school	-.13
Popularity with females, grade 9	-.33***
Characteristics of the male peer social network	
Number of male friends, grade 9	-.22*
Popularity with males, grade 9	-.33***
Individual characteristics	
Physical maturity compared to peers, grade 9	-.18
Self-perceived attractiveness, grade 9	-.24*

\* $p < .05$ . \*\*\* $p < .001$

N ranged from 96 to 102.

Note. The timing of the Relatedness Orientation Transition was coded 0 if it occurred in fall of grade 9, 1 if it occurred in spring of grade 9, ..., 8 if it occurred in spring of grade 12, and 9 if there was no Relatedness Orientation Transition during high school.



Table 26. Final Results of Multiple Linear Regressions of the Association between Characteristics of Dating and Romantic Relationships, Peer Social Networks, Individuals, and the Timing of the Relatedness Orientation Transition

Independent variables	$\beta$	t
Popularity with females in grade 9	-0.24	-2.22*
Number of male friends in 9th grade	-0.21	-2.00*
Popularity with males in grade 9	-0.19	-1.75†
Number of female friends in 9th grade	0.18	1.71†

Note. The dependent variable was the timing of the Relatedness Orientation Transition. The timing of the Relatedness Orientation Transition was coded 0 if it occurred in fall of grade 9, 1 if it occurred in spring of grade 9, ..., 8 if it occurred spring of grade 12, and 9 if there was no Relatedness Orientation Transition during high school. Timing of the onset of dating, having at least 1 stable female friendship throughout high school, maturity of physical appearance, and self-perceived attractiveness in grade 9 were not associated with the dependent variable.

Model  $R^2=.19$ ,  $F=5.5$ ,  $p < .001$

† $p < .10$ . \* $p < .05$ .

Table 27. Correlations between the Qualities of Current Very Best  
Female Friends and Most Recent Romantic Partners

Romantic partner qualities	Positive qualities - very best female friend
Positive qualities	.03
Verbal aggression	-.15
Physical aggression	-.07
Isolation	-.11
Jealousy	-.14

N ranges from 93 to 100.

Table 28. Intercorrelations between Networks of Relationships Inventory Subscales Completed about Current Very Best Female Friends and Most Recent Romantic Partners

Very best female friendship Positive qualities	Positive qualities of romantic partner							Negative qualities of romantic partner			
	1	2	3	4	5	6	7	Verbal aggression	Physical aggression	Isolation	Jealousy
1. Companionship	-.09	-.11	-.14	.07	-.05	-.19	-.02	-.06	-.11	-.14	.03
2. Instrumental aid	.03	.02	-.05	.10	-.21*	-.16	-.05	-.04	-.05	-.02	-.10
3. Intimacy	-.06	-.01	.10	.08	-.07	-.08	.08	.01	.03	.05	-.09
4. Nurturance	.06	.06	.10	.27*	-.10	-.09	.11	-.11	-.08	-.02	-.16
5. Affection	.07	.03	.21*	.15	.26*	.06	.29**	-.07	.04	-.05	-.02
6. Reliable alliance	-.10	-.09	.06	-.05	.02	.05	.11	-.21*	-.09	-.14	-.11
7. Admiration	.07	.02	.08	.11	.19	-.04	.35**	-.23*	-.03	-.18	.02

N=94.

\*p<.05. \*\*p<.01.

Table 29. Correlations between Trajectories of Time Spent with Social Network Members, and Qualities of Peer Relationships

	Time Spent with Romantic Partners		Time Spent with Best Female Friends
	Intercept	Slope	Ambient level
<i>Positive Qualities of peer relationships</i>			
Current female friendship		.10	.18
Most recent romantic partner		.27**	.10
<i>Negative qualities of most recent romantic partner</i>			
Verbal aggression		.13	-.10
Physical aggression		.25*	-.10
Isolation		-.07	-.10
Jealousy		.09	.01
<i>Negative qualities of past romantic partner or partners</i>			
Verbal aggression	.20		
Physical aggression	.26*		
Isolation	.12		
Jealousy	.26*		

Note. The ambient level was the average of the 8 estimates of time spent.

\* $p < .05$ . \*\* $p < .01$ .

N ranged from 89 to 100.

Table 30. Correlations between the Timing of the Relatedness Orientation Transition, and Qualities of Peer Relationships

	Timing of the Relatedness Orientation Transition
<i>Positive Qualities of peer relationships</i>	
Current female friendship	.01
Most recent romantic partner	-.21*
<i>Negative qualities of most recent romantic partner</i>	
Verbal aggression	-.15
Physical aggression	-.12
Isolation	.06
Jealousy	-.17
<i>Negative qualities of past romantic partner or partners</i>	
Verbal aggression	-.26*
Physical aggression	-.21*
Isolation	-.07
Jealousy	-.28**

\* $p < .05$ .

$N$  ranged from 89 to 100.

Table 31. Results of Comparisons of the Qualities of Peer Relationships, and Social and Individual Characteristics between Groups of Females with and without Experience with Physical Aggression in Romantic Relationships

Characteristic	Mean (SE)		F or $\chi^2$
	No Experience with physical aggression in romantic relationships	Experience with physical aggression in romantic relationships	
<i>N</i>	51	44	
Negative qualities of past romantic partners			
Verbal aggression	1.4 (0.2)	3.2 (0.3)	25.5***
Isolation	0.2 (0.1)	0.9 (0.1)	35.1***
Jealousy	1.0 (0.1)	2.1 (0.2)	26.8***
Characteristics of dating and romantic relationships			
Timing of the onset of dating	2.0 (0.1)	1.8 (0.1)	2.9†
Months involved with romantic partners	22.1 (2.4)	34.9 (2.5)	13.7***
Timing of the Relatedness Orientation Transition	5.8 (0.4)	4.8 (0.4)	3.1†

*N*=94. † $p < .10$ . \*\*\* $p < .001$ .

Table 32. Results of Comparisons of the Qualities of Peer Relationships, and Social and Individual Characteristics between Groups of Females Stratified by the Ambient Levels of Time Spent with Peers during High School

	Mean (SE)				F or $\chi^2$
	Low time with friends/Low time with partners	High time with friends/Low time with partners	Low time with friends/High time with partners	High time with friends/High time with partners	
<i>N</i>	31	21	20	30	
<i>Average ambient level of time spent with best female friends</i>	34.5 (2.2)	72.1 (2.7)	34.7 (2.8)	70.9 (2.3)	
<i>Average ambient level of time spent with most recent romantic partners</i>	10.0 (2.2)	8.1 (2.7)	38.6 (2.8)	46.1 (2.3)	
<b>Negative qualities of romantic partners</b>					
Verbal aggression (past romantic relationships)	2.0 (0.3)	1.2 (0.5)	2.1 (0.4)	2.9 (0.3)	3.1*
Physical aggression (all romantic relationships)	34%	33%	60%	57%	2.6*
Jealousy (all romantic relationships)	1.3 (0.2)	1.3 (0.3)	2.3 (0.3)	2.6 (0.2)	6.2***
<b>Characteristics of dating and romantic relationships</b>					
Timing of the onset of dating	2.2 (0.1)	2.3 (0.1)	1.8 (0.1)	1.7 (0.1)	5.3**
Number of romantic partners	3.1 (0.4)	2.1 (0.5)	4.7 (0.5)	4.7 (0.4)	7.2***
Months involved with romantic partners	15.0 (2.3)	9.0 (2.7)	39.2 (2.8)	40.3 (2.3)	41.3***
At least one older romantic partner	13%	5%	30%	47%	15.0**

Table 32. Results of Comparisons of the Qualities of Peer Relationships, and Social and Individual Characteristics between Groups of Females Stratified by the Ambient Levels of Time Spent with Peers during High School, continued

	Mean (SE)				F or $\chi^2$
	Low time with friends/Low time with partners	High time with friends/Low time with partners	Low time with friends/High time with partners	High time with friends/High time with partners	
<b>Characteristics of the peer social network, grade 9</b>					
Number of best female friends	2.2 (0.4)	2.9 (0.5)	2.5 (0.5)	4.4 (0.4)	5.5**
Number of very good male friends	1.4 (0.6)	1.0 (0.7)	1.7 (0.7)	4.4 (0.6)	6.2***
Popularity with females	2.5 (0.2)	2.5 (0.2)	3.1 (0.2)	3.3 (0.2)	4.6**
Popularity with males	2.2 (0.2)	2.2 (0.3)	3.0 (0.3)	3.3 (0.2)	6.3***
<b>Individual characteristics, grade 9</b>					
Attractiveness	2.6 (0.2)	2.2 (0.2)	2.8 (0.2)	2.9 (0.2)	3.0*
Appearance of physical maturity	2.6 (0.2)	3.2 (0.2)	3.0 (0.2)	3.5 (0.2)	3.2*
Timing of the Relatedness Orientation Transition	6.6 (0.4)	8.5 (0.4)	2.6 (0.5)	4.7 (0.4)	33.1***

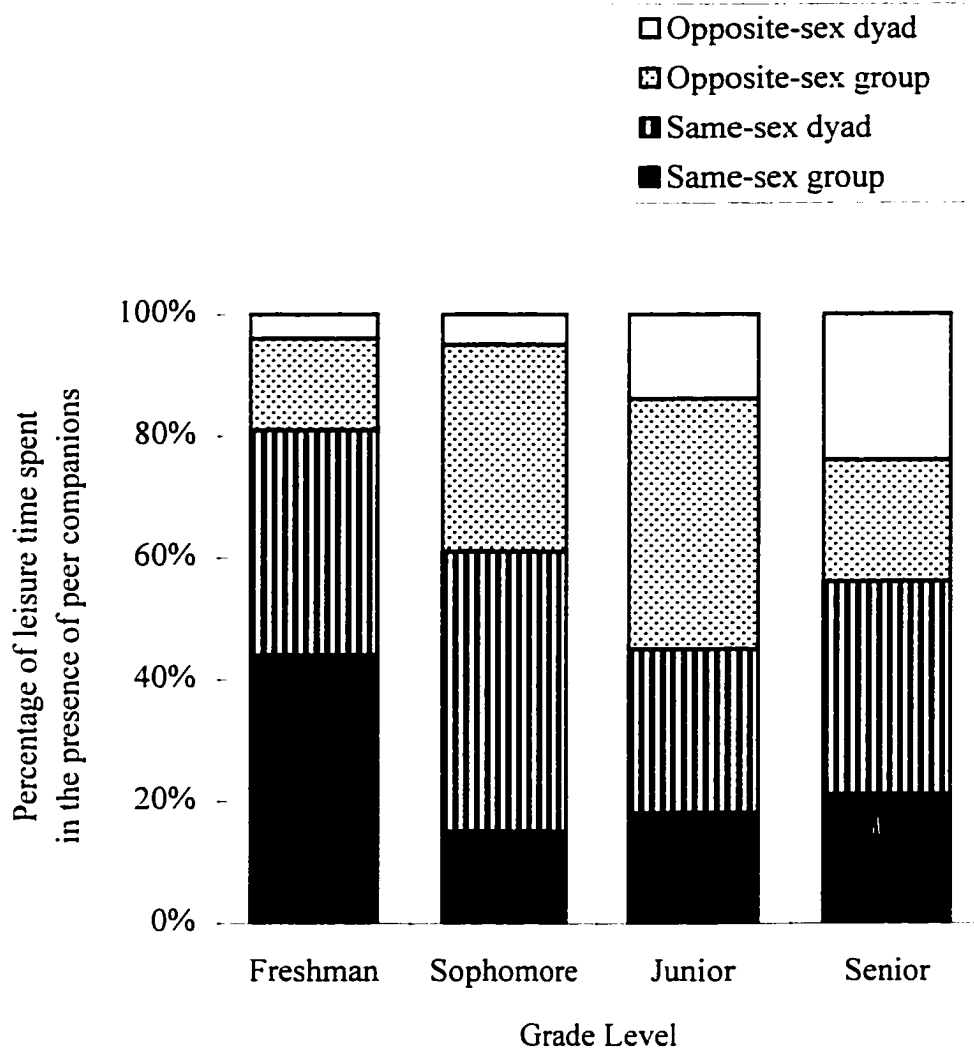
N=94. ns indicates  $p = .14$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



Table 33. Results of Comparisons of the Qualities of Peer Relationships, and Social and Individual Characteristics between Groups of Females Stratified by the Timing of the Relatedness Orientation Transition

	Mean (SE)			F or $\chi^2$
	Early RT	Average RT	Late RT	
<i>N</i>	20	52	30	
Positive qualities of current romantic relationships	3.6 (0.2)	3.5 (0.1)	3.0 (0.2)	3.4*
Negative qualities of past romantic partners				
Verbal aggression	2.4 (0.4)	2.4 (0.3)	1.4 (0.4)	2.4†
Jealousy	1.9 (0.2)	1.6 (0.2)	0.8 (0.2)	5.7**
Characteristics of dating and romantic relationships				
Timing of the onset of dating	1.7 (0.1)	2.0 (0.1)	2.2 (0.1)	4.1*
Number of romantic partners	5.2 (0.5)	4.1 (0.3)	2.1 (0.4)	12.5***
Months involved with romantic partners	41.2 (3.3)	29.6 (2.0)	9.4 (2.7)	31.2***
At least one older romantic partner	20%	37%	7%	9.4**
Characteristics of the peer social network, grade 9				
Popularity with females	3.3 (0.2)	2.7 (0.1)	2.3 (0.2)	3.4*
Popularity with males	3.3 (0.2)	2.7 (0.2)	2.2 (0.2)	4.6*
Individual characteristics, grade 9				
Attractiveness	3.0 (0.2)	2.7 (0.1)	2.3 (0.2)	2.8†

$N=94$ . † $p<.10$ . \* $p<.05$ . \*\* $p<.01$ . \*\*\* $p<.001$ .



**Figure 1.** Time Spent with Peers of a Cross-Section of High School Students

Note. Data reported by Csikszentmihalyi, M., & Larson, R. (1984). Being adolescent. New York: Basic Books.

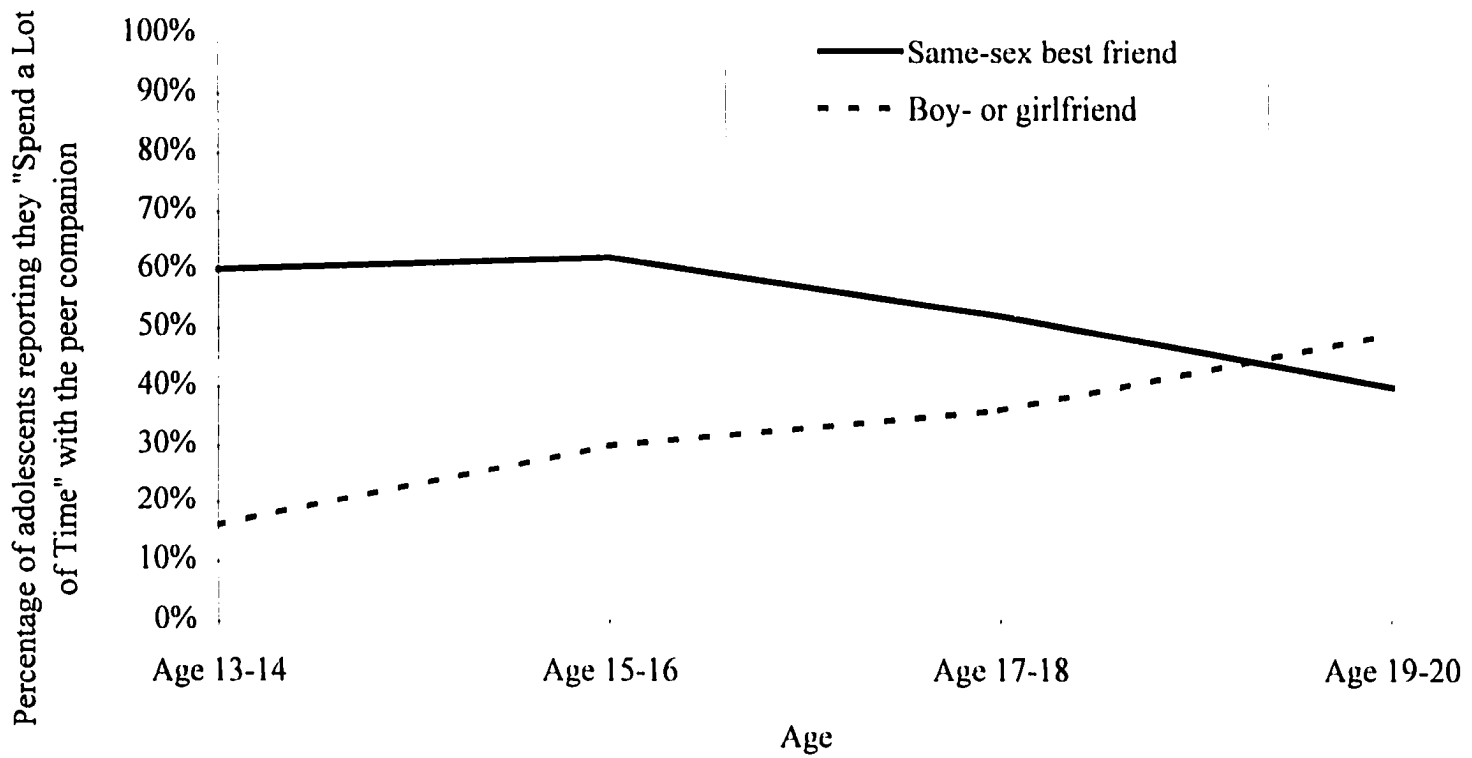
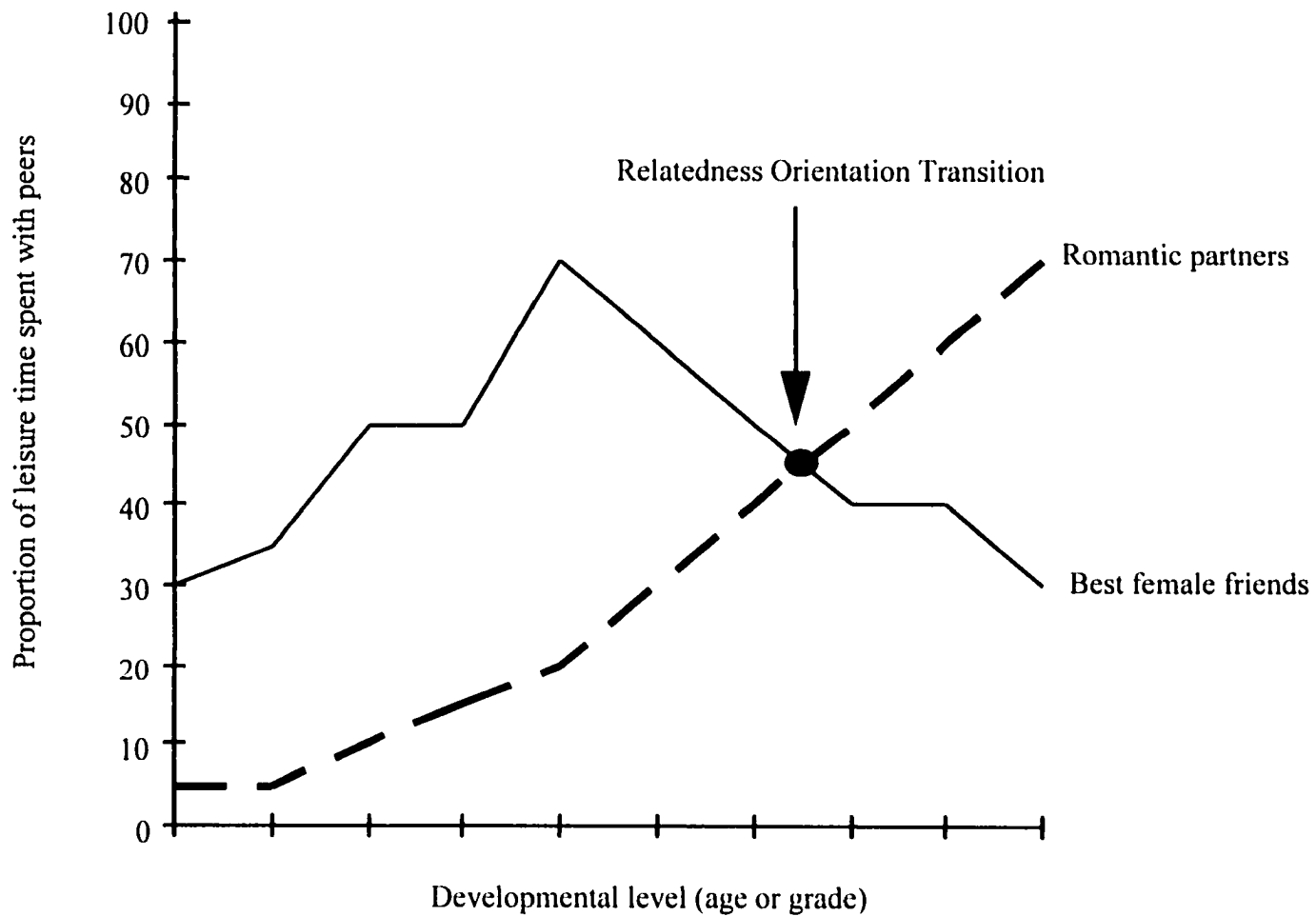


Figure 2. Proportion of Time Spent with Peers during Adolescence Reported by Hendry, et al. (1993)



**Figure 3.** Example of Possible Trajectories of Involvement in Peer Relationships during Middle Adolescence and the Resulting Relatedness Orientation Transition

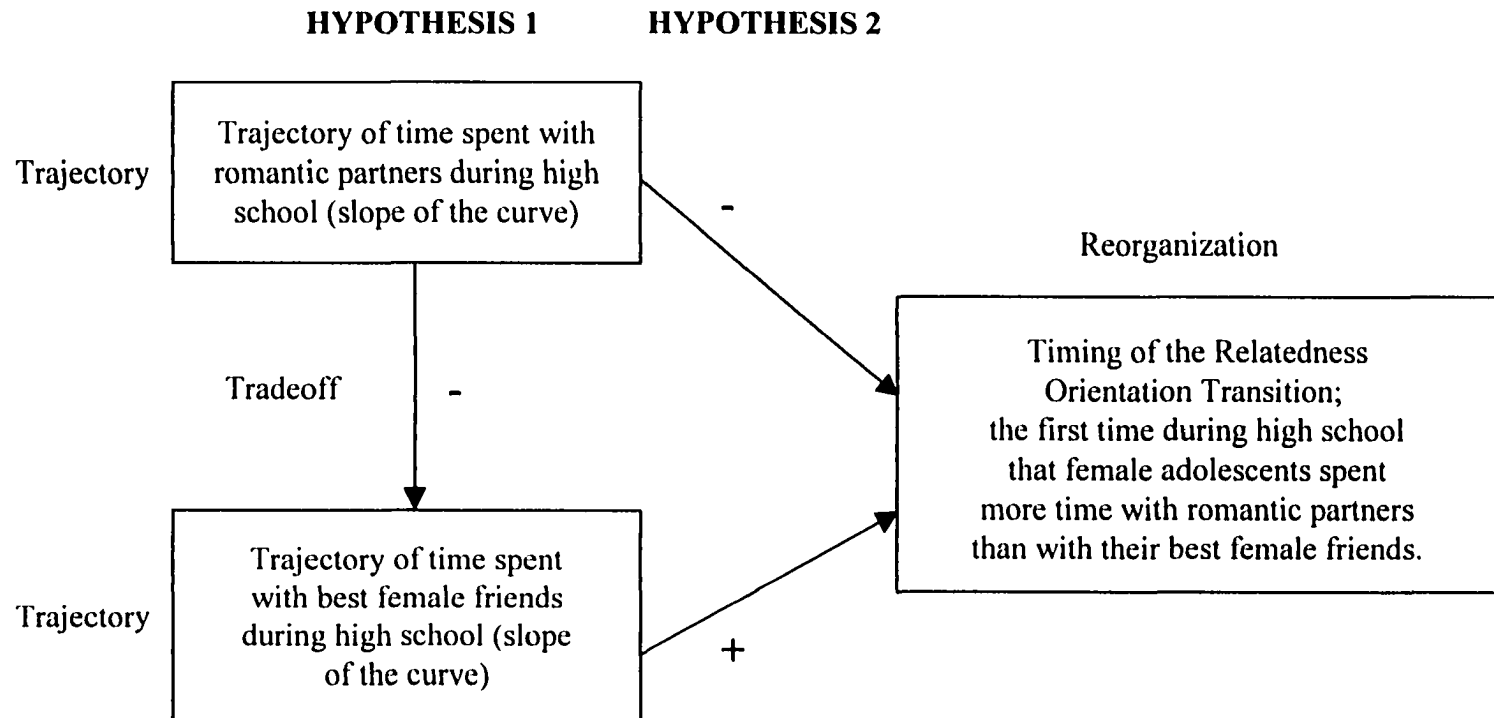


Figure 4. Graphical Depiction of Hypotheses 1 and 2

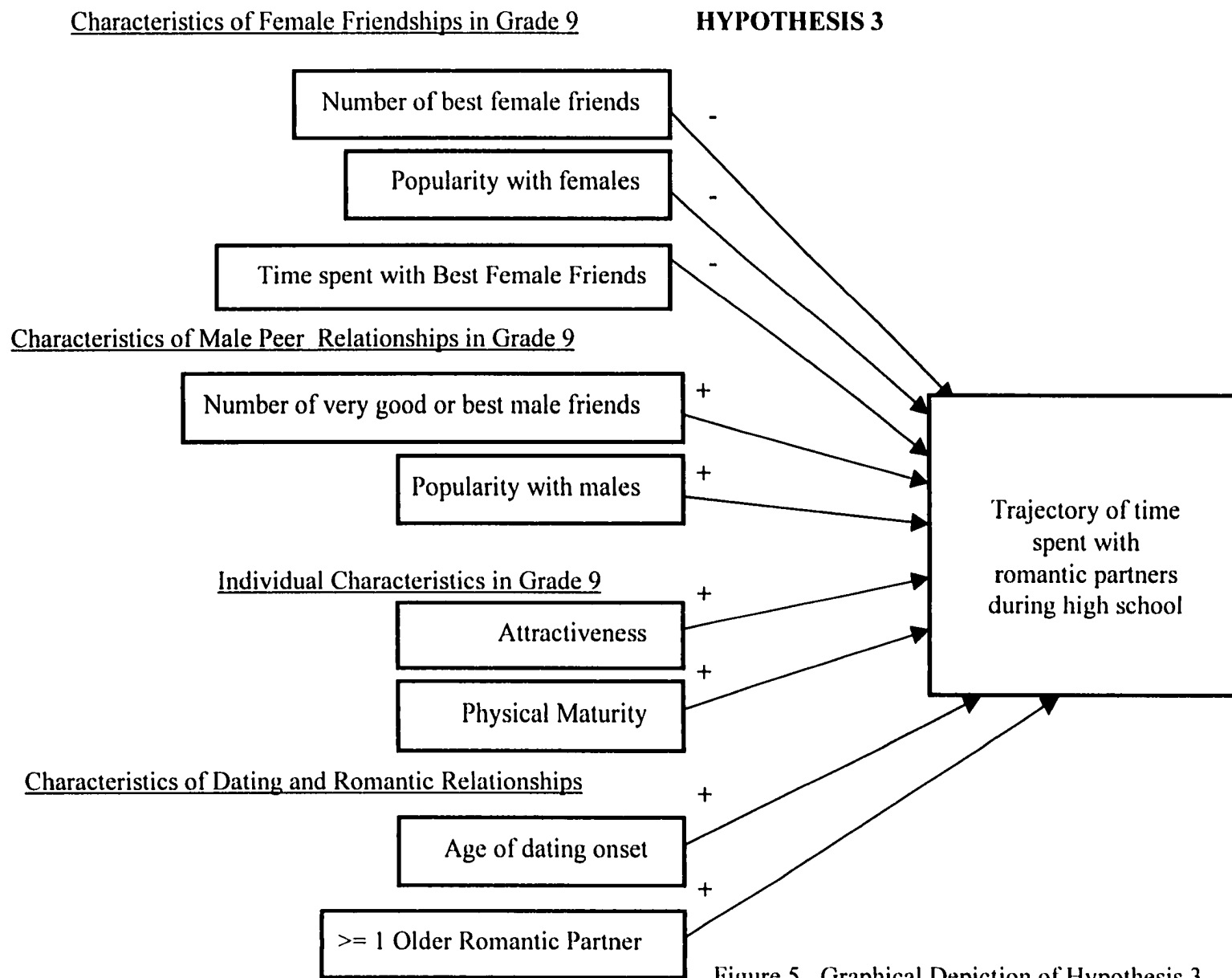


Figure 5. Graphical Depiction of Hypothesis 3

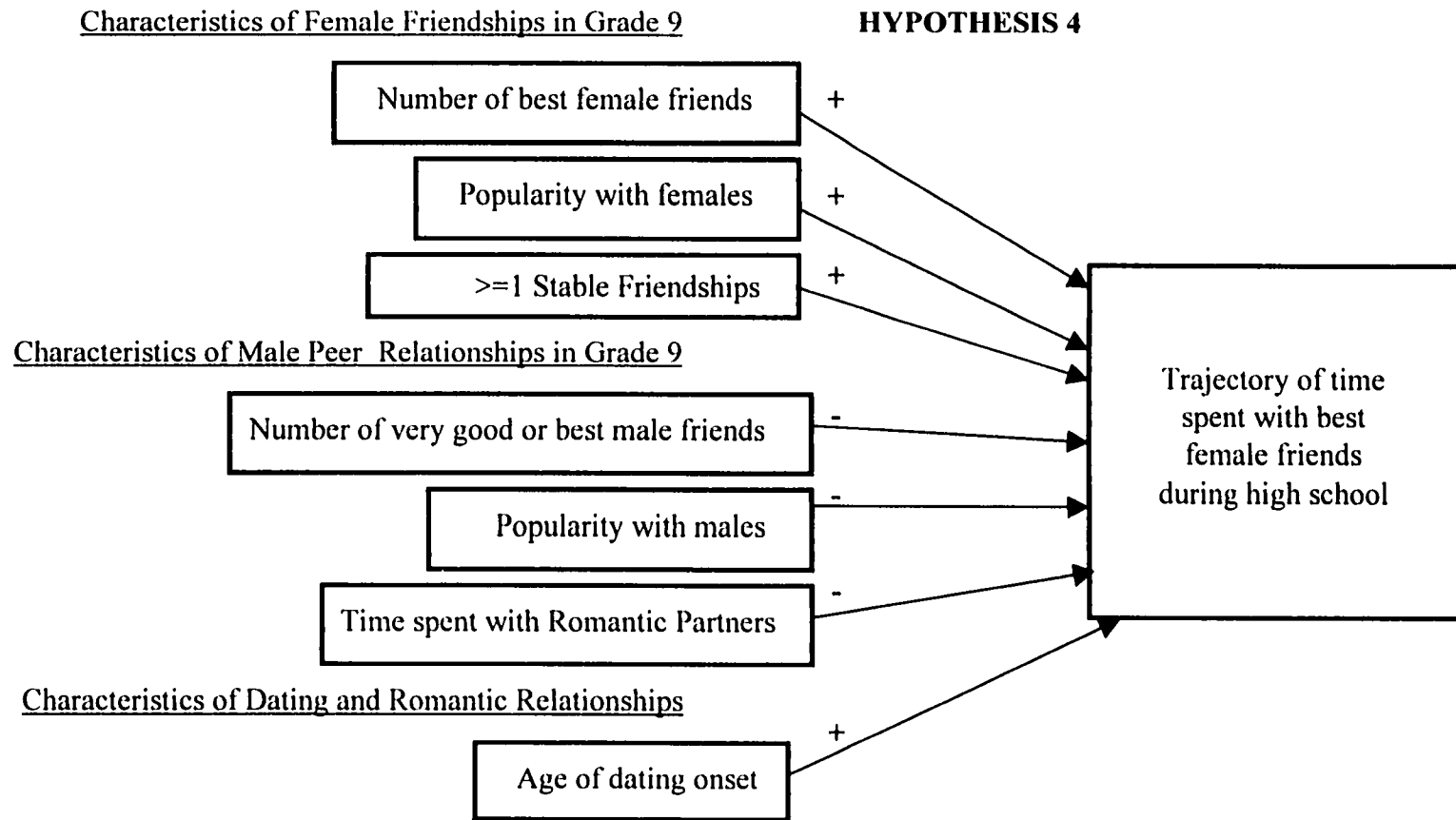


Figure 6. Graphical Depiction of Hypothesis 4

Characteristics of Female Friendships in Grade 9

**HYPOTHESIS 5**

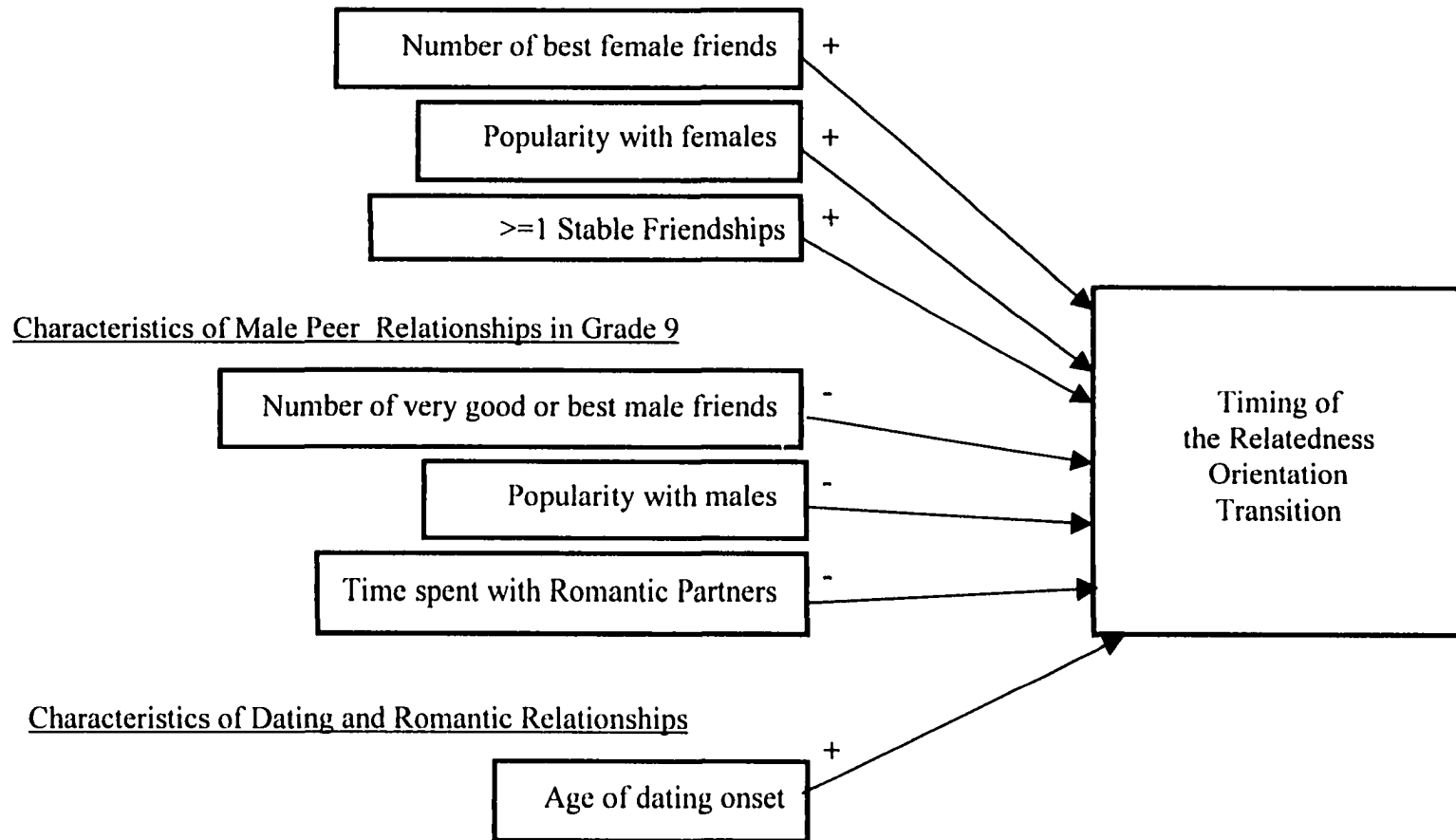


Figure 7. Graphical Depiction of Hypothesis 5



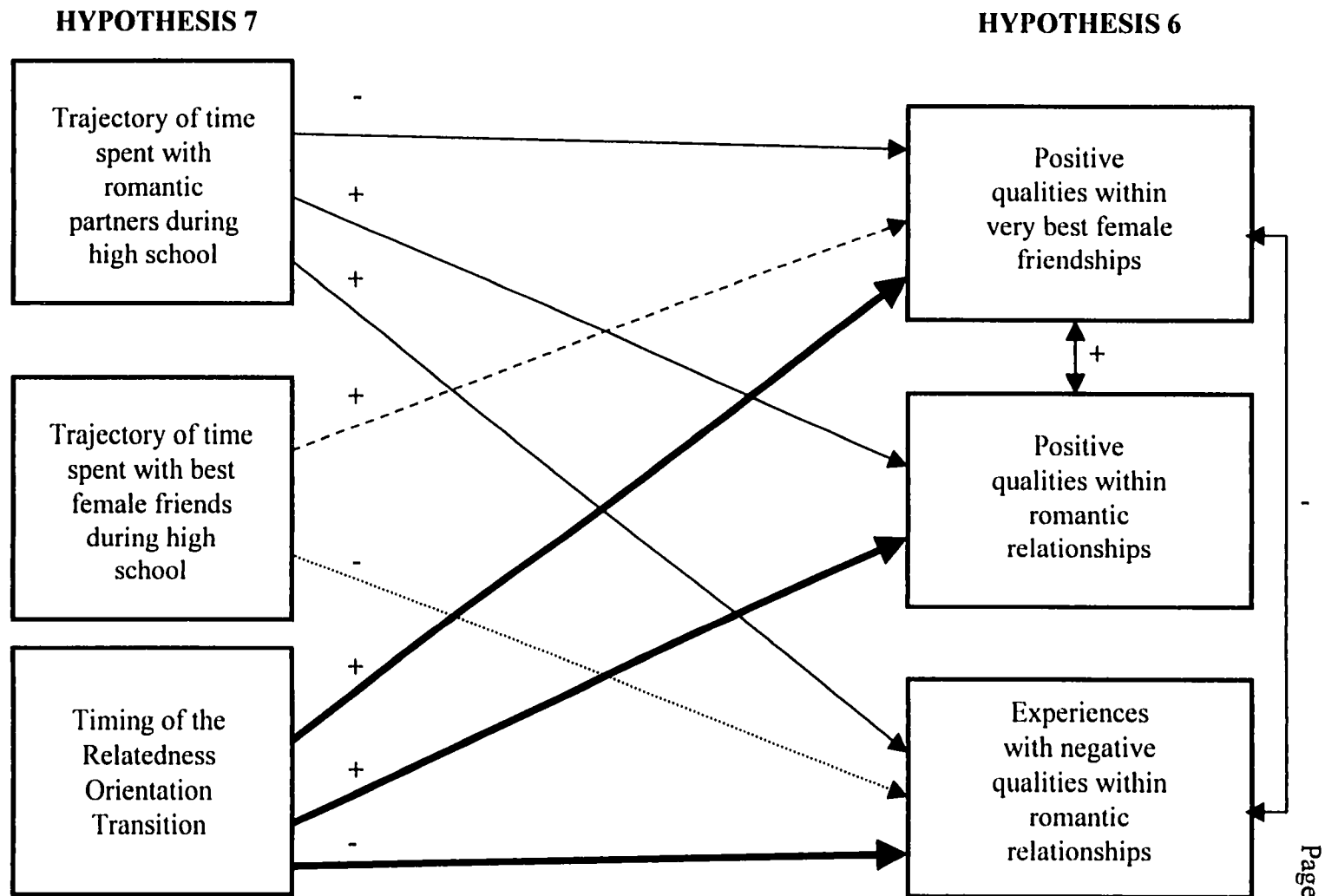
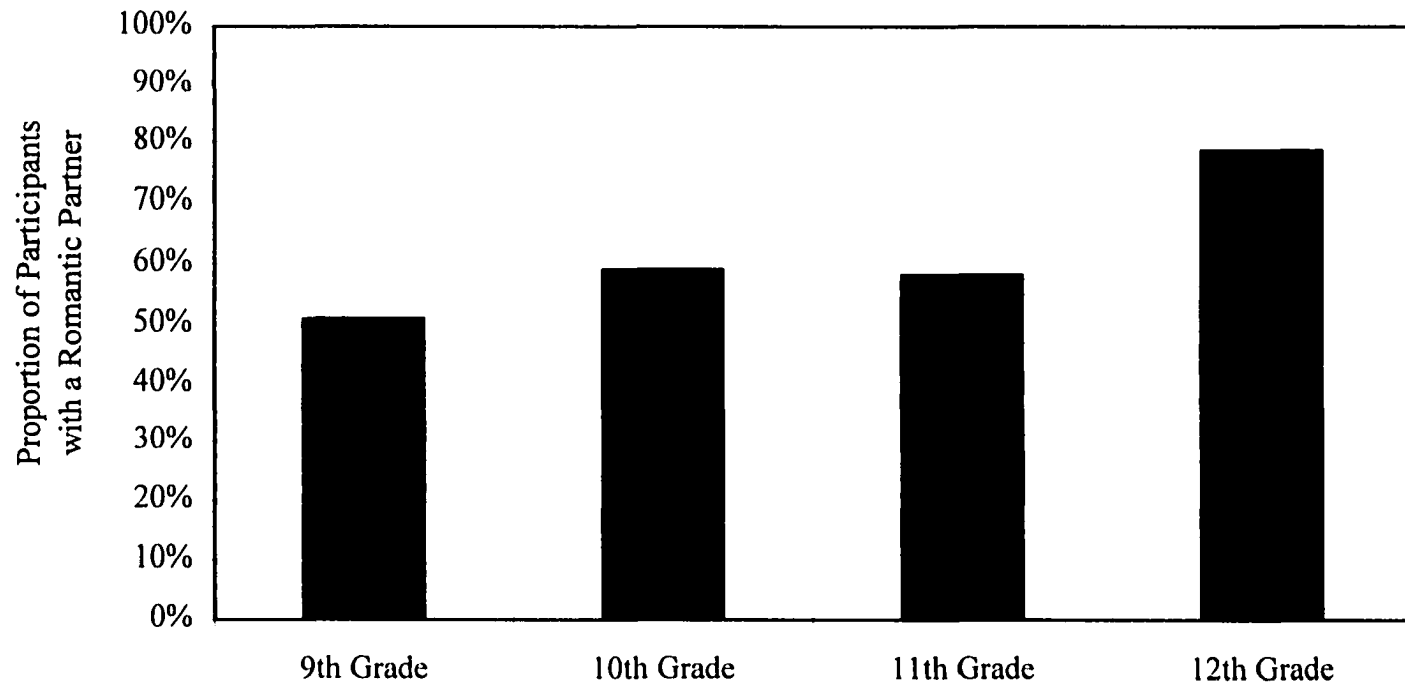
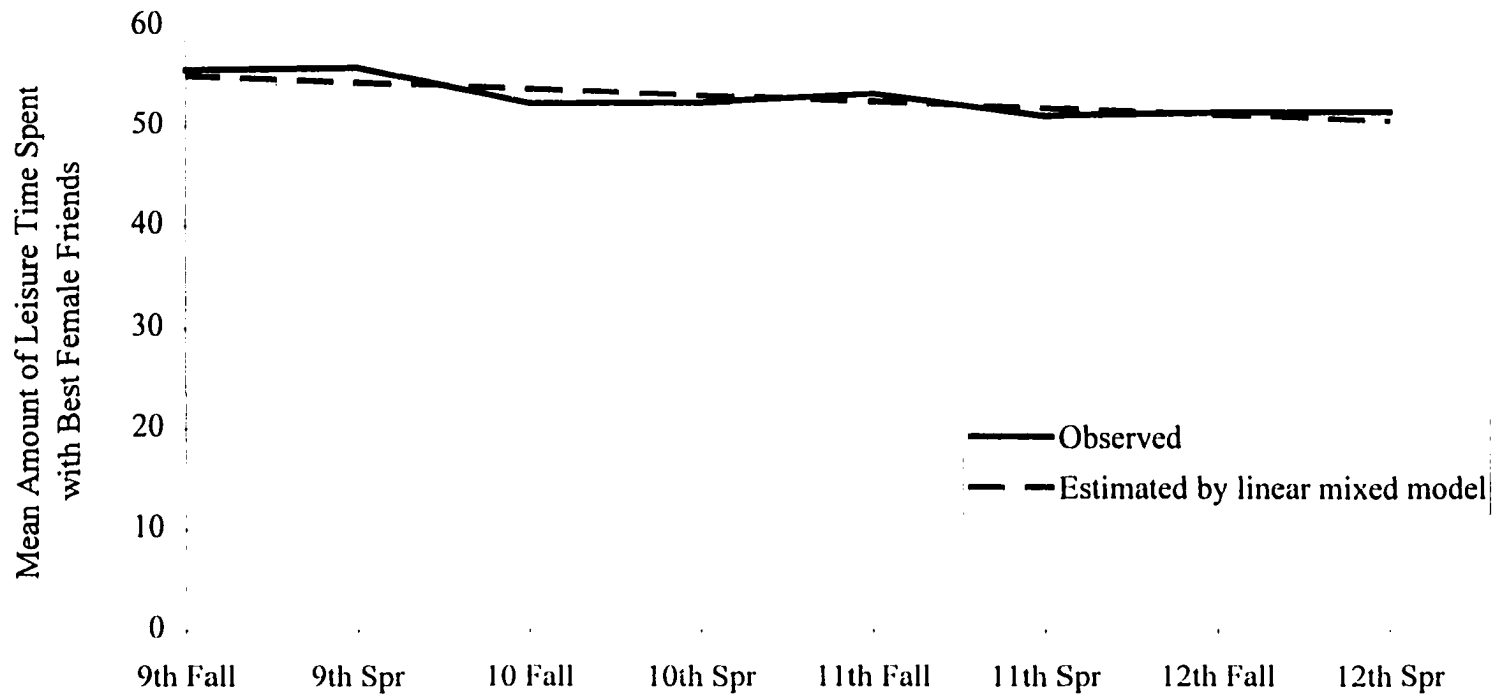


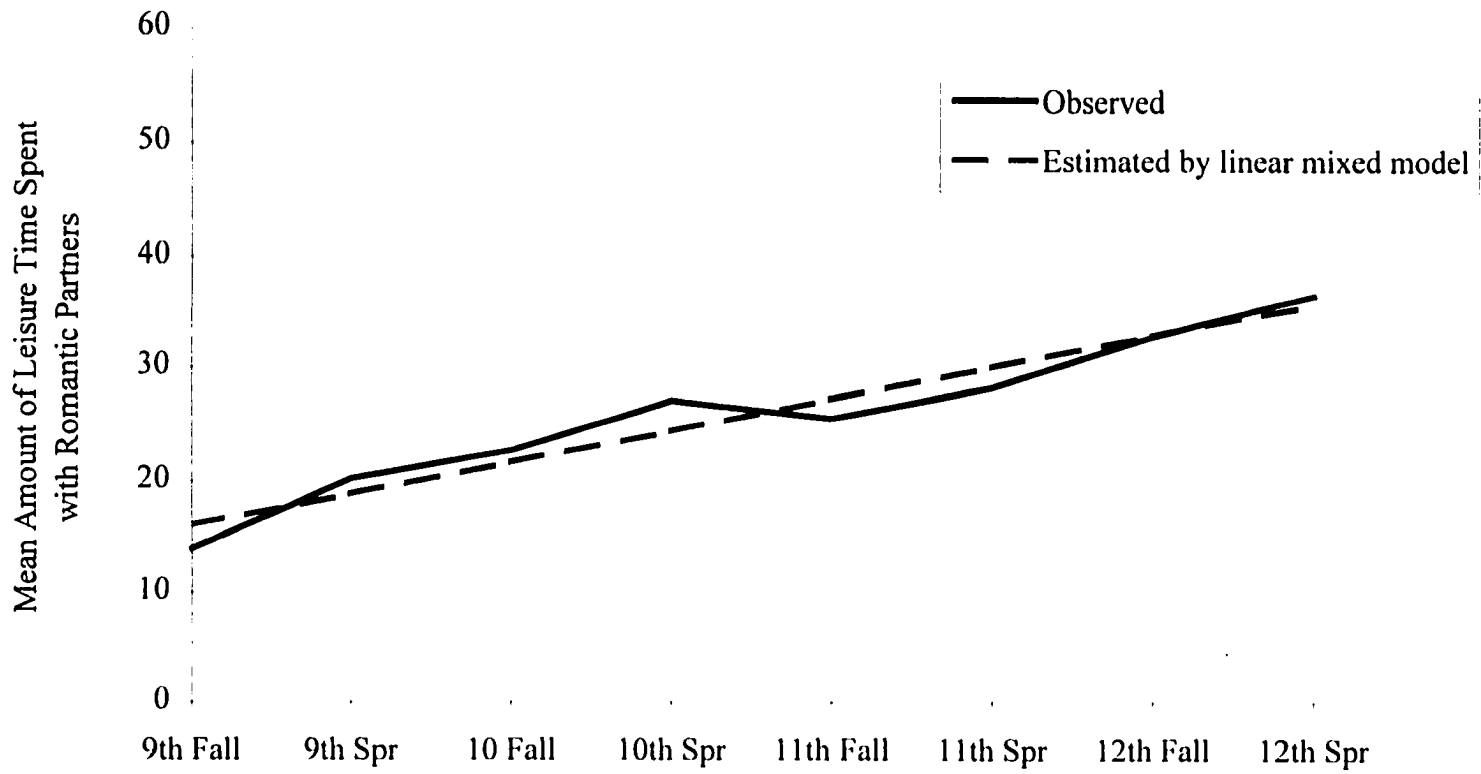
Figure 8. Graphical Depiction of Hypotheses 6 and 7



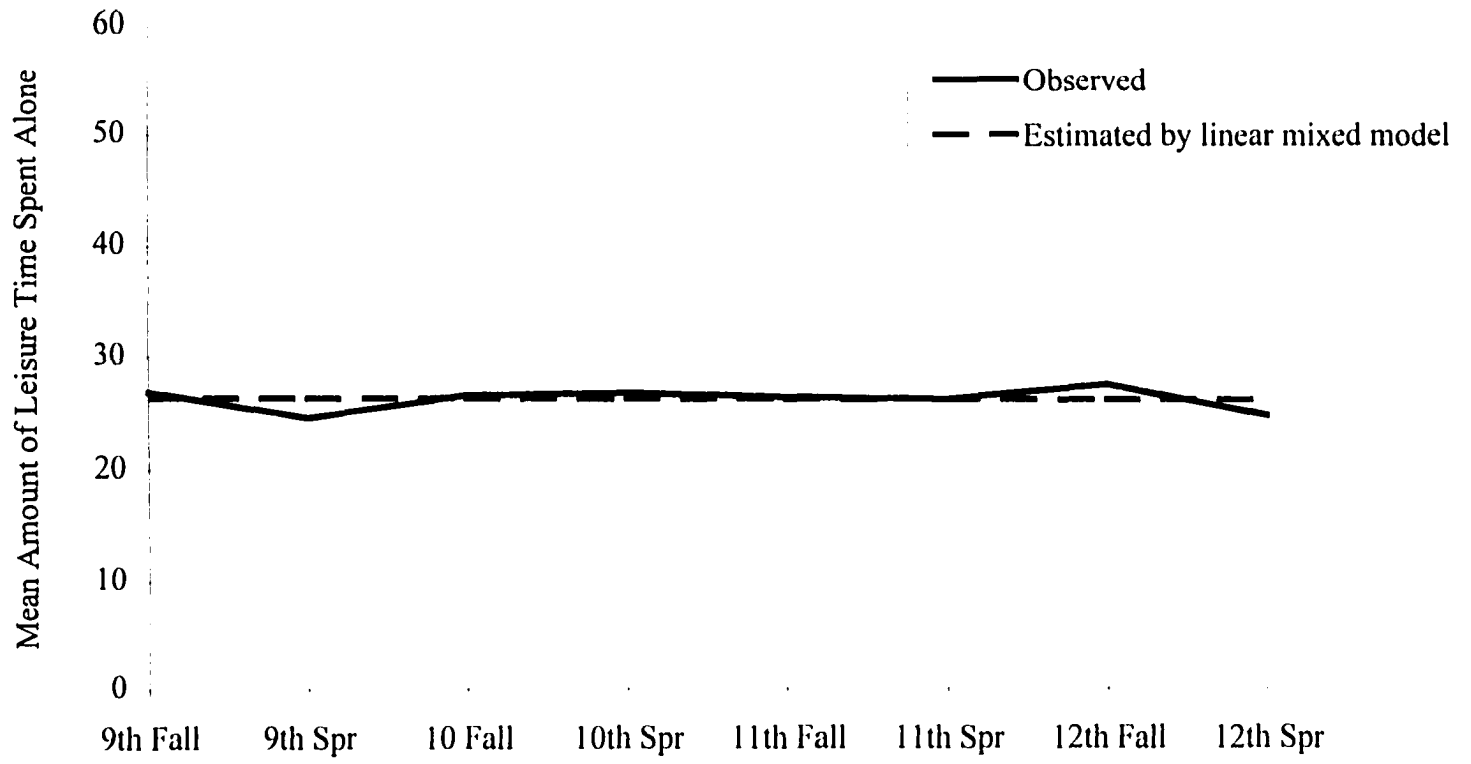
**Figure 9.** Proportion of Females Adolescents who had Romantic Partners Each Year of High School  
N ranged from 98 to 102.



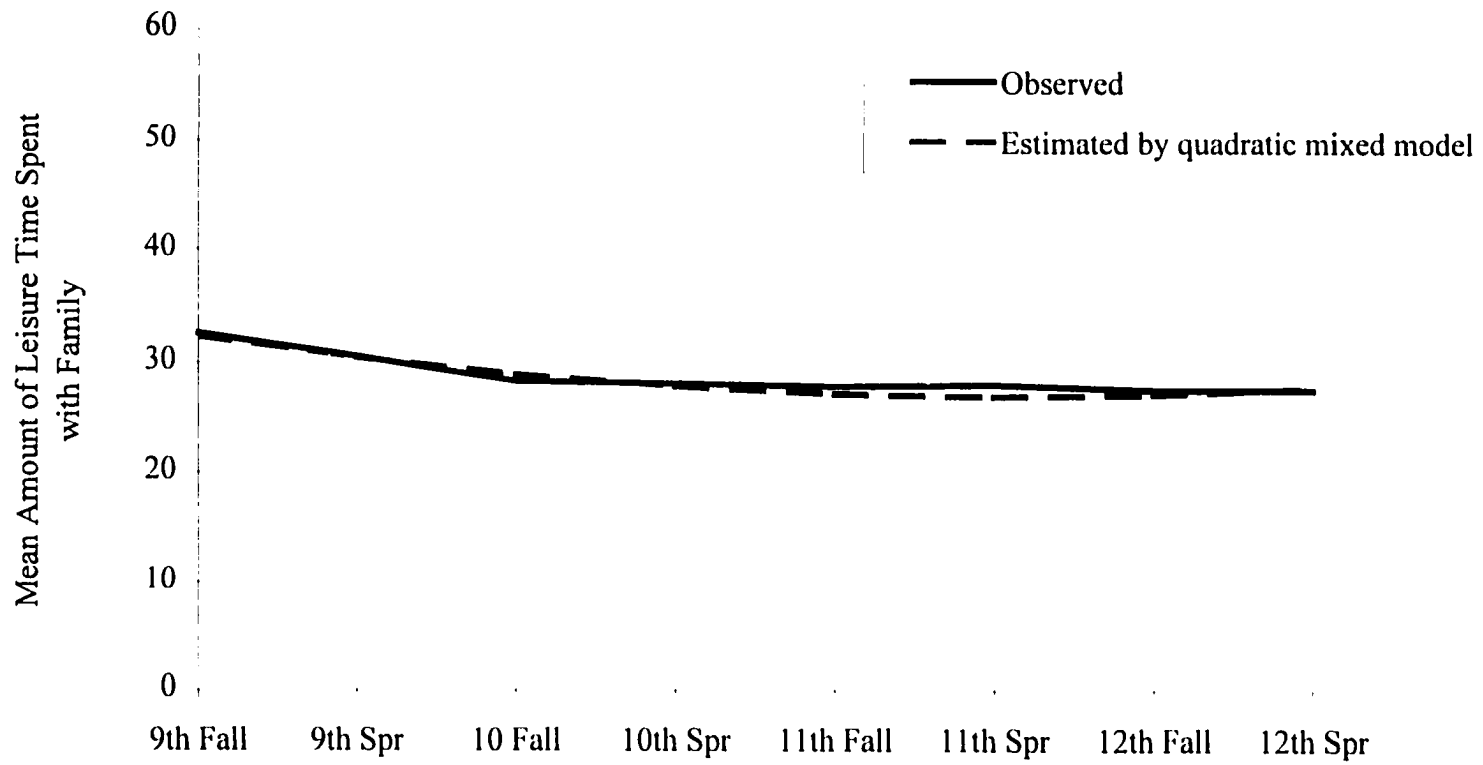
**Figure 10.** Average Observed and Estimated Trajectories of the Amount of Leisure Time Spent with Best Female Friends during High School



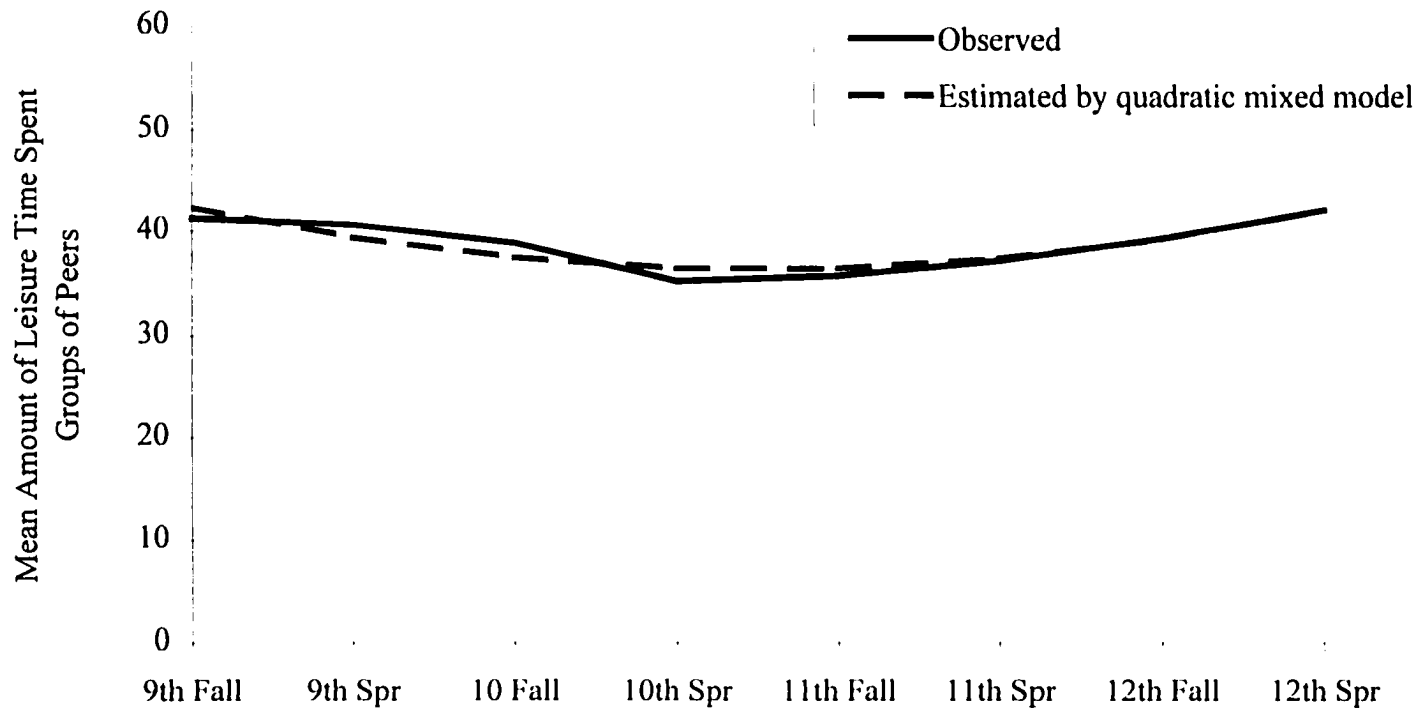
**Figure 11.** Average Observed and Estimated Trajectories of the Amount of Leisure Time Spent with Romantic Partners during High School



**Figure 12.** Average Observed and Estimated Trajectories of the Amount of Leisure Time Spent Alone during High School



**Figure 13.** Average Observed and Estimated Trajectories of the Amount of Leisure Time Spent with Family during High School



**Figure 14.** Average Observed and Estimated Trajectories of the Amount of Leisure Time Spent with Groups of Peers during High School

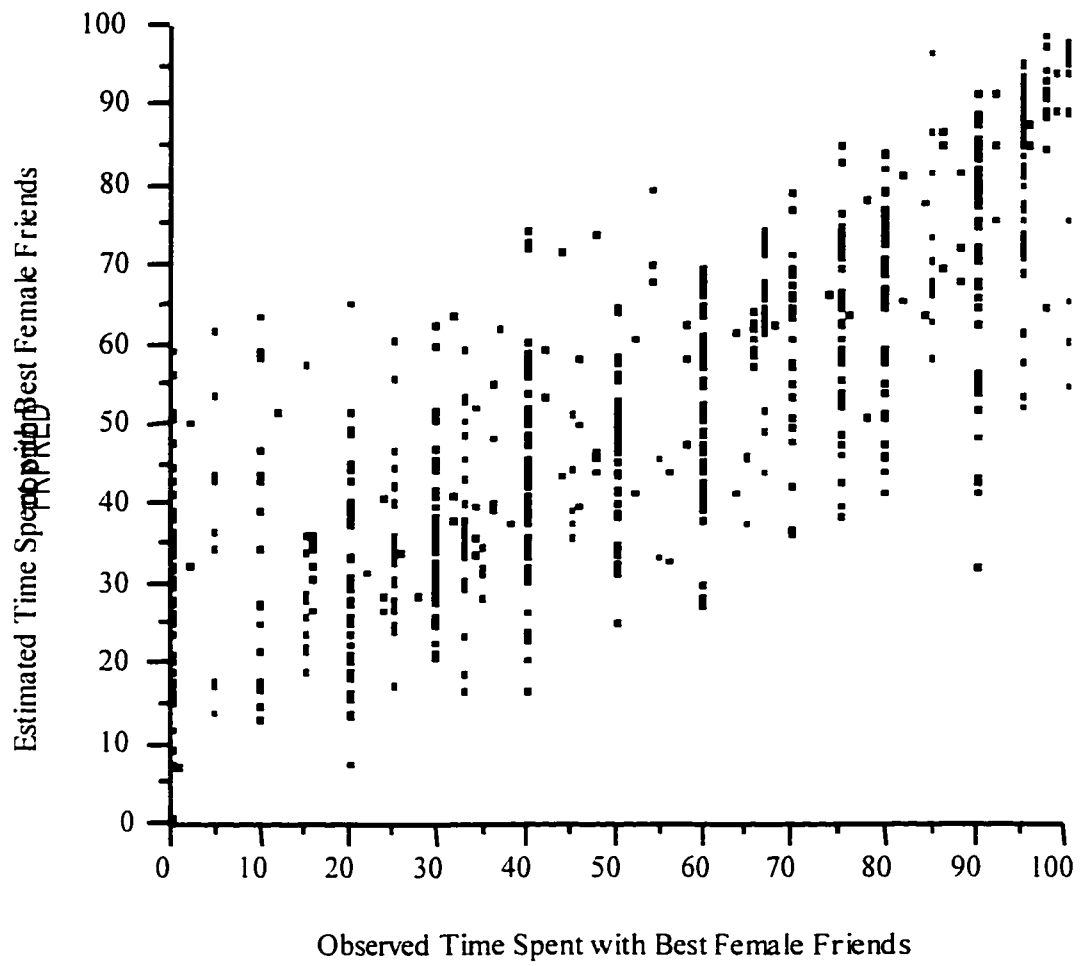


Figure 15. A Comparison of Individual Observed and Estimated Amounts of Time Spent with Best Female Friends at One Time of Measurement



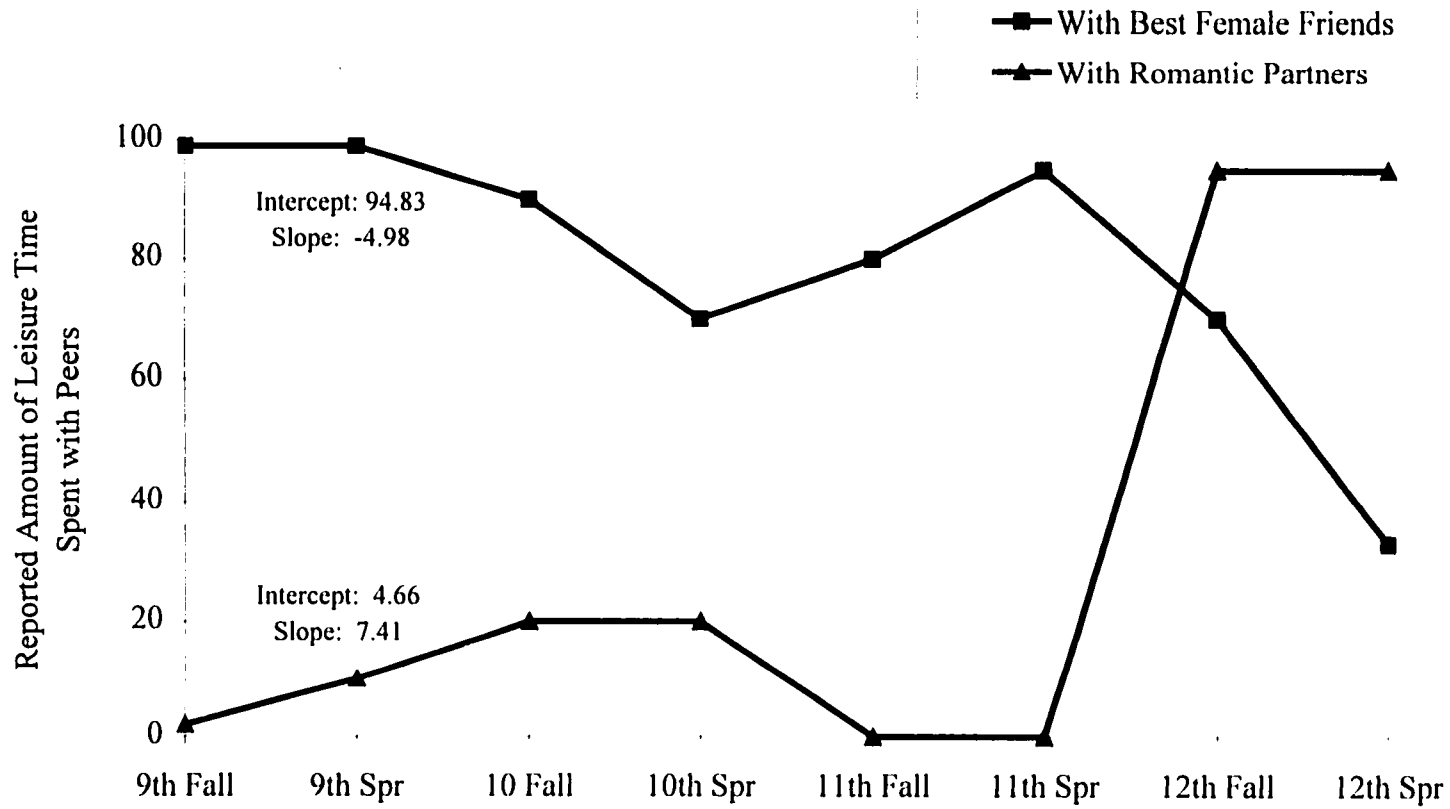


Figure 16. Time Spent with Best Female Friends and Romantic Partners By Participant 1 During High

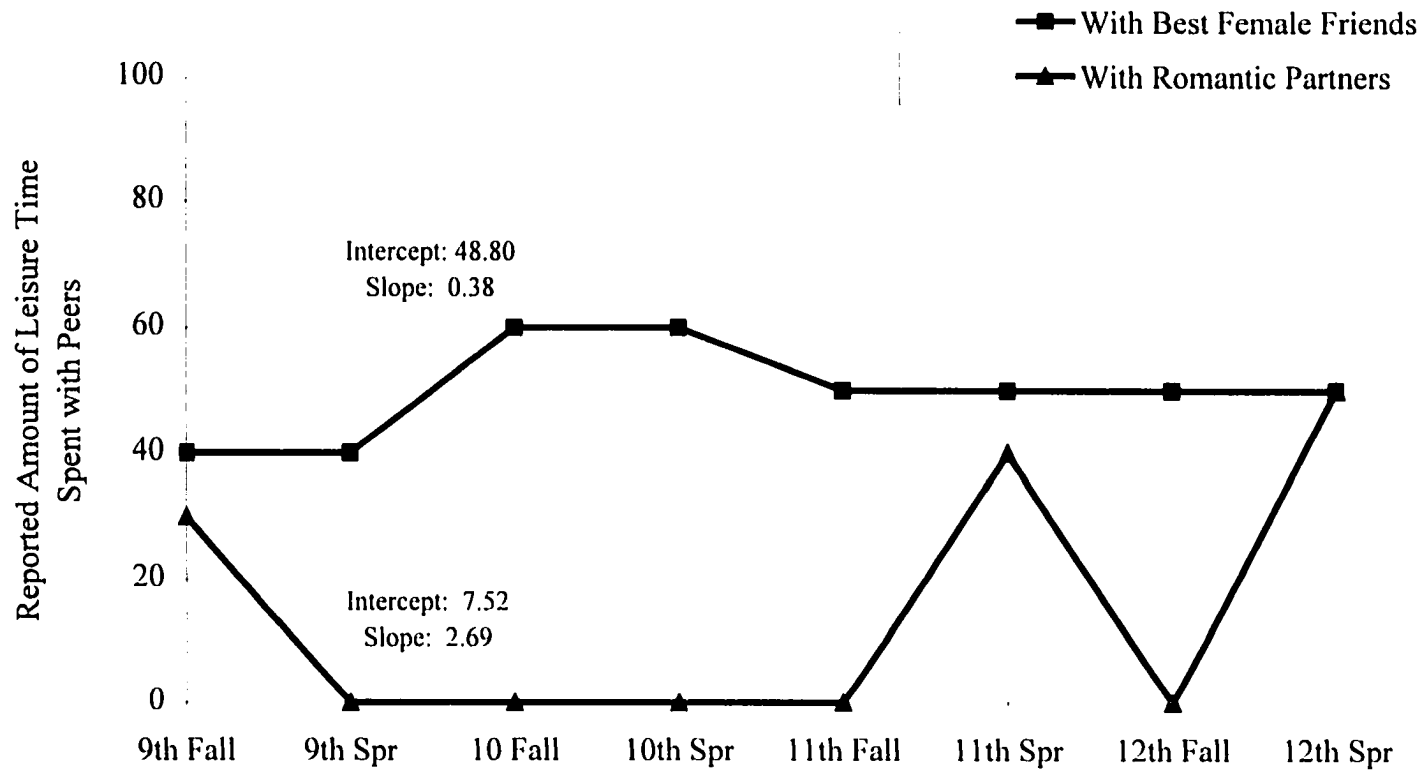


Figure 17. Time Spent with Best Female Friends and Romantic Partners By Participant 2 During High School

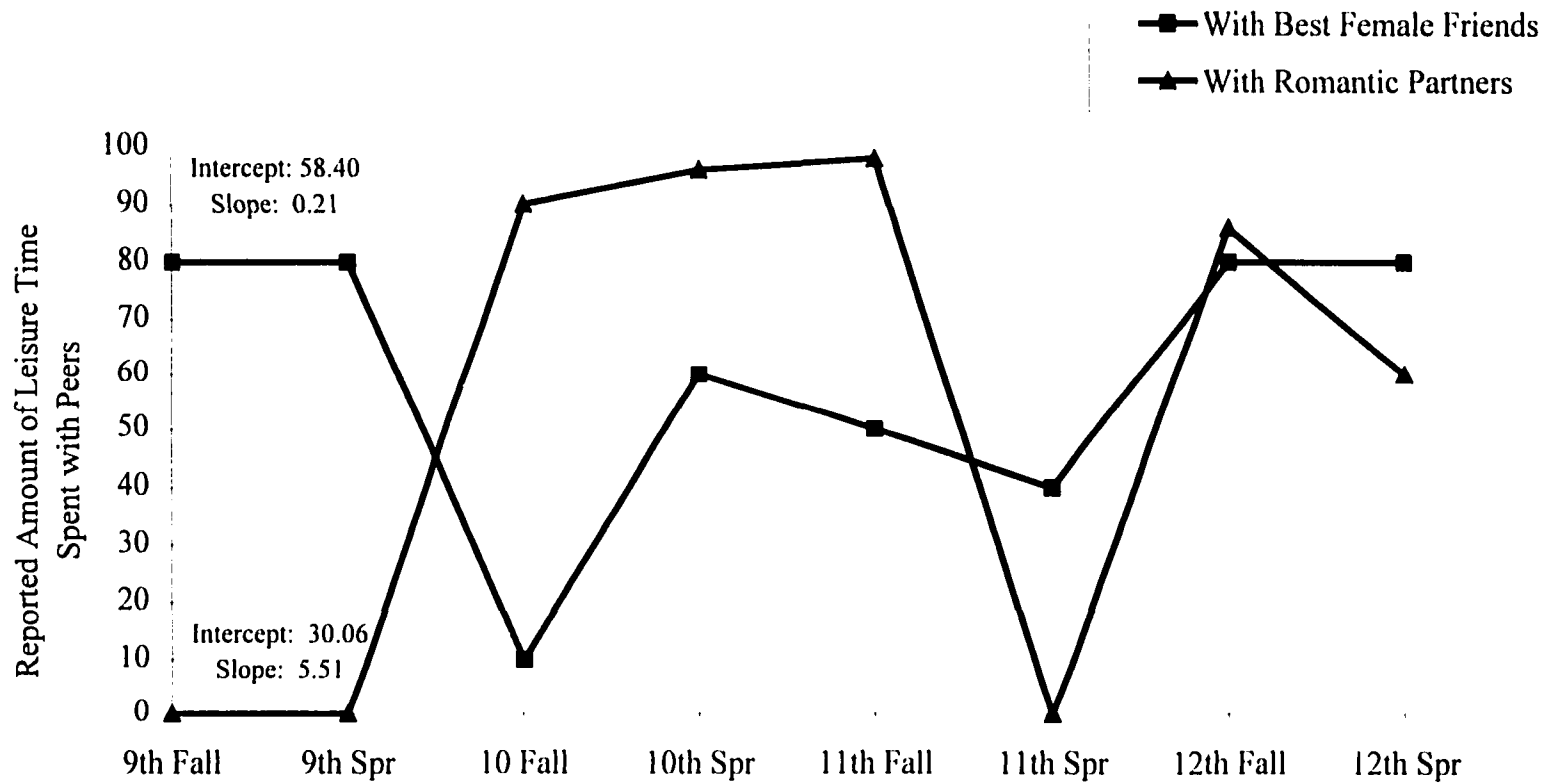
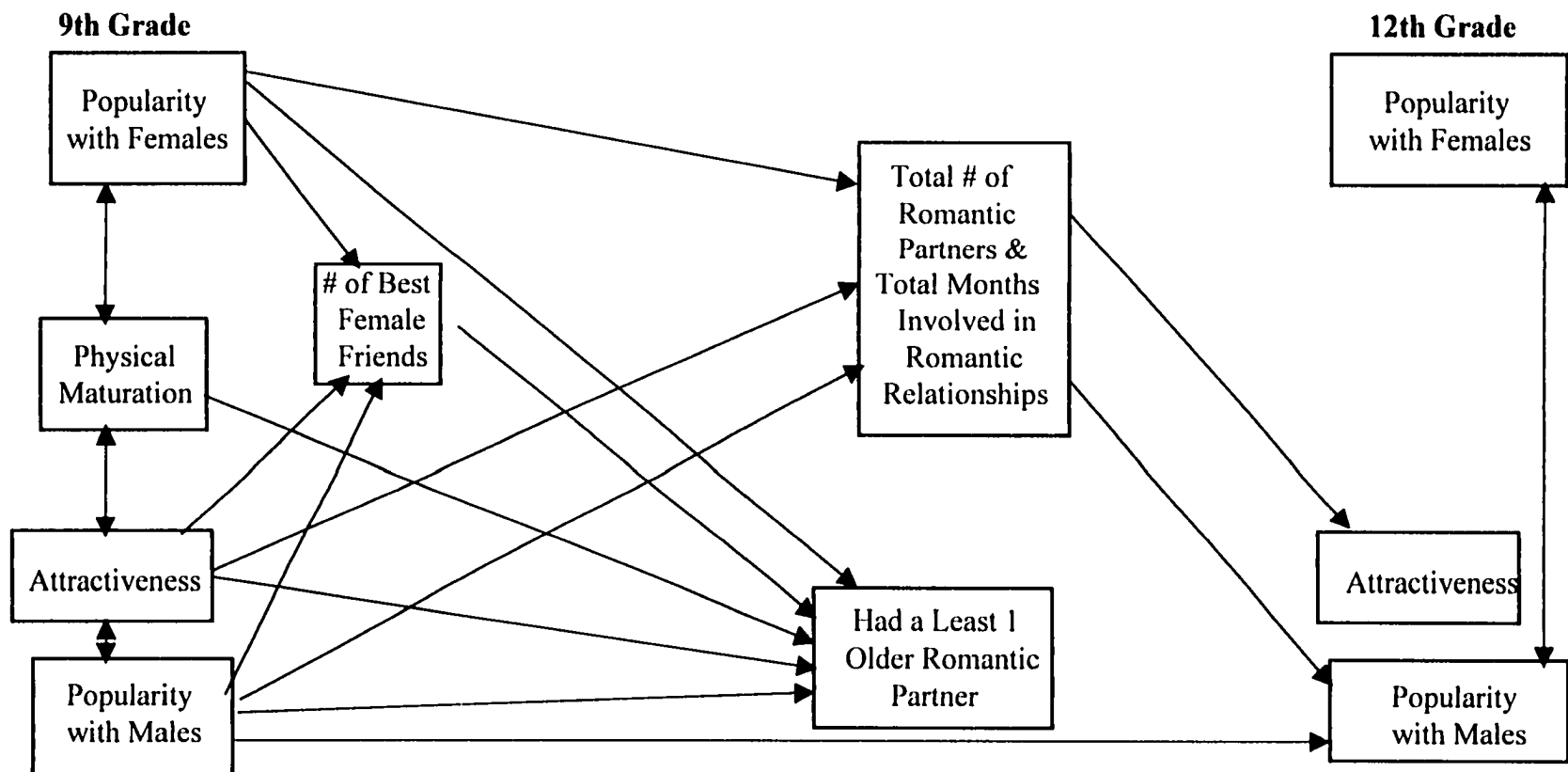
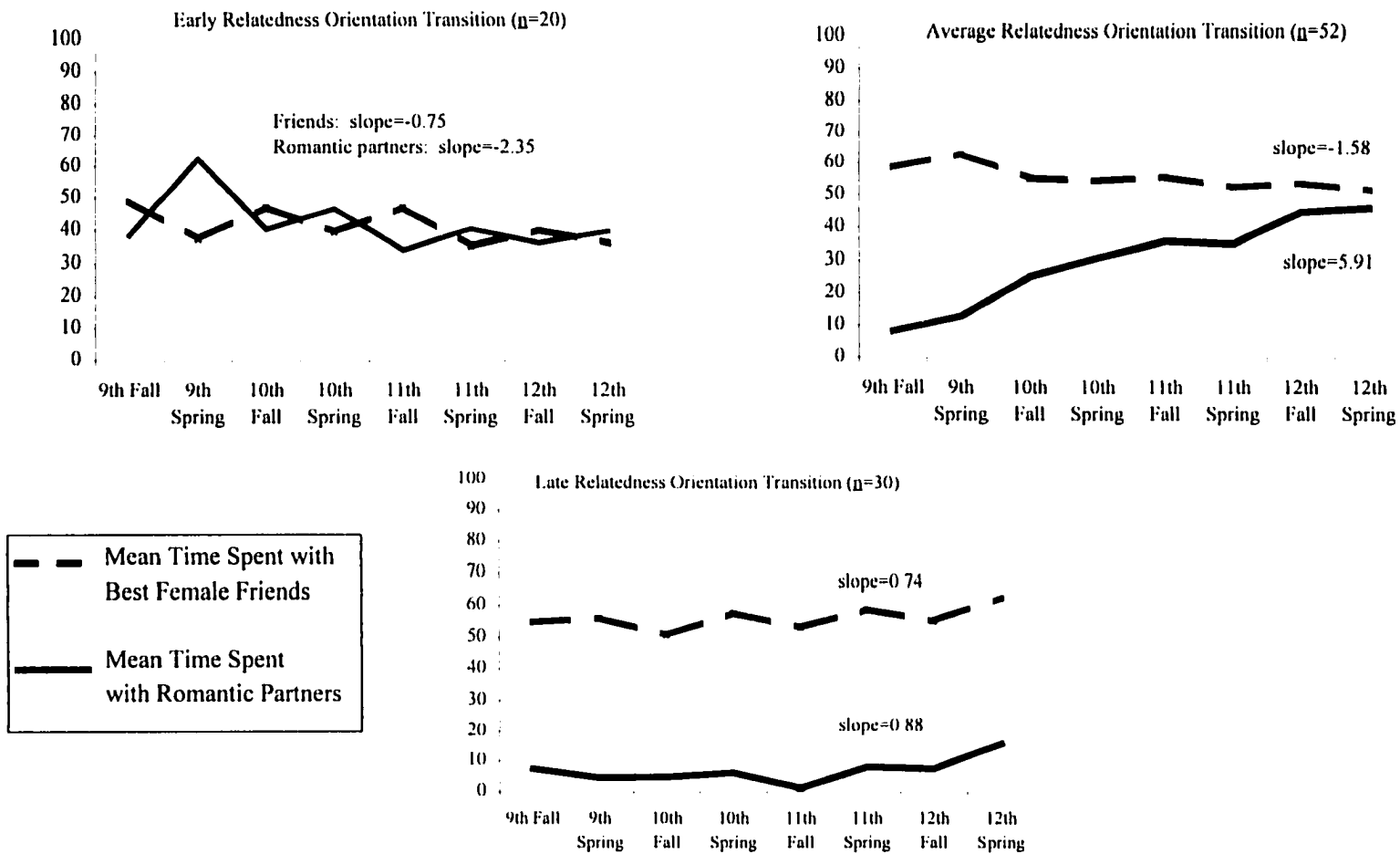


Figure 18. Time Spent with Best Female Friends and Romantic Partners By Participant 3 During High

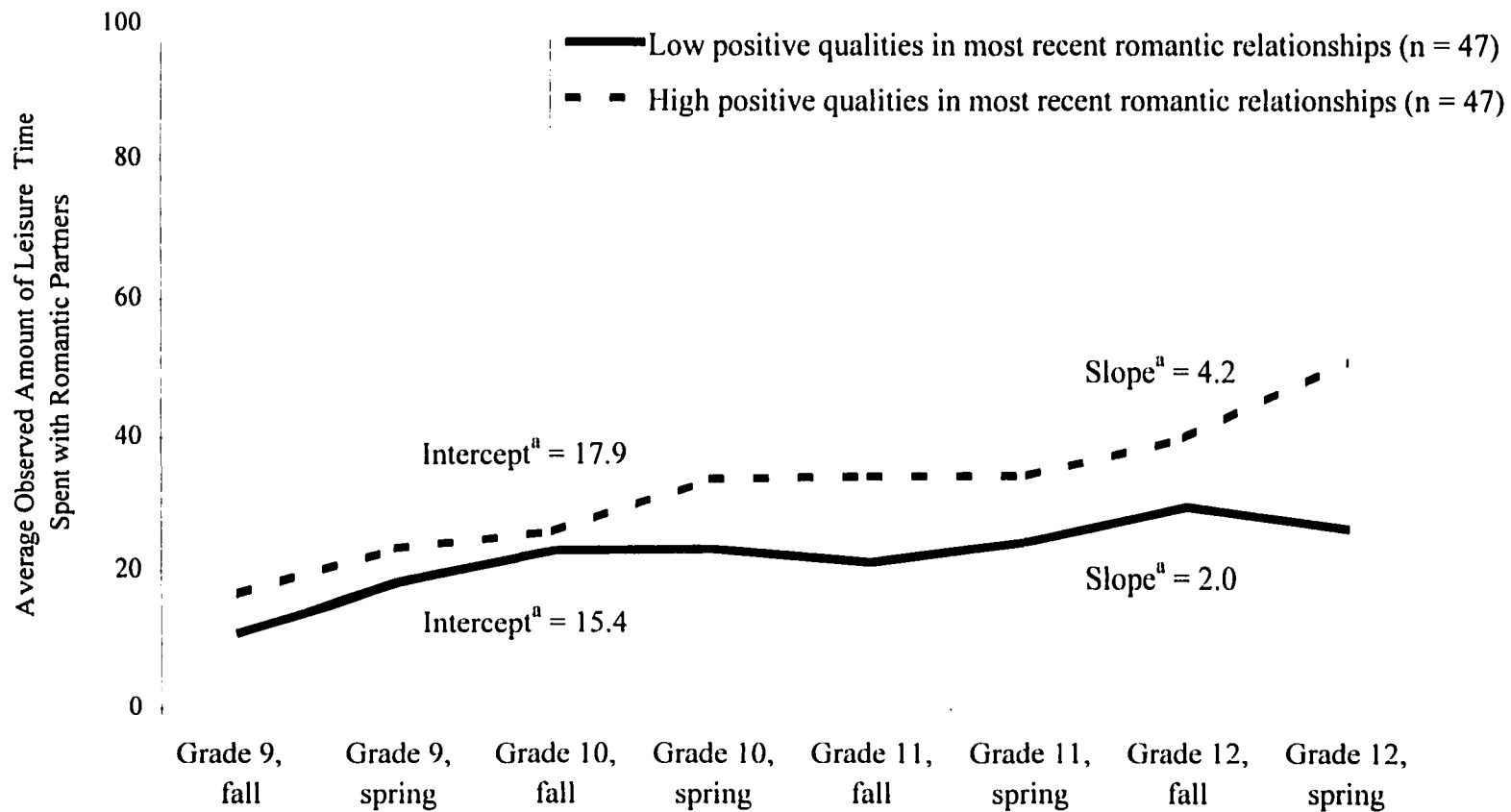


**Figure 19.** Summary of Significant Bivariate Correlations Between Characteristics of Dating and Romantic Relationships, Characteristics of the Female and Male Social Networks, and Individual Characteristics

**Note.** All grade 9 variables were interrelated, but some links are not shown. Attractiveness in grade 9 and attractiveness in grade 12 were correlated, but the link is not shown. Links to timing of the onset of dating are not shown, but they are similar to total number and months involved with romantic partners. All associations are positive.

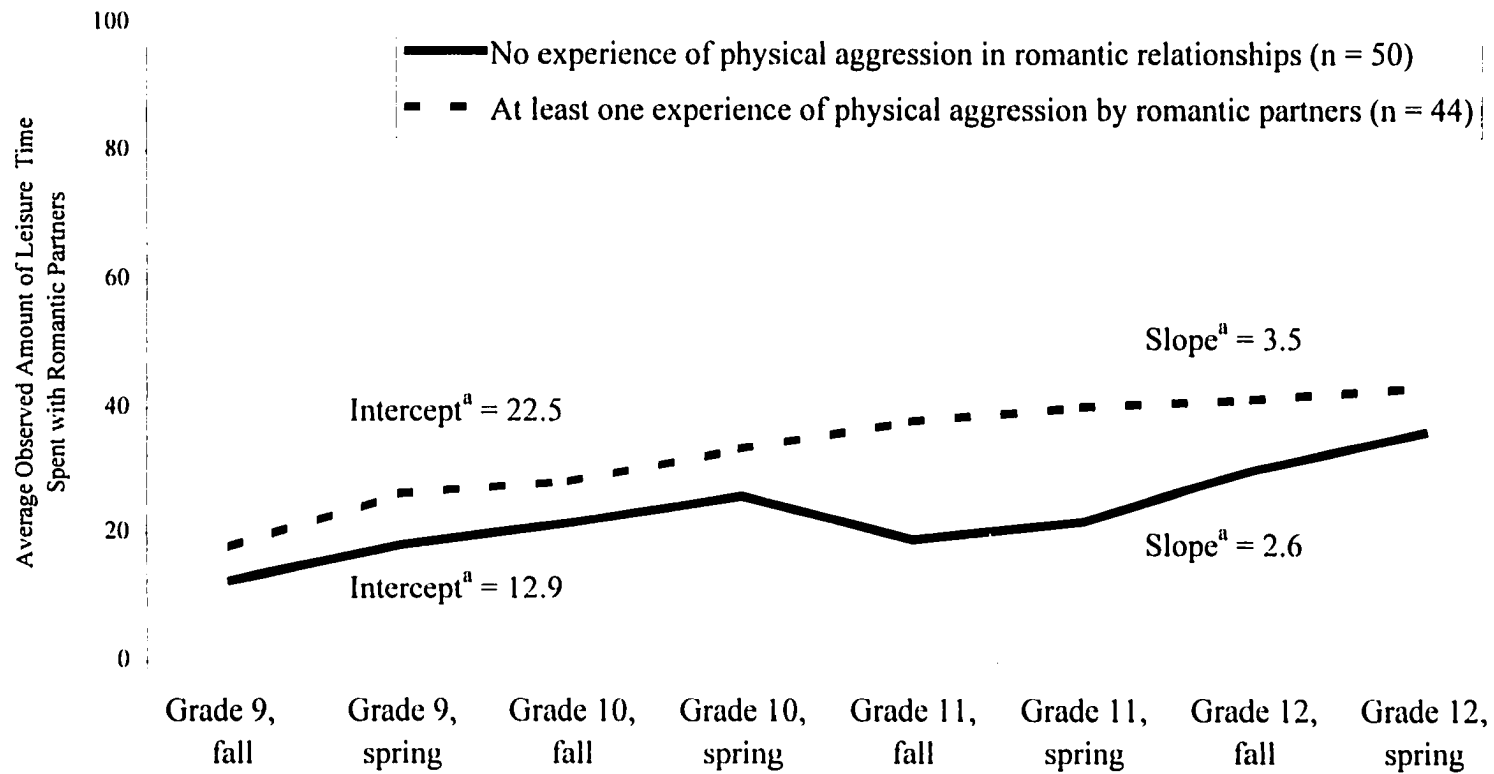


**Figure 20.** Average Observed Trajectories of the Amount of Leisure Time Spent with Best Female Friends and Romantic Partners within Early, Average, and Late Relatedness Orientation Transition Groups



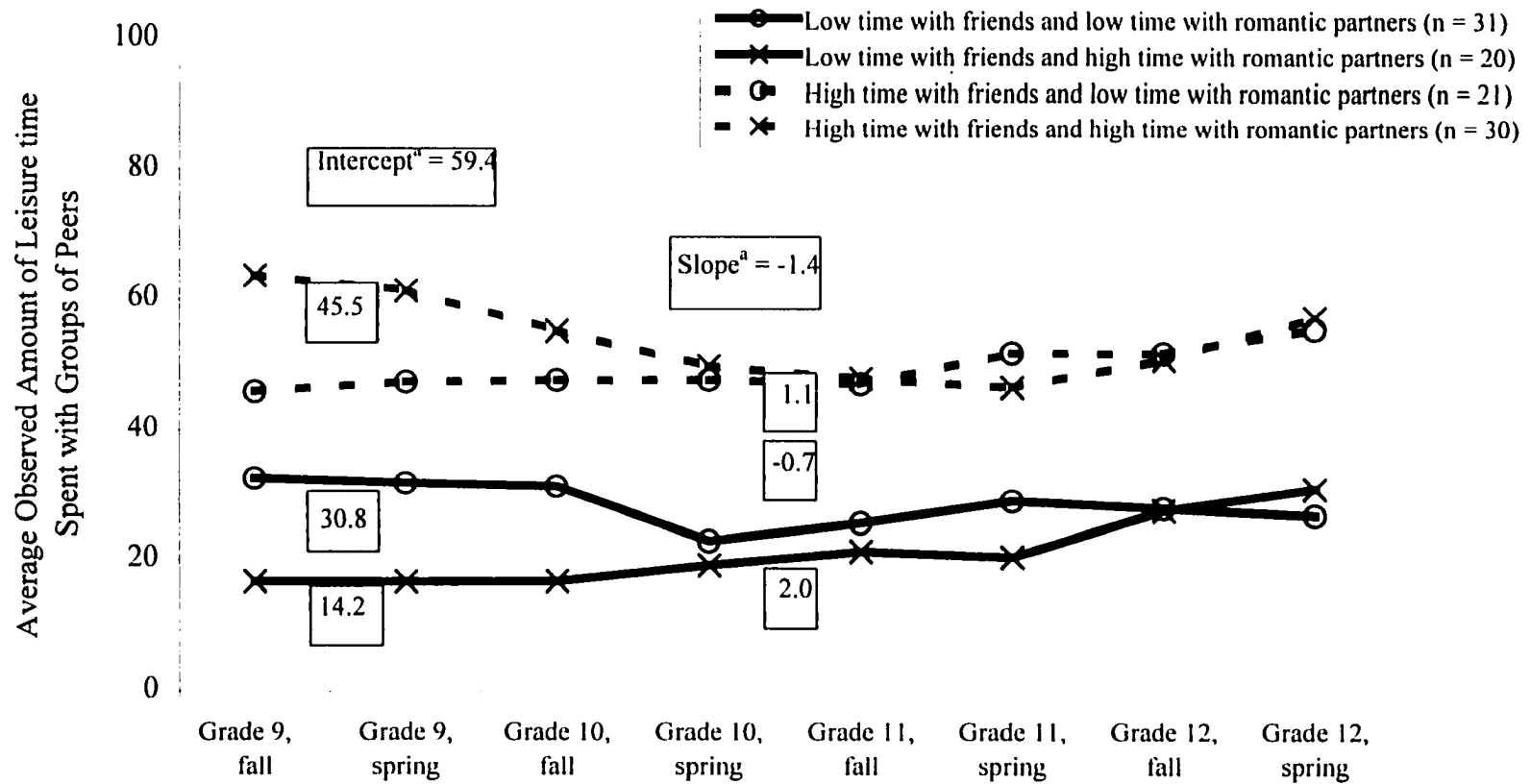
**Figure 21.** Average Trajectories of the Amount of Leisure Time Spent with Romantic Partners of Females Reporting Low or High Positive Qualities in Their Most Recent Romantic Relationships

<sup>a</sup>Estimated by random effects mixed modeling. Intercepts did not differ. Slopes differed,  $p=.05$ .



**Figure 22.** Average Trajectories of the Amount of Leisure Time Spent with Romantic Partners of Females Reporting Experiences with Physical Aggression in Romantic Relationships and those Without Experiences of Physical Aggression

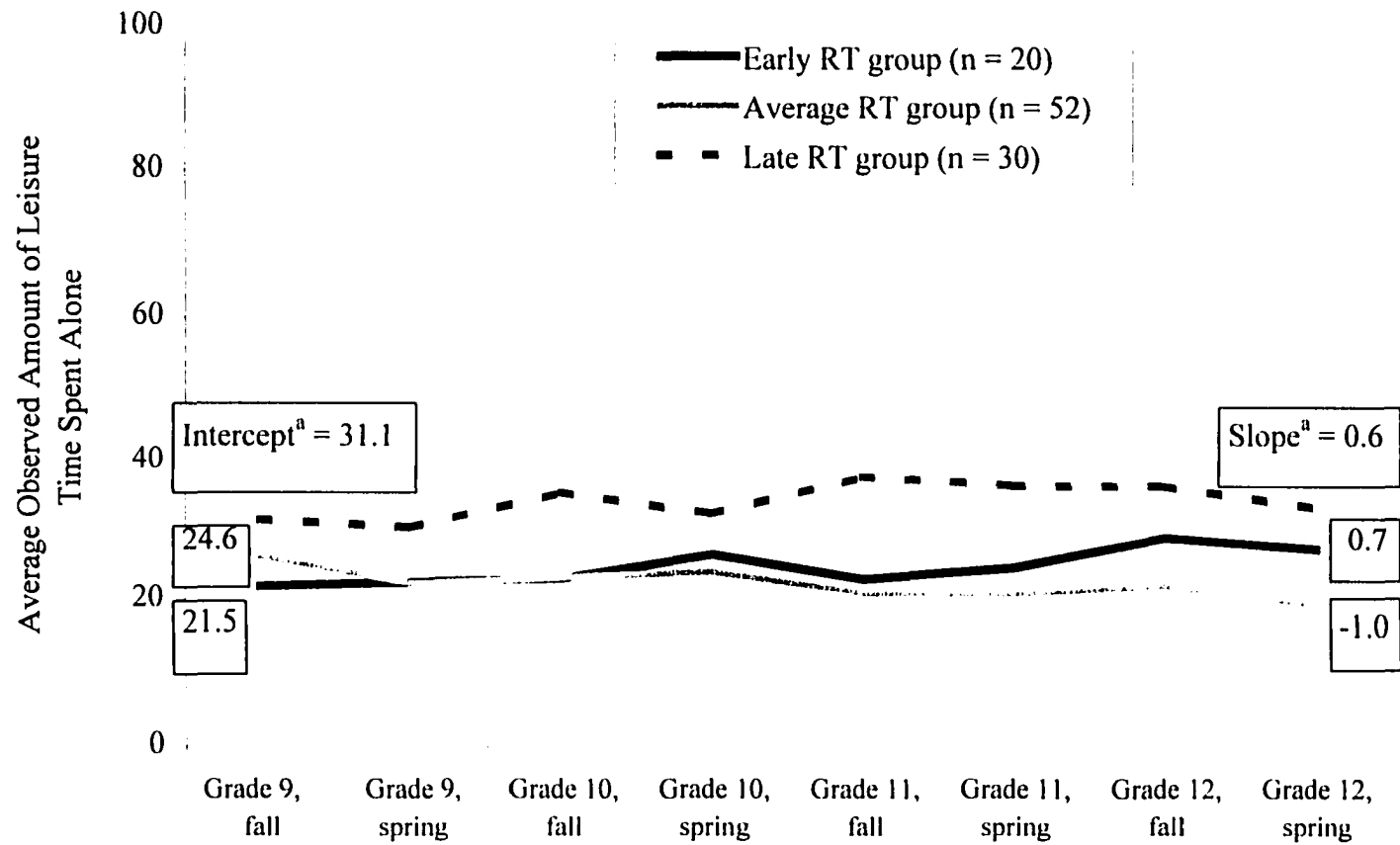
<sup>a</sup>Estimated by random effects mixed modeling. Intercepts differed,  $p < .05$ . Slopes did not differ.



**Figure 23.** Average Trajectories of the Amount of Leisure Time Spent with Groups of Peers of Four Groups of Female Adolescents Stratified by Low and High Ambient Levels of Time Spent with Best Female Friends and Romantic Partners during High School

<sup>a</sup>Estimated by random effects mixed modeling. Intercepts differed,  $p < .0001$ . Slopes differed,  $p < .05$ .





**Figure 24.** Average Trajectories of the Amount of Leisure Time Spent Alone of Females in the Early, Average, or Late Relatedness Orientation Transition Groups

<sup>a</sup>Estimated by random effects mixed modeling. Intercepts did not differ. Slopes differed,  $p < .05$ .

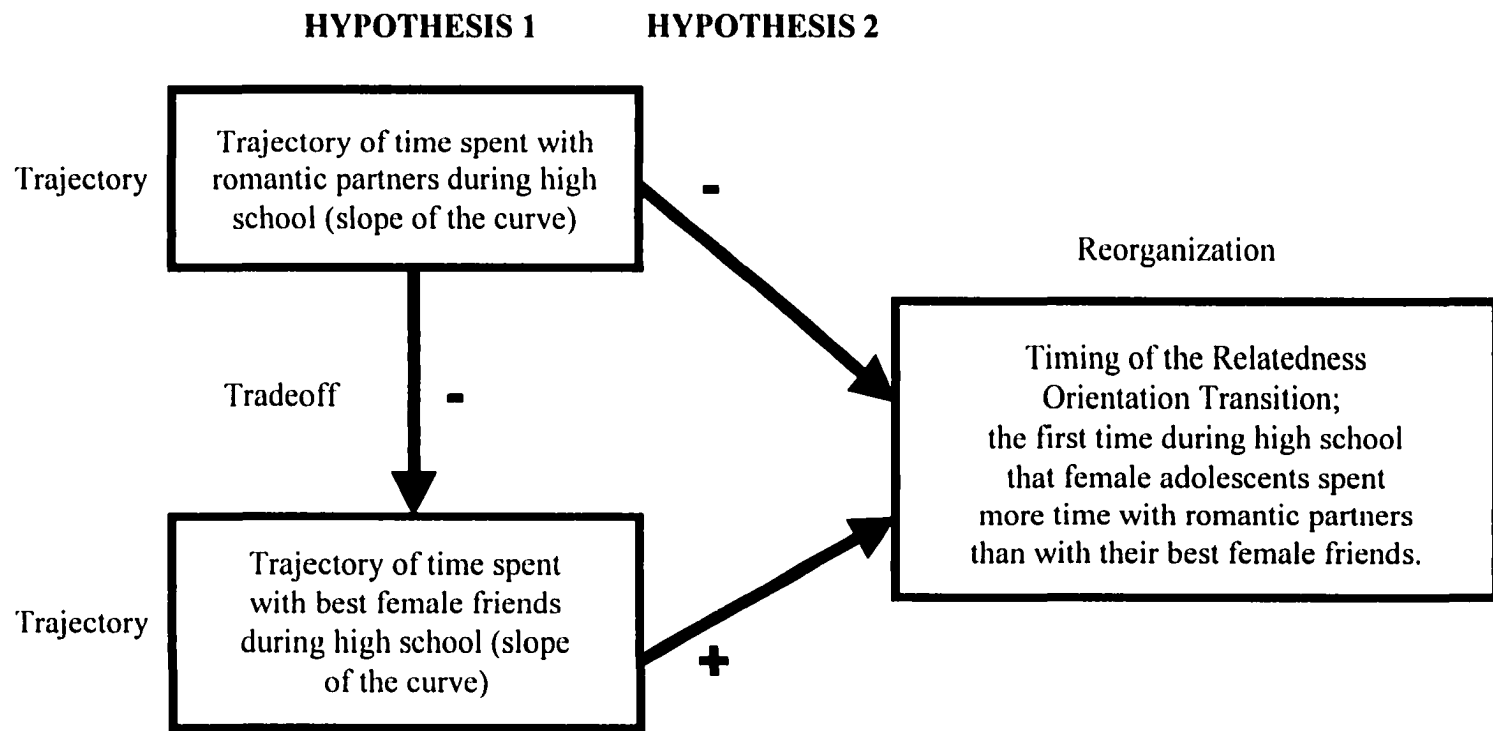
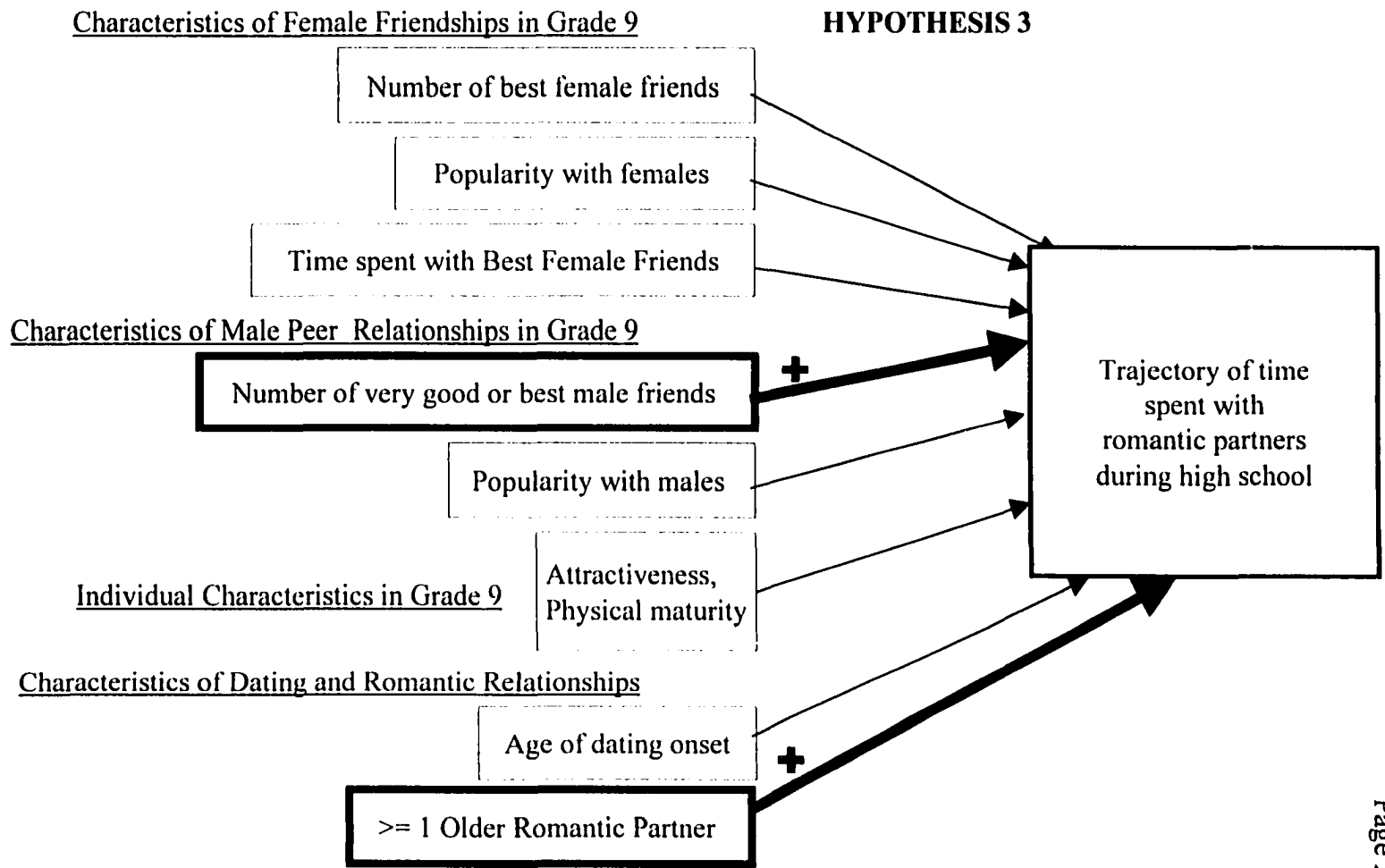


Figure 25. Graphical Depiction of the Results of Hypotheses 1 and 2



**Figure 26.** Graphical Depiction of the Results of Hypothesis 3

Characteristics of Female Friendships in Grade 9

**HYPOTHESIS 4**

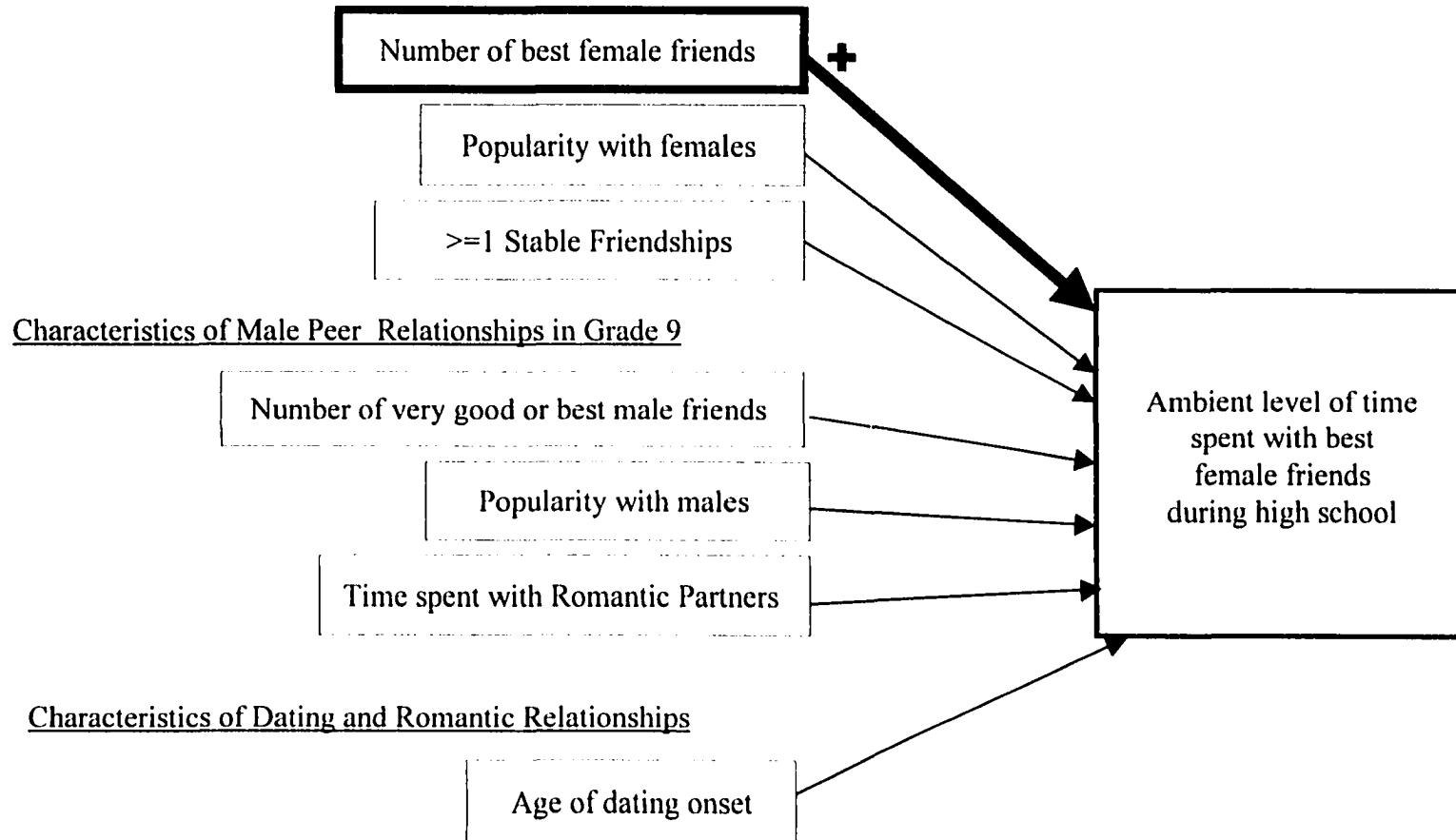
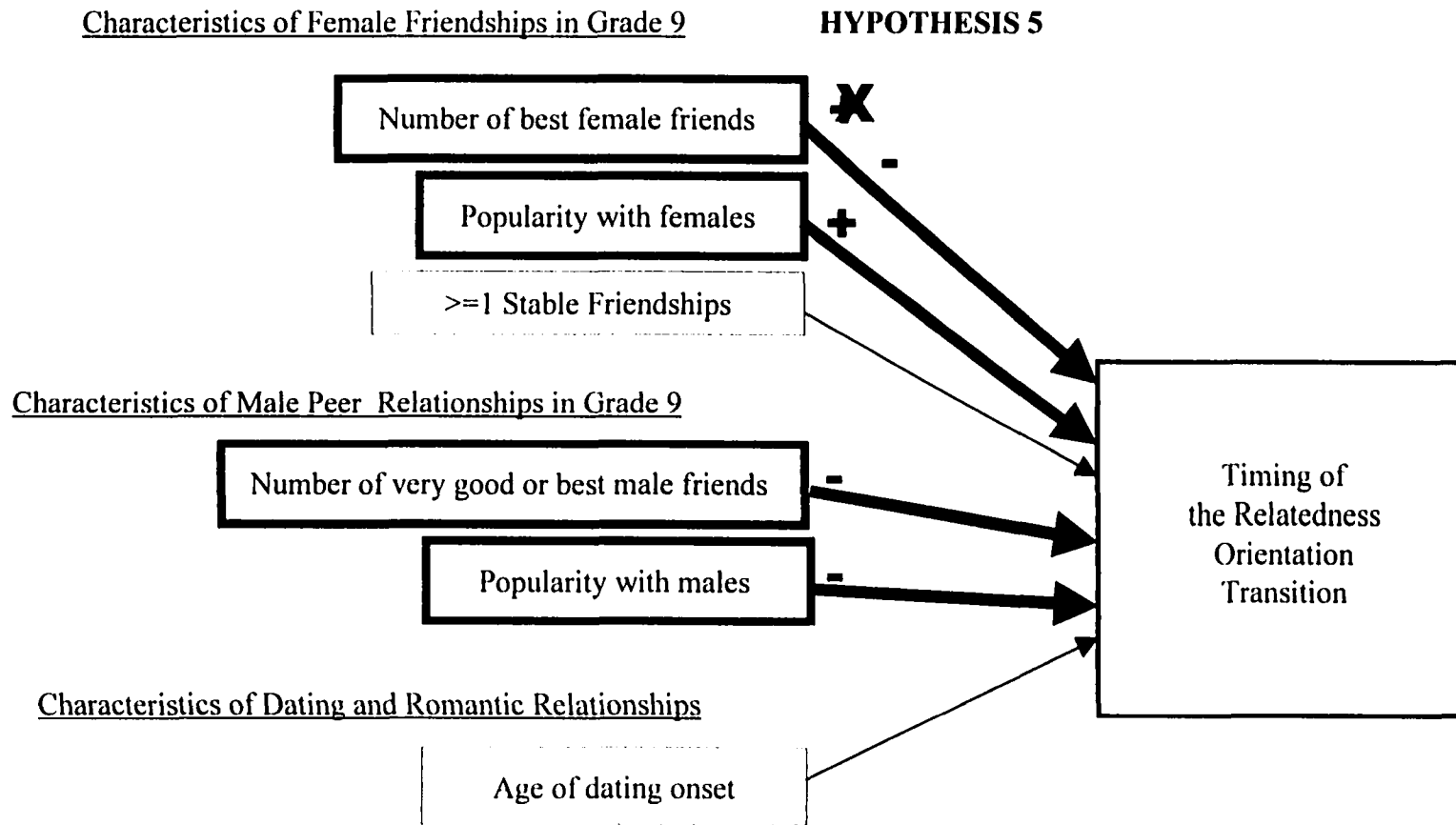


Figure 27. Graphical Depiction of the Results of Hypothesis 4



**Figure 28.** Graphical Depiction of the Results of Hypothesis 5

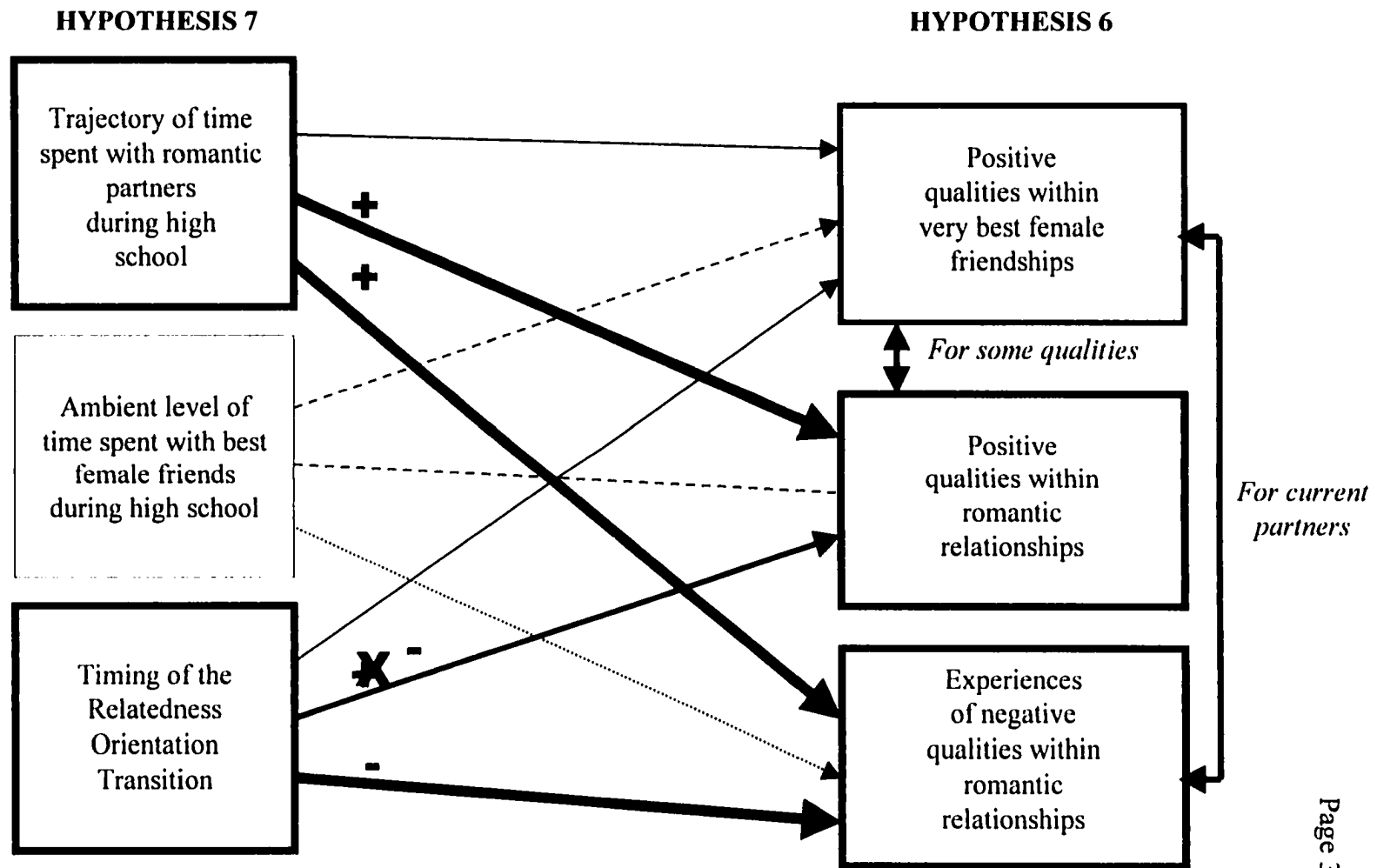


Figure 29. Graphical Depiction of the Results of Hypotheses 6 and 7

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