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STRESS, ADULT ATTACHMENT, AND ACADEMIC SUCCESS
AMONG COMMUNITY COLLEGE STUDENTS

By

Linda L. Petroff

A DISSERTATION

Presented to the Faculty of

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STRESS, ADULT ATTACHMENT, AND ACADEMIC SUCCESS
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University of Nebraska, 2008

Advisor: Kenneth A. Kiewra, Ph.D.

Little is known about predictors of academic success among two-year community college students. The purpose of this study was to examine the predictors of stress, adult attachment, and their interaction on the outcome variables of grade-point average and course completion among 160 two-year community college participants in a small Midwestern community college. Previous research had found relationships among these variables among four-year college students. Thus, it is important to examine these variables as predictors of academic success among community college students.

Participants completed a demographic questionnaire and three surveys which included scales with established reliability and validity: the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1989), the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), and the Cultural Congruity Scale (Gloria & Kurpius, 1996).

Negative associations between stress and attachment were revealed. Secondary analyses revealed that stress and the two measures of academic achievement were inversely associated for females. Further analyses revealed that the main effect of stress on grade-point average was significant for females and that there was a trend toward attachment moderating stress effects for grade-point average. For females, attachment moderated

stress effects for course completion. For males, there was a trend toward attachment moderating stress effects for course completion. Potential areas for future studies are discussed.

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CHAPTER I

Introduction

Party! Party! Party! Have FUN! These are the themes of several contemporary movies that portray college life in America (*American Pie Beta House*, Waller, 2007; *Animal House*, Landis, 1978). In the movie *American Pie Beta House*, all college students are presented as young, good-looking, childless, carefree, wealthy, and self-indulgent. Midterm is celebrated with a wild party of frat boys and beautiful girls. There are no books to read, no professors to please, no exams to cram for, no papers to write, and no bills to pay. Pleasure and fun are seen as the top priorities of irresponsible, immature college students.

These movies do not portray the reality of community college students. On a national basis, compared to four-year college students, community college students are more likely to be older, nontraditional, and first generation college students (Byrd, 2005). Community college students often have several jobs (Horn & Nevill, 2006). Over 30% have children and over 13% are single parents (Horn & Nevill, 2006). Community college students struggle to maintain homes for their children, maintain their jobs, and achieve in school.

I know community college students. I have taught community college students for 20 years and have witnessed their successes and their failures firsthand. Some students face tremendous obstacles as they struggle to attend college and perform successfully. They cope with ongoing challenges and stresses on a daily basis. Below are a few examples of students I knew who endured considerable stress.

Two 19-year-old female students lived in their cars in a shopping center parking lot for several months. They parked under bright lights at night for protection and used the

restroom in the shopping center. Both had several part-time jobs that provided money for food and gas but never enough money to pay for rent and a security deposit. One student had become pregnant at the age of 19 and the other had experienced serious parent-teenager conflicts. Both had been evicted from their family home by their parents and no longer had contact with family members. Both of these students dropped out of school without completing college.

In another example, two older male students lived together with their wives and young children in one small apartment. They shared one car, scheduled classes together, and shared childcare and living expenses. Each found jobs within walking distance of the apartment. Both longed for privacy for themselves and their families. However, they supported each other financially and emotionally and successfully completed college courses.

In another case, a single mother of five began a new semester enthusiastically as a full-time student several times but consistently dropped out by the second month. She found it overwhelming to take care of her family and maintain a full-time schedule of classes. She considered becoming a part-time student but was unable to secure funding. She decided to drop out and wait to attend school when her children were older.

These troubled students have made me more than a teacher. I am an advocate for community college students because they must often struggle with life's hardships to complete school. As a group, community college students need understanding and assistance. Their experiences have raised several questions for me. Why do some students succeed in spite of many obstacles? Why do some students simply drop out of school in the middle of a semester even though they are passing their courses? What can be done to help community college students become more successful academically?

This dissertation is one step toward answering these questions and increasing understanding of community college students and the factors that influence their successes and failures. Among the many community college students I meet, stress seems to be a common thread throughout their experiences. Many feel the stress of school and life outside school. Yet, some students seem to cope with stress better than others. My own observations suggest that positive relationships or attachments with others are what helps community college students cope with stress and ultimately succeed in school. This dissertation examines stress and attachment among community college students to determine their impact on academic success as measured by grade-point average and retention.

One of the major concerns facing two-year community colleges is student retention and the timely completion of courses by all students (Horn & Neville, 2006). Retention refers to students persisting in college and returning the following semester to enroll for more courses (Horn & Neville, 2006). Students who have higher grade-point averages and earn more credits relative to their peers with lower grade-point averages are more likely to persist the following semester and be retained in college (Shields, 2001). In the early 1990's, the national retention rate for community colleges was 35% (Feldman, 1991). By the early 2000s, the national retention rate dropped to 30% (*Diverse Issues in Higher Education*, 2005). Overall, there were declines in the retention of college students enrolled in two-year community colleges and declines in their course completion. As uncontrolled expansion is no longer the normal growth pattern (Harris & Parsons, 1974), the continued growth of educational institutions rests on their ability to help students maximize their successes and minimize their failures (Harris & Parsons, 1974). Thus, it is important to investigate the factors that have an impact on student academic success among community college students.

Stress is one factor that influences academic success and compromises academic performance (Salas, Driskell, & Hughes, 1996). Stress occurs when individuals feel pressure to adapt to their environment (Seyle, 1993). When faced with demands or pressure to adapt or change, people cognitively appraise their resources, coping skills, and ability to respond to demands of the environment (Lazarus & Folkman, 1984). Coping is the management of these demands (Larose & Bernier, 2001). College is an environment that places demands upon students to adapt. If individuals believe they cannot meet demands, they might experience stress that may result in lowered self-esteem, poorer health habits, poorer self-management choices (Hudd, et al., 2000), impaired information processing (Lok & Bishop, 1999), and impaired memory (Vondras, Powless, Olson, Wheeler, & Snudden, 2005). Studies (e.g., Ross, Niebling, & Heckert, 1999) indicate that when four-year college students interact with the college environment, they experience many new demands such as increased work load, pressure to maintain grades and earn a degree, establishing relationships with new faculty members and new friends, increased responsibilities for time-management, and increased independence from their families. Studies of four-year college students also indicate stress reduces grade-point average (Andrews & Wilding, 2004; Chemers, Hu, & Garcia, 2001; De Meuse, 1985; Shields, 2001; Struthers, Perry, & Menec, 2000). For example, Andrews and Wilding (2004) found that stress such as depression and financial difficulties were negatively associated with poor academic performance; Chemers and colleagues (2001) found stress resulted in lower grades and decreased commitment to remain in school. Furthermore, De Meuse (1985) and Shields (2001) both found inverse relationships between classroom performance and stress. Further evidence was provided by Struthers and colleagues (2005) who found that stress inversely predicted course grades at the end of the academic year.

Although the relationship between stress and academic success among four-year college students is well documented, little is known about this relationship among two-year community college students (Miller, Pope, Steinmann, 2005a; Miller et al., 2005b; Pierceall & Keim, 2007).

Academic stress is best understood with respect to how individual students react to stress. Some students presumably cope with stress more effectively than others. A factor that may mediate stress is an individual's attachment to another adult who provides advice, counsel, or comfort (Bernier, Larose, Boivin, & Soucy, 2004; Soucy & Larose, 2000). Adult attachment occurs when the following criteria are met: individuals seek the adult attachment figure, particularly when under stress, individuals seek security and comfort in the adult attachment relationship, and individuals protest when the adult attachment figure becomes or threatens to become inaccessible (Colin, 1996). Secure adult attachment relationships maintain love and trust between the individuals and adult attachment figures. The benefits for individuals involved in secure adult attachments include: more confidence to explore and learn about the environment (Aspelmeier & Kerns, 2003; Bernier et al., 2004), increased self-confidence, optimism, increased academic competency (Fass & Tubman, 2002; Larose, 2005), as well as ego strength, social competence, and secure integration in peer groups during adolescence (Bernier et al., 2004). These benefits, in turn, lead to improved academic success. For example, Aspelmeier and Kerns (2003) found that insecure attachments were related to increased anxiety about academic performance and lower academic success. Bernier and colleagues (2004) found that secure attachments were associated with higher academic achievement among four-year college students. Soucy and Larose (2000)

concluded and found that secure adult attachment results in improved college adjustment and, consequently, improved academic success.

Better academic success is more likely to lead to college retention. Thus, Perrine (1998) argued that research on attachment also added to the understanding of college retention among four-year college students. Using self-identification paragraphs and the self-report Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983), as well as grade-point average, in a convenience sample of four-year college students, Perrine found that students with insecure attachment perceived more stress than students with secure attachments. Among the eight students in her study with insecure attachment, all earned non-passing grade-point averages and quit college, whereas securely attached students perceived less stress and were more likely to persist in college.

As students respond to the environmental demands placed upon them, they appraise the resources available to meet the demands of their environment. Lazarus and Folkman (1984) argued that appraisal includes categorizing environmental demands and evaluating resources that meet demands. Resources include adult attachments in their lives (Howard & Medway, 2004). Communication with adult attachment figures, seeking support from attachment figures, and perceiving environmental demands as challenges rather than threats are considered positive responses to stress and might alleviate stress (Bernier et al., 2004; Hammen, et al., 1995; Howard & Medway, 2004). Consequently, a secure adult attachment might reduce the impact of stress upon college students' academic success.

Benefits of Academic Success

Academic success benefits people socially, economically, and personally (Gotlib & Wheaton, 1997; Pascarella & Terenzini, 2005). Social benefits include increased civic and community engagement, increased political involvement, better racial understanding, and increased social networking (Pascarella & Terenzini, 2005). Economic benefits include higher lifetime earnings that, in turn, positively affect living standards and provide more opportunities for education, health care, and family development (U.S. Census Bureau, 2000). Personal benefits include seven areas of college student development: achieving competence, managing emotions, moving through autonomy toward interdependence, developing mature interpersonal relationships, establishing identity, developing purpose, and developing integrity (Chickering & Reisser, 1993). More education results in beneficial life outcomes (Gotlib & Wheaton, 1997). The benefits of college are shared with families, communities, and society as a whole. Achieving these benefits depends in part on student variables and personal characteristics that students inherently bring to the college setting. Among these variables are stress, adult attachment, and their interaction. These variables are briefly introduced in the following sections.

Stress

Stress is a subjective feeling that occurs when an event requires a change in an individual's behavior, physical status, or cognitions based on his/her personal appraisal of the environment (Selye, 1976). Coping mechanisms are activated when the environment and person interact and processes of appraisal and response occur (Lok & Bishop, 1999; Lopez & Gormley, 2002). The person appraises the situation and available coping resources. When

perceived demands of the environment exceed perceived available resources of the person, that person subjectively feels stress (Cohen, 1986).

Subjective stress varies from person to person. Some people are more vulnerable to stress, as hypothesized in the diathesis-stress theory (Lazarus & Folkman, 1984; Moos & Schaefer, 1993). The diathesis-stress theory postulates that psychological and physiological vulnerabilities make some people more sensitive to stress, more likely to perceive environmental events as threatening, and more likely to react to perceived threats or stress in their environment. There is an ongoing interaction process between people and their environments. As the environment impacts the person, the person also impacts the environment (Lazarus & Folkman, 1987; Moos & Schaefer, 1993). This interaction is characteristic of full-time college students who face many life changes that increase stress. These life changes include increased independence, academic responsibilities, and self-management skills. High stress levels are associated with low academic achievement among four-year students but this relationship has not been clearly examined among two-year community college students (Andrews & Wilding, 2004; Chemers et al., 2001).

Acculturative Stress

Another type of stress that students might encounter is acculturative stress (Gloria & Kurpius, 1996). Acculturation refers to the broad range of changes that occur when there is intercultural contact (Phinney, Berry, Vedder, & Liebkind, 2006). Acculturative stress occurs when people come into contact with cultures that are different from their own and feel pressure to change. As people become involved in the new culture, they might perceive the new culture as threatening to their previous way of life. In general, understanding and using a new language, new life-styles, new cultural practices, and possibly giving up one's previous

cultural beliefs and practices are stressful situations for people who have contact with other cultures. Acculturative stress occurs in minority college students when minority students attend college classes and interact in campus life that is part of the majority culture (Gloria & Kurpius, 1996; Lau, et al., 2005; Sonderegger & Barrett, 2004). Acculturative stress is an additional source of stress in community college students (Gloria & Kurpius, 1996; Sonderegger & Barrett, 2004) who might experience incongruity, discomfort, and acculturative stress in the college environment.

Adult Attachment

Adult attachment relationships are affectional enduring bonds central to the life of an individual. Secure adult attachment develops trust, facilitates exploration of the environment, and increases self-confidence (Ainsworth, 1984; Bernier et al., 2004; Bowlby, 1979). Some researchers have viewed adult attachment as stable and continuous throughout adulthood (Waters, 1978), whereas others have viewed adult attachment as changing and transitional (Rutter, 1994; Sroufe et al., 2005). Some theorists believe that adult relationships recreate the basic characteristics of the earlier mother-child relationship as modified through adaptation to other attachment relationships (Ainsworth, 1969, 1984; Bowlby, 1951, 1969, 1980). The impact of previous and current relationships also affects future relationships. Consequences of secure adult attachment relationships have life-long impact in many spheres (Larose, Bernier, & Tarabulsy, 2005; Sroufe, Egeland, Carlson, & Collins, 2005), including academic achievement (Bernier et al., 2004; Lopez & Gormley, 2002; Lopez, Melendez, & Rice, 2000). Past research indicates that secure attachments result in higher achievement among four-year college students (Aspelmeier & Kerns, 2003; Bernier et al., 2004; Perrine, 1998;

Soucy & Larose, 2000). Regardless of their origin, secure adult relationships are beneficial for four-year college students.

Interaction of Stress and Adult Attachment

A moderator changes the relationship of stress and other variables by altering either the strength or direction of the relationship (Cooper & Bright, 2001). A moderator that decreases the impact of the independent variable on the dependent variable is called a buffer and, conversely, a moderator that increases stress impact is called a vulnerability or reactivity factor. Moderator effects are confirmed when attachment increases or decreases stress effects upon academic performance. When stress is the predictor, moderators are generally considered more important than mediators in reducing stress (Cooper & Bright, 2001).

There is a relationship between stress and adult attachment (Howard & Medway, 2004; McCarthy, Lambert, & Moller, 2006; McCarthy, Moller, & Fouladi, 2001; Vogel & Wei, 2005). Feeney and Noller (1996) theorize that secure attachment helps an individual respond more constructively to stress. The protective mechanisms of secure attachments are activated during stressful experiences (Solberg & Villarreal, 1997). The attachment relationship forms the basis of the attachment system that is turned to when individuals experience stress. Secure adult attachments provide trust and self-confidence in finding and using support (Bernier et al., 2004). When experiencing stress, individuals with secure adult attachments see themselves as closer to and more trusting of others; they interpret stress as challenging, rather than threatening (Hammen et al., 1995; Perrine, 1998). Secure adult attachments prepare individuals to face life's challenges and stresses. When adults are involved in insecure attachments, their appraisal of events might be altered. Feelings of insecurity, mistrust, and lack of self-confidence that are characteristic of insecure adult

attachments prevent optimal performance and increase vulnerability to stress (Bernier et al., 2004). Hence, less secure adult attachment is considered a vulnerability or reactivity factor. Securely attached adults may be vulnerable to stress effects. Secure adult attachment acts as a protective mechanism and reduces the stress (Solberg & Villarreal, 1997).

Some researchers have found an interaction effect between attachment and stress. For example, McCarthy et al. (2001) and Perrine (1998) found attachment styles modify the ways that individuals react to stress. In a convenience sample of four-year college students, students with secure attachment perceived less stress.

Academic Success

Grade-point average and course completion are frequently used as measures of academic success (Bernier et al., 2004; De Meuse, 1985; Perrine, 1998; Shields, 2001). A passing grade-point average is positively correlated with successful course completion. Students who successfully complete courses are more likely to be retained in college and graduate. Conversely, failing grades are also reflected in less course completion; those students are not retained in college. Thus, retention of students is often dependent on both their grade-point averages and their course completion (Perrine, 1998; Solberg, Hale, Villarreal, & Kavanagh, 1993).

Community College Students

Most research studies examining stress, attachment, and academic success include four-year college students rather than two-year community college students as participants (Pascarella & Terenzini, 2005). Community college students are a unique population comprised of traditional and nontraditional students. Compared to four-year college students, community college students are likely to be older, nontraditional, first generation college

students in their families, from poorer economic backgrounds, and have lower academic achievement (Byrd, 2005; Roueche & Roueche, 1993). They are also more likely to represent minority groups. More Native Americans, African Americans, and Latino students are enrolled in two-year colleges than in four-year universities (Miller, Pope, & Steinmenn, 2005). When compared with White or African American students, Latinos are even more likely to select community colleges than four-year institutions (Kurlaender, 2006).

There are a variety of reasons for attending a community college. Some community college students seek a new career, whereas others seek to update job skills (Horn & Nevill, 2006). Many community college students are completing coursework to transfer to a four-year college at a later date. Community college students are also more likely than four-year students to have external responsibilities that add to the challenge of completing college courses (Cohen & Brawer, 2003; Horn & Nevill, 2006).

Research indicated that there were similarities and differences experienced by two- and four-year college students. Both two- and four-year college students experienced stress when they enter college (Misra & Castillo, 2004). Both two- and four-year college students experienced increased independence from parents and increased academic responsibilities for time management and self-management. Both groups experienced the stress or pressure of meeting and making new friends and meeting and establishing relationships with new professors and instructors (Cohen & Brawer, 2003). Each student brings their own unique qualities to the two-year or four-year college environment including academic and social experiences based on unique family background and previous academic experiences (Pascarella & Terenzini, 2005). Four-year college students are more likely to have family expectations of success and, thus, families who provide support; these students are more

likely to have connections with mentors, believe in themselves, and have a strong self-concept and favorable self-image. Four-year students are more likely to have a “worldview” and have traveled. They are success and goal-oriented and experience economic security. They are competitive, motivated, and academically talented with strong testing scores and high grade-point averages (Roueche & Roueche, 1994).

In contrast to four-year students, community college students are more likely to have increased stress due to external responsibilities such as working and parenting (Cohen & Brawer, 2003). Astin (1985) suggested that student involvement increases learning and academic skills needed to succeed. External responsibilities decrease student involvement in academic and other college-related activities, including time spent studying.

In addition, community college students might also experience stress if they appraise the demands of college and perceive themselves as lacking the necessary academic and self-management skills needed to succeed. In a review of the literature concerning community college students, Cohen and Brawer (2003) suggested that the majority of community college students were from the lower half of the academic and socioeconomic groups in their senior classes. Thus, they are less likely than four-year college students to be academically prepared for the rigors of college courses. Additionally, community college students are more likely than four-year college students to be first-generation learners with little support, have a family to support, have a poor self-concept, have experienced failure, set unreachable goals, and act in self-defeating ways. They experience economic insecurity and view education as a solution to income and economic woes. Academic skills are weak and demonstrated in poor test scores and low grade-point averages (Roueche & Roueche, 1994). Consequently, two-

year community college students are likely to experience more stress than four-year college students throughout their college years.

The Model for the Present Study

Given that lower grade-point average and decreasing retention rates are a great concern in community colleges (*Diverse Issues in Higher Education*, 2005; Feldman, 1991), it is essential to examine the factors that impact academic success for community college populations. Attachment modified stress (Feeney & Noller, 1996; Howard & Medway, 2004; McCarthy et al., 2006; McCarthy et al., 2001; Vogel & Wei, 2005) and stress had a negative impact on academic success among four-year college students (Andrews & Wilding, 2004; De Meuse, 1985; Shields, 2001; Struthers et al., 2000). Thus, it is important to examine how attachment changes stress and the impact of that change on academic success among community college students. Therefore, the purposes of the present study were to explore stress and the impact of adult attachment on stress for two measures of academic success: grade-point average and course completion for community college students. Figures 1 and 2 show models depicting the relationship among stress, attachment, and academic success.

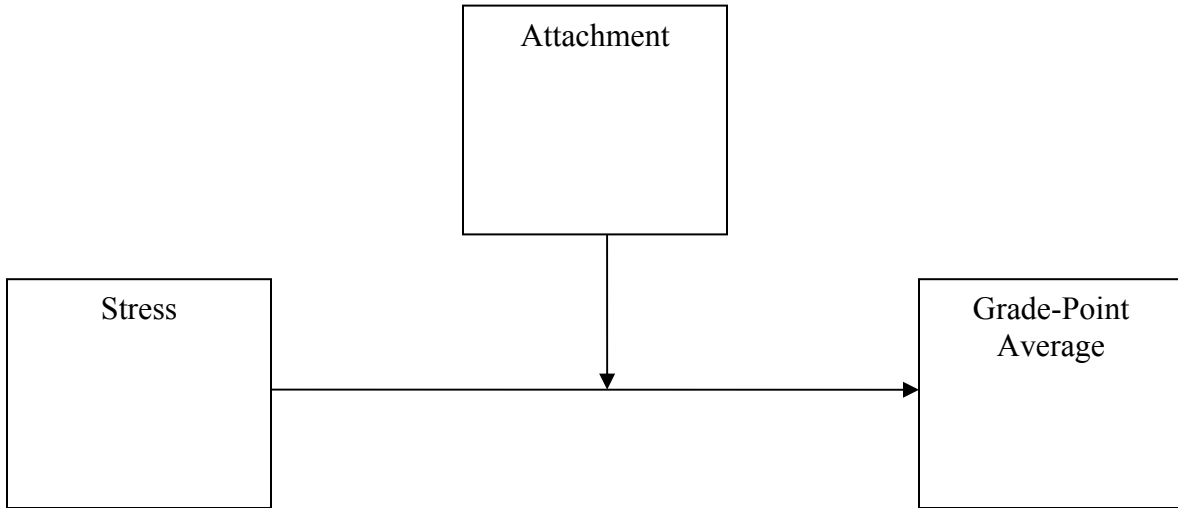


Figure 1. Moderator model of stress, attachment, and grade-point average.

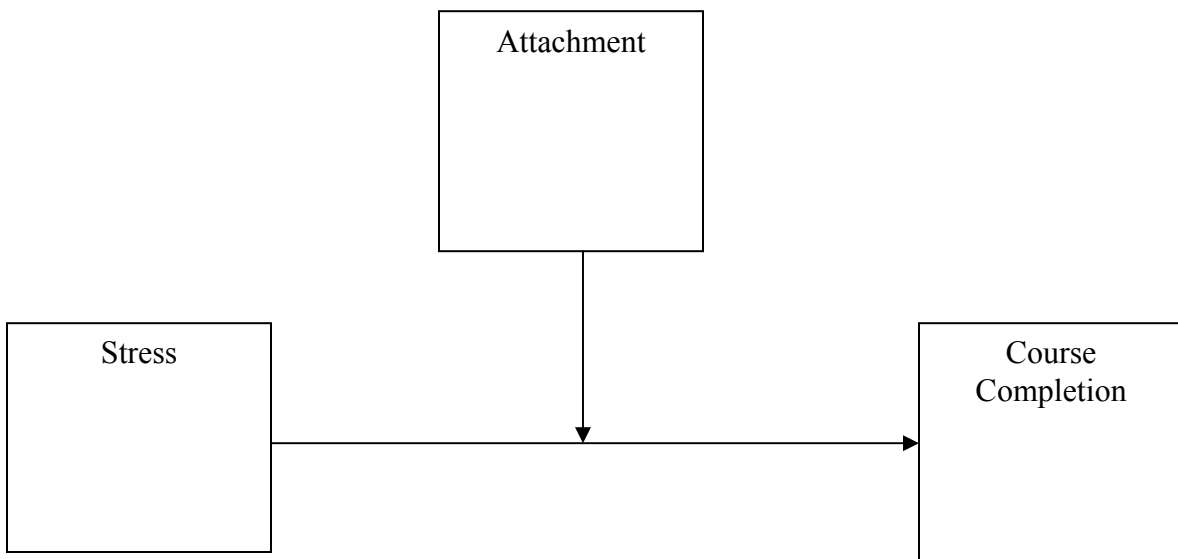


Figure 2. Moderator model of stress, attachment, and course completion.

Research Questions and Predictions

Almost all research on attachment and stress among college students has been completed in four-year university and college settings with convenience samples. This has left a gap in the research that included a need for studies using community college students as participants. Thus, the present study was based on a sample of community college students. Because community college students are a unique population, it was important to examine potential predictors of their academic success. Examining these variables for community college students offered new information in the identification of the predictors and moderators of their academic success. Given the characteristics of community college students, this population was expected to be vulnerable to the effects of insecure adult attachment relationships and increased stress. Community college students' ongoing struggles with external responsibilities might increase stress. Therefore, it was speculated that stress and adult attachment also affected community college students' academic success. It was also expected that adult attachment decreased stress impact upon academic achievement. Therefore, the present study examined the following research questions: Among community college students, does stress predict academic success as measured by (a) grade point average and (b) course completion? Among community college students, does adult attachment raise, lower, or not affect the relationship between stress and (a) grade point average and (b) course completion?

The expected findings for the present study included an inverse relationship between the independent variable of stress and the two outcome variables of grade-point average and course completion. Research conducted among four-year college students indicated an inverse relationship between stress and academic success. Because community college

students might have more stress than four-year college students, it was speculated that stress was negatively related to academic performance among two-year community college students.

With respect to attachment's influence on stress, it was predicted that a secure attachment lowered stress effects among community college students. Consequently, securely attached students were expected to earn higher grade-point average and complete more courses. It was also predicted that less secure attachment would increase stress for community college students and result in low grade-point average and less course completion.

In summary, the present study examined the roles of stress and attachment in academic success among community college students. Two measures of academic success: grade-point average and course completion were used as outcome variables.

CHAPTER II

Literature Review

This section reviews the theories of stress and attachment examined in the present study. Other variables include acculturative stress and the interaction of stress and attachment. Within each section, a presentation of studies and a table summarizing the studies follows the discussion of the theories. Measures used for each variable are also discussed within each major section of this review. The advantages and disadvantages of the measures are included. There is a special emphasis on the measures used in the present study. This chapter also discusses the literature concerning gender differences. The final part of this chapter ties this review to the present study.

College is a stressful experience and stress impacts students' academic success (Dusselier, Dunn, Wang, Shelly, & Whalen, 2005). Stress effects are lessened when students have a secure adult attachment in their lives (Aspelmeier & Kerns, 2003; Bernier et al., 2004; Moller, 2002). Thus, students with secure adult attachments experience greater academic success in college than students without secure adult attachments (Aspelmeier & Kerns, 2003; Bernier et al., 2004; Elliot & Reis, 2000). Gender differences have been noted in academic performance.

Stress Theories

Stress began as an ambiguous, general, and abstract construct, but as research evolved, the stress conceptualization became more specific (Bee & Bjorklund, 2004). There are essentially three theoretical perspectives on the mechanisms of stress: (1) stimulus-oriented theory, (2) response-oriented theory, and (3) interactionist theory. The first theory, stimulus-oriented theory, focuses on an actual event as a stimulus for stress and does not

reflect individual interpretation or perception of the event (Bee & Bjorklund, 2004). Stimulus-oriented theory proposes that the potential for stress is present in the environment. Thus, stress is viewed as an external force (Spielberger, 1971). Any aspect in the environment that increases demands upon the individual also imposes stress upon that individual (Derogatis & Coon, 1993). The external event stimulates, pressures, or impacts the person and results in a change or adaptation to the environment. Event stress might be measurable; severity and frequency of changes in events might affect their potency as stressful events. Consequently, some stress measures, such as the Life Events Scale (LES; Holmes & Rahe, 1967), measure environmental events. Some researchers have characterized life event scales as less comprehensive than inventories based on the individual's perception of stress because these scales do not take into account how the person reacts to the environment (Selye, 1976).

Hence, the second theory, response-oriented stress theory, focuses on how the person responds to the environment. Within response-oriented stress theory, researchers initially defined stress as an individual's subjective response to environmental events that demand change, coping, and adaptation (Holmes & Rahe, 1967). For example, Selye (1976) conceptualized stress as the individual's response to any event or situation that required a change in the individual. Any positive event that resulted in change was called eustress. In contrast, any negative change was called distress. Stress places pressure on an individual's cognitive, social, emotional, and physical status, a phenomenon called personal distress. These demands for change challenge people's ability to maintain physiological homeostasis and social and emotional stability (Aronson, Wilson, & Akert, 2005; Holmes & Rahe, 1967; Miller & Keane, 1987; Selye, 1976).

In support of response-oriented stress theory, Katkin, Dermit, and Wine (1993) postulated that an event is not inherently stressful, but that stress depends on the response elicited by the event. The person's response to environmental pressure to change defines the presence or absence of stress. Consequently, their stress definition focuses strictly on the person's response. Response-oriented theory was used in conjunction with stimulus-oriented theory to create the third stress theory: interactionist stress theory.

In interactionist stress theory, stress is the result of an interaction between the person and the event. For example, Lazarus and Folkman (1987) stated that stress results from the personal appraisal of the event and the appraisal of resources used to cope with the event. There are two processes involved in the appraisal process, the initial or primary appraisal and the secondary appraisal. During the primary appraisal process, the individual assesses the interaction or the relationship between the person and the environment, based on how the relationship impacts the person. Individuals first evaluate the environmental pressures impacting them. Then, during the secondary appraisal process, individuals evaluate or appraise their resources to respond to the pressure from the event.

Primary and secondary appraisal processes are interdependent in that each affects the other (Moos & Schaefer, 1993). As the perception of environmental pressures increase, stress feelings increase and might be manifested in psychological symptoms. Denial, withdrawal from reality, and avoidance are examples of psychological responses. The ongoing, dynamic reciprocity between the person and the environment is also identified as a transaction that results in a new state (Lazarus & Folkman, 1987). Thus, this theory has also been called transactional stress theory.

After the identification of transactional stress theory, Breznitz and Goldberger (1993) examined differences between cognitive appraisal and automatic appraisal. Cognitive appraisal is deliberate, purposeful, and well thought-out. Automatic appraisals are not well planned and might result in the “fight or flight” response in the face of environmental pressures. Appraisals might be based on previous experiences including excessive anger or fear, might be unrealistic, and might reflect a stable coping response.

Each of these stress models has addressed how stress operates upon a person. Several researchers viewed stress as a stimulus but did not consider the person’s stimulus perception (Bee & Bjorklund, 2004; Derogatis & Coon, 1993; Spielberger, 1971; Spielberger & Saronson, 1986). Other researchers focused upon the individual’s response to the environment (Holmes & Rahe, 1967; Katkin et al., 1993; Seyle, 1976). The interactionist stress perspective (Lazarus & Folkman, 1987) combines both of these views and is, therefore, more comprehensive, examining both the individual and the environment. In the interactionist framework, stress results when an individual interacts with the environment. This interaction might result in stress when individuals appraise the demands of their environments and perceive their resources as insufficient to cope with the demands of environmental events. Stress activates the attachment system (Mikulincer, Birnbaum, Woodis, & Nachmias, 2000). When experiencing stress, the attachment system determines how one reacts to stress based on previously acquired working models (Collins & Feeney, 2004; Larose & Soucy, 2005). Working models, internal cognitive representations of attachments, are based on previous interactions between the individual and the caregiver (Perrine, 1998).

Working models provide the frameworks for individuals' reactions to stress. Positive reactions to stress include communication, seeking support from others, and active problem solving. Negative reactions to stress include anger, blaming others, and using avoidance mechanisms such as denial (Howard & Medway, 2004). Negative stress reactions result in impaired information processing, decreased memory, diversion of attention from cognitive tasks, and, generally, result in lowered academic performance (Andrews & Wilding, 2004; De Meuse, 1985; Shields, 2001; Struthers et al., 2000). When individuals experience stress, attention is diverted to feeling worthless and overwhelmed (Nounopoulos, Ashby, & Gilman, 2006). These thoughts exacerbate the stress reaction (Mikulincer et al., 2000). Impaired information processing (Lok & Bishop, 1999) and impaired memory are also linked to stress (Vondras et al., 2005). When a person experiences stress, the attachment system, the result of interactions between the individual and the primary caregiver that began at birth (Bowlby, 1951, 1988), is activated by stress (Bowlby, 1988; Mikulincer & Horesh, 1999). The attachment system influences how a person copes with stress (Mallinckrodt & Wei, 2005). Positive reactions to stress are consequences of secure adult attachments. Negative reactions to stress are the consequences of insecure adult attachments.

Studies of Stress Effects

Stress is a major obstruction to academic success (Dusselier et al., 2005). Consequently, there are many studies that examined how stress influenced college students (Andrews & Wilding, 2004; Chemers et al., 2001; De Meuse, 1985; Dusselier et al., 2005; Gore, Aseltine, Colten, & Lin, 1997; Hudd et al., 2000; Misra & Castillo, 2004; Ross et al., 1999; Shields, 2001; Struthers et al., 2000; Vondras et al., 2005). Generally, research used self-report stress measures such as questionnaires, surveys, and telephone interviews.

Correlation and regression analyses were generally used for data analyses (Andrews & Wilding, 2004; Dusselier et al., 2005; Gore et al., 1997; Misra & Castillo, 2004; Shields, 2001; Vondras et al., 2005). One study used only correlation analyses (De Meuse, 1985) and another study used Chi Square analyses (Hudd et al., 2000). Some studies used a Structural Equation Model (Chemers et al., 2001; Struthers et al., 2000) and an additional study simply calculated stress percentages caused by specific events (Ross et al., 1999). All the studies used convenience samples except for two (Dusselier et al., 2005; Gore et al., 1997) that used random samples. Several common elements were discovered among the studies. All the studies, except two, were completed using four-year college students. Gore and colleagues (1997) used two- and four-year college students and Vondras and colleagues (2005) used volunteer participants living in the community.

Findings (Andrews & Wilding, 2004; Dusselier et al., 2005; Gore et al., 1997) revealed by regression analyses included the following examples. Using a random undergraduate university sample, Dusselier and colleagues (2005) indicated that females perceived more stress than males and that personal behaviors and relationship conflicts contributed to stress. In a study investigating the relationship between life-stress and achievement, researchers found that life stress predicted a decrease in exam performance from the first to the second year (Andrews & Wilding, 2004). In a study of stress and personal functioning after high school and during the transitions to college (Gore et al., 1997), commuter college students (those that lived at home with parents and attended a four-year college) were more likely to have lower mastery levels, poorer self-perceptions of mastery, and a poorer life quality based on cognitive appraisals, resulting in higher stress levels and less academic success, in contrast to students living on campus.

Misra and Castillo (2004) compared American university students' academic stressors and stress reactions with those of university international students using the Gadzella's Student-Life Stress Inventory (SLSI; Gadzella, 1991). The majority of participants in both groups were female. Five categories of academic stress were assessed: frustrations, conflicts, pressures, changes, and self-imposed stress. American students perceived higher academic stress than international students in all categories except change. Americans also reported more self-imposed stress and displayed higher behavioral and physiological reactions to stress than international students.

Shields (2001) found an inverse relationship between stress and academic success. As stress increased, grade-point average declined. As stress declined, grade-point average increased. Coping skills that decreased stress were associated with more persistence in college and more academic success. In nonpersisters, or students who later quit school, stress was unrelated to grade-point average or coping skills.

In a study of stress (Vondras et al., 2005), researchers examined everyday stress effects on the episodic memory test performance among young, middle-aged, and older adults living in the community. Everyday stress was defined as daily stressful events and accumulated life events. Stress was reflected in behaviors that ranged from mild memory impairment to dissociation and flashbacks. Young and mid-life adults who showed high everyday stress on the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) also demonstrated memory impairments similar to that of adults who were 40 or more years of age. Stress might impair memory and result in an inability to recall information and, thus, lower academic success.

De Meuse (1985) administered a self-report measure of life events stress to university participants during the second week of the semester. The measured outcomes included scores on four exams, extra credit points, and total course points. Findings showed that all six outcomes were negatively correlated with life events stress. Life events stress totals were negatively correlated with the first and third exams and total course points. Thus, life stress predicted course grades.

Other methods of statistical analyses revealed similar findings. Ross and colleagues (1999) calculated response percentages on a stress survey and found that interpersonal stress was the most frequent source of stress for university students. Using Chi Square, Hudd and colleagues (2000) found stress resulted in poor health habits, poor health decisions, poor self-habits, and low self-esteem.

Some studies used Structural Equation Models. Struthers and colleagues (2000) found that stress was inversely related to college grades among four-year college students, problem-focused coping reduced stress, and emotion-focused coping increased stress. Problem-focused coping was defined as coping that involved thoughts, actions, and strategies directed toward diminishing the source of stressful events or the impact of events. Stress was related to academic success. Chemers and colleagues (2001) found optimistic students had lower stress levels and more social support than pessimistic students. Students with high self-efficacy scores had less stress, higher academic expectations, and higher academic performance than students who had low self-efficacy scores. Low stress scores also resulted in less health problems and better overall college adjustment, whereas high stress scores resulted in more health problems and poorer overall college adjustment.

In summary, regardless of methodology, studies of stress offered a similar finding: stress reduced academic success. Four studies found negative relationships between stress and academic success among four-year college students (Andrews & Wilding, 2004; De Meuse, 1985; Shields, 2001; Struthers et al., 2000). In a study investigating the relationship between life-stress and achievement, researchers found that life stress predicted a decrease in exam performance from the first to the second year (Andrews & Wilding, 2004). The studies of Shields (2001) and Struthers and colleagues (2000) are particularly relevant because problem-focused coping is one of the strategies provided by secure adult attachment. Problem-focused coping strategy was related to stress reduction among four-year college students and increased their grade-point average and their persistence toward a college degree.

College students experience stress from several sources that include pressure for academic achievement (Dusselier et al., 2005), pressure to change and adapt to the college environment (Misra & Castillo, 2004), and memory impairment (Vondras et al., 2005). Stress increases as students make the transition into the demands of college life (Andrews & Wilding, 2004). In addition, students might experience increased demands for more and better academic work, more self-discipline, better time management, and improved decision-making (Chemers et al., 2001) than they experienced in high school.

Previous stress studies have only used students from four-year educational institutions. Table 1 summarizes the stress studies. These studies are further categorized according to the statistical analysis used.

Table 1

Stress Research

Authors	Participants	Findings
Stress research using regression analyses		
Andrews & Wilding (2004)	$N = 351$ 4-year students nonrandom sample	Relationship difficulties resulted in anxiety and stress. Depression and financial difficulties were related to poor exam scores. Stress resulted in poor academic success.
Dusselier, Dunn, Wang, Shelley, & Whalen (2005)	$N = 46$ 4-year students nonrandom sample	Females experienced greater stress than males. Stress was the foremost impediment to academic success.
Gore, Aseltine, Colten, & Lin (1997)	$N = 900$ 2- and 4- year students random sample	Commuter students had more stress at home, less support, less positive social experiences than residential students.
Misra & Castillo (2004)	$N = 392$ 4-year students nonrandom sample	American students had more self-imposed stress and greater stress reactions than international students.

Table 1 (continued)

Authors	Participants	Findings
Shields (2001)	<i>N</i> = 1247 Four-year students random sample	Stress had a negative effect on grade-point average among persisters. Persisters had more stress than nonpersisters.
Vondras, Powless, Olson, Wheeler, & Snudden (2005)	<i>N</i> = 98 community residents	Everyday stress was found to be negatively associated with memory tasks involving complexity and integrative and elaborative processing.
Stress research using correlation analyses		
De Meuse (1985)	<i>N</i> = 159 four-year students nonrandom sample	All six indices of classroom performance were negatively associated with life stress events.
Stress research using Chi Square analyses		
Hudd, Dumlao, Erdmann-Sager, Murray, Phan, Sourkas & Yokozuka (2000)	<i>N</i> = 145 four-year students nonrandom sample	Females and nonathletes had more stress than males and athletes. Stress led to unhealthy behaviors, poor self-esteem, and poor health habits.

Table 1 (continued)

Authors	Participants	Findings
Stress research using structural equation models		
Struthers, Perry, & Menec (2000)	<i>N</i> = 203 Four-year students nonrandom sample	Stress inversely predicted grades at the end of the academic year.
Chemers, Hu, & Garcia (2001)	<i>N</i> = 373 Four-year students nonrandom sample	Increased self-efficacy increased academic success; increased stress was related to decreased commitment to staying in school.
Stress research using percentage calculations		
Ross, Niebling, & Heckert (1999)	<i>N</i> = 100 Four-year students Nonrandom sample	Intrapersonal sources of stress were most common source of stress.

Stress Measures

Physiological and psychological stress measures are available. A common physiological stress measure is the amount of cortisol found in the saliva or the blood of a person (Kurina, Schneider, & Waite, 2004). Cortisol is a hormone produced by the adrenal glands, and it is postulated that cortisol levels are elevated when people experience stress. Cortisol levels are measured by blood draws or saliva specimens taken at specified times

over several days. These specimens are then frozen until analyzed in a laboratory. The advantages of cortisol in research include highly specific, measurable, objective stress assessments. The disadvantages include the inaccessibility to laboratory equipment, assessment cost, and relying on participants to take the samples as assigned in a timely manner, store them in a freezer, and then return them to the lab when asked (Kurina, Schneider, & Waite, 2004). Consequently, physiological measures require equipment, are invasive, and costly. Therefore, more studies use psychological stress measures than physiological measures.

Psychological stress measures include self-report journaling, daily diaries, self-report checklists, and life-event inventories. An approach to stress assessment is to ask participants to write their own stressful experiences and reactions in a journal or diary (ADE; Stone & Neal, 1984). Research indicates that the personal identification and journaling of daily stressful events provides specific individualized stress information. The journaling approach is based upon personal perception in stress assessment. However, disadvantages of the journaling approach include participants who lack writing skills and time to participate, which makes the use of journaling questionable. Journal and diary entries are also difficult to assess and measure objectively.

Self-report checklists, such as the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) and the Life Event Survey (LES; Saronson, Johnson, & Siegel, 1978), assess stress frequency and severity using Likert scales. Stress is a subjective state that can be measured by self-report, but self-report measures are inherently problematic because participants are not always honest or accurate (Bernier et al., 2004; Misra & Castillo, 2004; Vogel & Wei, 2005). However, self-report measures are popular and readily lend themselves

to analyses. Self-report surveys frequently appear in the literature because of ease of administration, lower cost than physiological measures, and efficiency for analyses.

Examples of survey instruments include the LES, the Student-Life Stress Inventory (SLSI; Gadzella, 1991), and the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983).

The LES consists of 57 events, each rated on a 7-point Likert scale from very positive to very negative, depending on its impact on the participant's life. Three scores are calculated: one for positive events, one for negative events, and total score. The negative score of the LES has been used as a predictor of psychological problems. However, the LES has low test-retest reliability for positive events (.19 to .53). Consequently, it is rarely used in current research studies (Spielberger & Sarason, 1986).

The SLSI is a 51-item self-report scale measuring academic stress and the student's stress reaction using a 5-point Likert response format (Misra & Castillo, 2004). Five categories of academic stressors are measured: frustrations, conflicts, pressures, changes, and self-imposed stress. Physiological, emotional, behavioral, and cognitive reactions to academic stressors are measured. However, nonacademic stress sources are not evaluated, so the SLSI does not provide an overall stress score. A student might experience stress outside the academic arena that would not be included in this inventory score. To address this problem, stress-rating scales were created.

Initially, stress-rating scales used weighted counts of stressful events. For example, the Recent Life Changes Questionnaire (RCLQ; Miller & Rahe, 1997) is an updated combination of the Social Readjustment Rating Scale (SRRS; Holmes & Rahe, 1967) and the SLE (Hobson et al., 1995). In 1967, Holmes and Rahe developed the SRRS as a measure of

perceived stress resulting from environmental change. Participants rated a list of stressful events. For example, marriage was assigned a weight of 50 and then participants compared other events to marriage based on proportionate scaling.

By using more events and changing the weight of events, Hobson et al. (1995) updated the SRRS and called it the SLE. Based on 3,122 surveys from the general population, analyses suggested that ratings were reasonably reliable stress measures (Hobson et al., 1998). Because participants evaluated each stressful event differently, variable weights were assigned for different events. An interesting finding was the overall rise in stressful event ratings between 1967 and 1995. Americans perceived more stress than 30 years before (Hobson et al., 1998). This method of stress assessment remains controversial. Because Holmes and Rahe (1967) postulated that any environmental stimulus resulted in stress, the original self-check lists do not differentiate between positive and negative events. In contrast, Pearlin (1989) criticized event-rating scales because personal stress perception was not considered.

Research indicated that minor daily stress contributed strongly to overall stress. Therefore, some researchers used the Daily Hassles and Uplifts Scale (DHUS; Lazarus & Folkman, 1989) to assess minor daily stress. Subsequent research has also broadened into additional studies of daily coping skills and primary and secondary appraisals (Salas, Driskell, & Hughes, 1996).

Other major concerns when using event-rating scales are reliability and validity. Test-retest reliability varies and often depends on the time lapse between testing times. If the time between measurements is shorter, reliability is generally higher. Stress is expected to vary across time, but it is difficult to separate actual variations from measurement error. Finally,

life-event survey items might or might not reflect each participant's experiences. Consequently, the items might not be valid (Pearlin, 1989).

In response to these concerns, more researchers use stress evaluation scales. There are several self-report stress evaluation scales. The Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) is efficient, easily read, and easily completed. The PSS was originally a 14-item self-report scale that allowed participants to evaluate stress severity during the previous month. The PSS is a global stress measure rather than an event-specific measure. Scores are summed and higher scores indicate higher perceived stress levels. Based on person-environment interaction, the PSS is based on the premise that people appraise events and their abilities to cope with the events. Because unpredictability, lack of control, and overload were previously identified as stress components, PSS items measure these three stress variables (Cohen et al., 1983). Because stress varies from day to day, the PSS predictive value is more accurate when used during the first 4 weeks following stressful events than at a later time. The developers argue that the PSS is an accurate stress measure because it directly measures perceived stress, not environmental events.

In the validation of the PSS, three samples were studied, including two college student groups and one group enrolled in a community stop-smoking program. In the first sample, university freshmen completed five surveys, including the PSS. Student health visits for 44 days before the test and 46 days after the test were recorded and then categorized as illness-related, injury-related, poisoning-related, or other. The second sample of college students completed the same surveys and health service visits were recorded for 90 days before the testing and for 46 days after the survey collection day. In the third sample, 27 males and 37 females in a smoking-cessation program completed several surveys including

the PSS. Coefficient alpha reliability for the PSS was .84, .85, and .86 for the three samples, respectively (Cohen et al., 1983). Two intervals were used for test-retest reliability. When the survey was readministered in 2 days to 82 students, the test-retest correlation was .85. Age was consistently unrelated to the PSS. In all samples, there was a relationship between the number of life events and the PSS, and the PSS was also a better predictor of student health service visits than life events survey scores. In both college student samples, increases in social anxiety were correlated with increases in perceived stress. Research indicated that the PSS measures the impact of life-events based on the participant's appraisal (Cohen et al., 1983). Because the PSS measures perception within the last month, the PSS has higher predictive value one or two months following the survey (Cohen et al., 1983) than for longer time periods.

In 1988, the original 14-item PSS scale was shortened to a 10-item version (Cohen & Williamson, 1988). Researchers used a national sample based on the 1980 U.S. Census data and telephoned participants randomly. Factor analyses were completed on the acquired data and the 4 items with relatively low factor loadings were dropped. The 10-item PSS showed slightly higher internal reliability than the 14-item survey, so it was recommended for future investigations. The PSS (the 14-item, the 10-item, and the 4-item scales) are extensively used in stress studies in a variety of populations, including college students. Studies using the PSS uncovered the following findings: Among community college students, 75% of the students were found to have moderate stress (Pierceall & Keim, 2007). High social integration in the college setting was associated with low levels of stress (Herrero & Gracia, 2004). Interpersonal relationships were associated with low levels of stress (Lee, Keough, & Sexton, 2002). Low stress levels were also associated with happiness and meaning in life in two

studies (Brissette, Scheier, & Carver, 2002; McGregor & Little, 1998). In the Brissette et al. (2002) study, optimism was related to lower stress and overall better psychological adjustment than pessimism. Additionally, other research (Nigel & Pope, 2005) indicated that female participants showed higher stress levels than males.

The PSS was used as a measure of stress and correlated negatively with episodic memory test performances in three age groups (Vondras et al., 2005). Everyday stress was associated with memory impairment. It is possible that participants who score high on the PSS might experience memory impairment that could contribute to lower college achievement. The PSS was also used as a pre- and post-survey by researchers to show that mind/body stress reduction intervention among four-year university students reduced perceived stress (Deckro, et al., 2002).

Acculturative Stress

One type of stress is acculturative stress (Gloria & Kurpius, 1996). Acculturation occurs when people come into contact and become familiar with other people that have a different culture than their own. The source of acculturative stress is the process of acculturation (Berry, Kim, Minde, & Mok, 1987). Feelings that occur during acculturation include confusion, anxiety, depression, marginality, alienation, heightened psychosomatic symptom level, and identity confusion (Berry et al., 1987). This interaction among cultures might result in stress when people perceive the new social environment as a threat to their original cultural practices. New ways of behavior, thinking, language, food, activities, and belief systems might change the original cultural environment and increase stress.

The adaptation process that occurs when cultures meet has been examined from several perspectives. It is a two-way dynamic process of ongoing change and adjustment that

affects persons who are living in the culture as well as those in future generations (Rodriguez, Myers, Mira, Flores, & Garcia-Hernandez, 2002). The stress of adapting and adjusting, or the stress that results from not adapting or adjusting, becomes an additional stressor in their lives (Gloria & Kurpius, 1996; Sonderegger & Barrett, 2004).

Acculturative stress might vary from generation to generation in newly immigrated families (Lau, et al., 2005). Children usually acculturate more quickly than adults (Lau et al., 2005). Consequently, children, relative to adults, might speak and understand the new language more quickly, accept new cultural practices more quickly, and give up previous practices. Adults might acculturate more slowly and this might result in a conflict between children and adults in a family. The conflict is called dissonant acculturation. It was initially thought that dissonant acculturation resulted in more conduct problems and conflict in newly immigrated youth (Lau et al., 2005). However, research indicated that conflicts were noted when youth aligned with the original culture and the parents did not (Lau et al., 2005).

Research (Rodriguez et al., 2002) indicated that economic stress and minority status are conceptually different from acculturative stress, and each stress needs to be isolated as a separate variable. Socioeconomic status and minority status confound the measures of acculturative stress (Rodriguez et al., 2002). Acculturation is an ongoing process and is accompanied by acculturative stress (Berry et al., 1987). Acculturative stress is not an experience of new immigrants alone and does not vanish with time, but continues to be experienced by subsequent generations (Gloria & Kurpius, 1996).

As newly immigrated students participate in college, the stress of college courses, the work amount, and deadline pressures are intensified by language and cultural stresses (Gloria & Kurpius, 1996; Solberg & Villarreal, 1997; Sonderegger & Barrett, 2004). Consequently,

students who experience higher acculturative stress have lower course completion rates and lower graduation rates (Gloria & Kurpius, 1996; Solberg & Villarreal, 1997) than those students who experience lower acculturative stress. Therefore, Gloria and Kurpius examined acculturation from the interactionist perspective and conceptualized acculturative stress as resulting from discomfort experienced when minority students interact in a new environment.

Acculturative Stress Studies

Three studies examined how cultural congruity or “fit” is related to various academic outcomes in four-year university students (Castillo et al., 2004; Gloria & Kurpius, 2001; Miville & Constantine, 2006). All three studies used correlation and regression analyses. In a study of Mexican American female university students, Castillo and colleagues (2004) used acculturation as a predictor and perceived stress as the outcome. Acculturation was a predictor of perceived stress. Lack of comfort in the environment increased individuals’ perceived stress. Those participants that felt more comfortable in the college environment experienced less perceived stress.

In a similar study, Gloria and Kurpius (2001) examined American Indian university undergraduates and used the Cultural Congruity Scale (CCS; Gloria & Kurpius, 1996) as a predictor of self-beliefs, social support, comfort, and college stress. Less congruity in the college setting was correlated with nonpersistence decisions. The predictors of a mentoring relationship, cultural congruity, positive self-beliefs, and self-efficacy were positively related with persistence. Comfort in the college setting combined with self-confidence and self-efficacy and resulted in course completion and academic success among four-year college students.

Miville and Constantine (2006) examined Mexican-American university students and found that acculturation, enculturation, cultural congruity or comfort, and perceived social support predicted help-seeking behaviors. Cultural congruity, low perceived social support from family, and high perceived social support from others in the college community predicted positive help-seeking attitudes. Those with less cultural comfort did not seek help when under stress. Help-seeking attitudes are one of the advantages resulting from secure adult attachments. When stress occurs, the help-seeking attachment strategy is activated and individuals with a secure attachment are more likely to seek help.

These studies generally support the thesis that cultural congruity or comfort in the college setting leads to more desirable outcomes (Gloria & Kurpius, 2001; Miville & Constantine, 2006). Four-year college students who lack cultural congruity might choose not to persist (Gloria & Kurpius, 2001) and not to seek help when needed (Miville & Constantine, 2006). High acculturative stress is associated with less academic success (Gloria & Kurpius, 1996). Thus, four-year college students who experience acculturative stress have lower grade-point averages and less course completion than students who do not experience acculturative stress. These studies, using correlation and regression analyses (Castillo et al., 2004; Gloria & Kurpius, 2001; Miville & Constantine, 2006), showed a relationship between cultural congruity and stress. Table 2 summarizes the acculturative stress literature.

Table 2

Acculturative Stress Studies Using Regression Analyses

Authors	Participants	Findings
Castillo, Conoley, & Brossart (2004)	<i>N</i> = 247 4-year students nonrandom	As cultural congruity declined, stress increased. As family support declined, stress increased.
Gloria & Kurpius (1996)	<i>N</i> = 454 4-year students nonrandom	As cultural congruity increased, stress decreased and persistence increased.
Miville & Constantine (2006)	<i>N</i> = 162 4-year students nonrandom	As cultural congruity increased, psychological help-seeking behaviors increased.

Correlation and regression analyses were the most common statistical analyses used in stress and acculturative stress studies (Andrews & Wilding, 2004; Castillo et al., 2004; Chemers et al., 2001; De Meuse, 1985; Dusselier et al., 2005; Gore et al., 1997; Hudd et al., 2000; Misra & Castillo, 2004; Ross et al., 1999; Shields, 2001; Struthers et al., 2000; Vondras et al., 2005). It is important to note the similar findings among these studies that stress reduced academic success among college students.

Acculturative Stress Measures

Acculturative stress is typically assessed with interviews and self-report checklists (Rodriguez et al., 2002). Self-report checklists depend on the accuracy of the items used to assess the variable as well as the honesty and accuracy of the self-reporter's responses.

There are several self-report checklists used to assess acculturative stress. A self-report checklist used to assess acculturative stress, the Cultural Congruity Scale (CCS; Gloria & Kurpius, 1996), was created to measure the "fit" (i.e., cultural comfort) experienced by Latino students in college settings. Latino students are underrepresented in graduation rates and disproportionately drop out of college. These students are "pulled" between two cultures: the Latino culture and the Anglo culture. Therefore, they perform a balancing act trying to maintain both cultures in order to "fit" in college and to "fit" in their families. Thus, acculturative stress is believed to contribute to lower academic performance. The CCS was designed specifically for Latino college students and was based on the six items of the Perceived Threat Scale (PTS; Ethier & Deaux, 1990), a scale originally used by Ivy League colleges to evaluate perceived threats towards minority students. Lazarus (1986) defined stress as a perception of a threat. The CCS essentially assesses acculturative stress or the stress perceived by minority students. Higher CCS scores indicate a better "fit" between the person and the culture and less acculturative stress. Lower CCS scores indicate a poorer "fit" between the person and the culture and increased acculturative stress (Gloria & Kurpius, 1996).

The CCS is widely used and continues to be a popular measure of acculturative stress. In a study of American Indian undergraduates, lack of comfort at the university, as revealed by lower CCS scores, was associated with dropping out (Gloria & Kurpius, 2001). In a study

of minority students, those who had fewer help-seeking behaviors also had lower CCS scores (Gloria & Kurpius, 2001). Lower CCS scores were previously related to attrition (Gloria & Kurpius, 2001). Congruity increases as participants feel comfortable in the new culture. A factor that might increase comfort and feelings of acceptance are the attachments or relationships in the person's life.

Adult Attachment

Attachment studies began with the research completed by Bowlby and Ainsworth in Great Britain (Ainsworth, 1969; Bowlby, 1969). Following World War II, Bowlby was concerned about children living in orphanages and the lack of secure parental relationships in their lives (Bowlby, 1969, 1980). Because of these initial studies, attachment research has grown tremendously and now incorporates physical growth, emotional development, and cognitions across the lifespan and across many cultural groups. Attachment has also been differentiated into secure and insecure attachment (Bowlby, 1979; Bretherton & Munholland, 1999; Colin, 1996).

Secure adult attachment is a close, affectional, and intimate bond between two individuals that is based on interactions and feelings of mutual trust and respect. Trust is an essential foundation of secure attachment (Bowlby, 1979; Bretherton & Munholland, 1999; Colin, 1996). Adult attachments are conceptualized as extensions of earlier infant-mother relationships and attachment figures are the specific individuals sought and depended on for protection and care (Colin, 1996). Attachment security impacted relationship and emotional functioning across the entire lifespan (Moller, 2002). The relationships formed in infancy during interactions with the primary caregiver are prototypes or precursors of future

relationships and interactions throughout life (Diehl, Elnick, Bourbeau, & Labouvie-Vief, 1998).

Interactions early in life result in the formation of internal working models, including a self-model and an other-model, which contribute to adult attachment. The internal working models are the foundation of the attachment system (Mikulincer et al., 2000). The self-model is concerned with the establishment of a safe, realistic, and positive identity, whereas development of the other-model is concerned with the establishment of stable, enduring, and mutually satisfying interpersonal relationships (Diehl et al., 1998). The self-model is central to attachment theory (Main & Hesse, 1990). Most theorists believe that mother-child relationships are the beginning of adult attachment bonds. Beginning in infancy and childhood, children form internal working models of what an attachment relationship is and should be like, based on their own mother-child relationship. Interactions and verbal and nonverbal communication between the mother and child frame the child's view of trust and security, influence the child's future attachment behaviors (Kobak, 1999), and provide the basis of the internal working models. Secure internal working models, formed during responsive, sensitive interactions with the primary caregiver, provide children a sense of control and mastery of their environment that continues throughout life (Cook, 2000). Secure attachments favor autonomy and exploration, and, ultimately, competence in social and academic settings (Bernier et al., 2004). These internal working models also impact their future cognitions, decisions, and emotions regarding relationships. Basic values or personality are integrated in a working model and thus affect behavior in other contexts (Rholes & Simpson, 2004). Internal working models provide a framework for life-long attachment relationships. As individuals mature, these internal working models also underlie

attachment relationships with peers who also might serve as a psychological security source (Marsh, Allen, Ho, Porter, & McFarland, 2006).

Adult attachment relationships are relatively stable (Waters, 1978) and are differentiated into secure and insecure attachments (Ainsworth, 1984). Insecure adult attachments are further differentiated as ambivalent, avoidant, and disorganized (Main & Solomon, 1986). Secure and insecure adult attachment relationships are identified by distinct and unique characteristics, and they have complex and varied consequences (Mikulincer & Horesh, 1999; Treboux, Crowell, & Waters, 2004).

Many studies provide compelling evidence for the benefits of secure attachment. Securely attached individuals are less neurotic, more agreeable, have higher self-esteem, are socially more outgoing, and report less loneliness than insecurely attached individuals (Hazan & Shaver, 1990). Securely attached adults view themselves as worthy of love and as effective in their environment. When problem solving, they expect to rely on attachment figures and receive help and support. The internal working models, based on earlier cognitive structures (Perrine, 1998), contribute to the development of secure attachment by providing a framework for expectations from others (Cook, 2000). There are complex emotions and actions involved in adult attachment that include the desire to maintain proximity, to rely and be relied upon, and to feel secure in a relationship (Feeney & Noller, 1996; Hazan & Shaver, 1987; Rholes & Simpson, 2004; Sperling & Berman, 1994; Sroufe et al., 2005).

Securely attached adults have a desire and commitment to maintain their relationship while trusting each other and respecting each other's sense of autonomy. In a community survey (Diehl et al., 1998), it was found that securely attached adults evaluated their current family and their original family more positively, had more self-confidence, more

psychological well-being, better interpersonal functioning, and were less likely to use immature defensive behavior to resolve conflict than insecurely attached adults. Research estimated that 59% to 66% of the general population is securely attached (Mickelson, Kessler, & Shaver, 1997; Vivona, 2000).

More specifically, a secure adult attachment becomes a safe haven to turn to in stressful times for university students (Hazan & Zeifman, 1999). Secure adult attachments facilitate the development of self-confidence, high self-worth and self-efficacy (Cutrona et al., 1994), and result in effective information processing, improved memory, and problem-solving skills. Secure attachment contributes positively to subjective well-being, affect regulation, self-esteem, person perception, and interpersonal cognitions and behaviors (Mikulincer et al., 2001). Secure attachments promote exploratory behavior that is, in turn, associated with increased academic success (Aspelmeier & Kerns, 2003; Bernier et al., 2004). Connections among attachment figures (Hazan & Zeifman, 1999), happiness (Hazan & Shaver, 1987), optimism, and psychological adjustment (Cooper, Albino, Orcutt, & Williams, 2004) are consequences of secure attachment.

Additionally, among college students, secure adult attachment consequences include a strong, healthy sense of self (Mattanah et al., 2004) and reliance upon parents when under stress (Kenny & Donaldson, 1991). A secure attachment facilitates the process of maturation and separation and provides a foundation for autonomy (Sroufe, 2002). Securely attached adults value themselves as worthy of concern, support, and affection (Perrine, 1998). Secure adult attachments result in increased self-efficacy (Cutrona et al., 1994). Self-efficacy is a belief in personal capabilities to mobilize motivation, cognitive resources, and action needed to exercise control in their environments. People who have strong self-efficacy focus their

attention on analyzing and finding solutions to problems (Bandura & Jourden, 1991). Thus, securely attached students have better problem solving skills, set higher goals, and persevere longer to reach those goals than insecurely attached students. Securely attached adults accept themselves and others, trust in the relationship's stability and protection qualities, and allow each participant to develop his or her potential.

Open communication is an essential component of a secure attachment (Kobak, 1999). In secure adult attachments, individuals communicate these qualities through interactions with others. The benefits of secure attachments include less perceived stress in adults and college students (Moller, 2002). Secure attachments are associated with higher needs for achievement and less fear of failure than insecure attachments (Elliot & Reis, 2000). These consequences of secure adult attachment are particularly important when considering the associations between attachment and academic outcomes among college students. The essence of secure adult attachment is trust in an attachment figure, ability to rely on the other person, and open communication with that person. These qualities underlie the working internal models and are positive consequences of secure adult attachment.

In contrast, people with insecure attachments have difficulty in establishing and maintaining healthy adult relationships, lack trust in others, and feel anxious and ambivalent about adult relationships (Ainsworth, 1984, 1989). Insecure adult attachments are associated with social, physical, and cognitive difficulty (Eng, Heimberg, Hart, Schneier, & Liebowitz, 2001; Treboux et al., 2004). Insecurely attached adults do not turn to others when experiencing stress, generally do not rely on others, and are unreliable in relationships. They expect rejection and inconsistent responses from others (Cook, 2000). Insecurely attached adults appear outwardly self-important. They are prone to pomposity, self-adoration, and

have an attitude of entitlement. They are also haunted by a fragile self-esteem (Karen, 1994). Under stress, insecurely attached adults have difficulty and their interactions might increase the already-present stress. Insecure attachments lead to a diminished sense of self-efficacy that is manifested in preoccupation with failures, envisioning future failures, and activation of stress reactions (Bandura & Jourden, 1991). Insecure attachments are more problematic than secure attachments in several aspects of functioning. It is estimated that approximately 34% to 49% of the adult population is insecurely attached (Mickelson et al., 1997; Vivona, 2000).

Insecure adult attachment might be specified as adult attachment anxiety or preoccupation (Bernier et al., 2004). It is characterized by the fear of rejection and abandonment. Insecure adult attachment might also be categorized as adult attachment avoidance, characterized by the fear of intimacy, discomfort with closeness, and fear of dependence (Wei, Vogel, Ku, & Zakalik, 2005). Anxiously attached individuals or preoccupied individuals use extreme strategies to elicit increased attention from others. They are hypersensitive (Wei et al., 2005). Anxiously attached adults view themselves as misunderstood, underappreciated, and lacking in confidence. They perceive others as unreliable (Perrine, 1998). Preoccupied attachment is exemplified by enmeshment with parental figures. Persons with preoccupied attachment have few emotional and cognitive resources to invest in school achievement (Bernier et al., 2004). Thus, insecurely attached students, particularly anxiously attached students, might devote more time and energy to psychological needs and are likely to have less energy available for academic pursuits than securely attached students (Mikulincer et al., 2000). Consequently, they have fewer social and achievement competencies (Bernier et al., 2004; Karen, 1990; Main & Hess, 1990).

Thus, insecure, anxious (preoccupied) adult attachments are detrimental to academic success. Bernier and colleagues found that 4% of at-risk college freshmen were preoccupied.

People in adult avoidant attachments, also called dismissive attachments (Bernier et al., 2004), avoid closeness, erect a strong boundary around themselves, and are uncomfortable in attachment relationships. Because they are emotionally distant and skeptical of relationships, they find it difficult to trust or depend on others (Perrine, 1998). Thus, they do not trust others and do not rely upon others in a stressful situation. They are likely to use poor and ineffective conflict resolution (Diehl et al., 1998). Dismissive adolescents show anger toward peers, feel lonely and helpless, and are socially withdrawn (Bernier et al., 2004). Bernier and colleagues found that 4% of at-risk college freshmen were dismissive.

Another type of insecure attachment has been identified as disorganized or unresolved attachment (Main & Solomon, 1986). Disorganized attached adults manipulate, use, and charm others for their own gains. They might not establish or maintain eye contact and often have a history of severe abuse or neglect. Unresolved issues of trauma and loss motivate them to be frightened of others and frightening to others (Crittenden, 1992; Sperling & Berman, 1994). Disorganized attachment is based on avoidance of psychological and physical pain, fear of inevitability of harm, hopelessness, and helplessness (Lyons-Ruth, 1996; Main & Solomon, 1986). In the same study of at-risk college freshmen, Bernier and colleagues (2004) indicated that 3% of the sample were classified as unresolved or disorganized attachment.

Attachment Studies

Research among four-year college students indicated that secure attachment provided advantages for people. Adult attachment is based on mental representations of earlier attachment experiences, and a secure attachment encouraged more engagement in exploratory behavior among children and adults (Hazan, Gur-Yaish, & Campa, 2004). Thus, securely attached adults are likely to engage in exploratory learning in the college environment and have academic success. Many factors affect academic success, and, ultimately, attachment underlies many of those variables (Sroufe et al., 2005).

Most of the research reviewed for the present study involving attachment and academic success used multiple regression analyses (Bernier et al., 2004; Fass & Tubman, 2002; Larose & Bernier, 2001; Larose et al., 2005a; Larose et al., 2005b; Lopez, 2001; Soucy & Larose, 2000). One study used correlation analyses (Kenny & Donaldson, 1991) and one study used Structural Equation Modeling (Cutrona, Cole, Colangelo, Assouline, & Russell, 1994).

Research using multiple regression analyses examined the relationship between attachment and academic success among at-risk college freshmen. Findings indicated that preoccupied attachment contributed to a decline in college adjustment and a decline in grades. Preoccupied or anxious attachments were a risk factor and contributed to less academic success (Bernier et al., 2004).

Fass and Tubman (2002) examined the influence of parental and peer attachment on academic achievement among four-year college students. Attachment was associated with academic competency using self-reported grade-point averages as a measure of academic success. Although level of attachment was not directly correlated with grade-point average,

scholastic competence was associated with measures of self-esteem, locus of control, optimism, and high-school grade-point average. Those students who had the lowest attachment ratings also had the lowest levels of competency. Obtaining the grade-point average from the registrar instead of using self-reported grade-point average might have added strength to this study.

Larose and Bernier (2001) investigated the relationship between attachment and adjustment during the transition from high school to college. Regression analyses indicated that preoccupied attachment increased stress, distrust, loneliness, and difficulty in seeking help from college teachers throughout the transition. Dismissive attachment was not related to stress during the transition to college.

In another study, Larose and colleagues (2005a) examined the relationship between attachment and perceived security in mentoring. Regression analyses revealed that attachment scores interacted with security in mentoring to predict conflict relationships with teachers. At-risk students who were securely attached to their mentors had fewer conflicts with teachers and maintained the mentoring relationships longer after the end of the study than students with perceived insecure mentoring relationships.

Longitudinal studies also supported the findings that attachment was positively associated with academic success. Larose and colleagues (2005b) used multiple regression analyses and a longitudinal approach to examine the relationships among attachment, learning dispositions, and academic success during the transition from high school to a four-year college. Participants completed Adult Attachment Interviews (AAI; George, Kaplan, & Main, 1985). Learning dispositions were comprised of the belief system, the behavioral system, and the emotional system and were measured by the TRAC (Larose & Roy, 1995), a

50-item self-report survey. Positive learning dispositions resulted from secure adult attachments and included preparing thoroughly for exams, paying attention in class, giving priority to studying, and seeking help from teachers and peers (Larose et al., 2005b). Students who believed they were not gifted enough to succeed in academic situations did not invest time studying and became anxious when faced with academic evaluations. Participants who were found to have dismissing attachment styles obtained the lowest grade-point averages. Grade-point averages of weighted high school grades and standardized general means of grades after first, second, and third semesters in college were obtained. Securely attached students experienced a positive, stable learning disposition during the transition to college and maintained their grade-point average. A small sample size was a limitation of their study.

Lopez (2001) used multiple regression analyses and examined how attachment impacted students' need for approval. Anxiously attached college students did not see themselves as strong, separate individuals. They were vulnerable to criticism, deferred to the wishes of others, and demonstrated overreliance on others for self-worth.

In a study of attachment and college adjustment among four-year college students, Soucy and Larose (2000) studied the relationships between parental behavioral and psychological control and grade-point average using regression analyses. Psychological control was defined as parental interference in development and use of guilt and manipulation to control the adolescent. Behavioral control was defined as parental interest in activities and parental supervision. They administered three self-report questionnaires that included the parental attachment scales of the IPPA. The researchers found that in insecure attachments, parental psychological control decreased competencies and resulted in isolation and/or depression and academic failures. Regression analyses revealed that students who had

secure relationships with parents, particularly with mothers, also benefited from secure relationships with mentors. Psychological control by both mentors and/or parents was detrimental to college adjustment and academic success (Soucy & Larose, 2000).

Kenny & Donaldson (1991) examined attachment and college adjustment using correlation analyses. They investigated the associations between parental attachments and social and psychological competence among university freshmen. Participants completed the Parental Attachment Questionnaire (PAQ; Kenny, 1987) and several other scales. Gender differences were found, possibly due to the small number of male participants. Securely attached females showed better adjustment to college, as measured by fewer psychological symptoms and more social and psychological competence, whereas insecurely attached females felt less socially competent and experienced more psychological symptoms. This relationship was not confirmed for male participants. Secure attachment fostered autonomy and social competence for female participants.

A study (Cutrona et al., 1994) used Structural Equation Modeling to examine attachment and academic success among college students. University undergraduates completed several measures that included the Social Provisions Scale-Parent Version (SPS-P; Cutrona, 1989). The SPS-P measured attachment along with five other variables, including parental support. Parental support was a predictor of grade-point average. It was suggested that lifelong positive attachment to parents prepared students for the academic rigor required for college courses. Research indicated that attachment to parents, but not peers, was correlated with grade-point average (Cutrona et al., 1994).

Parental attachment during the transition to adulthood was also investigated in respect to college adjustment and success among university students (Mattanah et al., 2004). College

academic adjustment was defined as academic performance, social adjustment, and personal adjustment (Solberg & Villarreal, 1997). Students completed three self-report measures that included the maternal and paternal scales of the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1989) and a scale that assessed adaptation to college, the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1984). Findings indicated that secure parental attachment predicted academic success. The researchers emphasized that the limitations of this study included self-reported data and cross-sectional sampling of four-year college students.

In summary, these studies (Bernier et al., 2004; Cutrona et al., 1994; Fass & Tubman, 2002; Kenny & Donaldson, 1991; Larose et al., 2005; Soucy & Larose, 2000) provided evidence of the relationship between adult attachment and academic success among four-year college students. Secure adult attachment contributes to self-esteem, self-confidence, exploratory behavior, trust, and the ability to rely on attachment figures under stress. Thus, 4-year college students with a secure adult attachment may adjust to college and perform better academically. Table 3 summarizes the attachment literature.

Table 3

Attachment Studies

Authors	Participants	Findings
Attachment studies using multiple regression analyses		
Bernier, Larose,	<i>N</i> = 102	Anxious and preoccupied attachment
Boivin, & Soucy (2004)	4-year students nonrandom	decreased grades from high school to college in at-risk students.
Fass & Tubman (2002)	<i>N</i> = 357 4-year students nonrandom	Secure attachment to parents and peers was associated with academic success using self- reported grade-point average.
Larose & Bernier (2001)	<i>N</i> = 62 4-year students random	Preoccupied attachment predicted stress, distrust, loneliness, and difficulty in seeking help from college teachers.
Larose, Bernier, & Soucy (2005)	<i>N</i> = 102 4-year students nonrandom	Secure attachments with mentors predicted less conflict with teachers for at-risk students.

Table 3 (continued)

Authors	Participants	Findings
Larose, Bernier, & Tarabulsky (2005)	<i>N</i> = 62 4-year students random	Attachment security protected against the negative impact of the college transition on learning dispositions. Secure attachment provided emotional, cognitive, and behavioral resources that favored academic success.
Lopez (2001)	<i>N</i> = 247 4-year students nonrandom	Adult attachment anxiety and avoidance were associated with vulnerability to criticism from others, deferring to the wishes of others, and overreliance on others for self-worth.
Soucy & Larose (2000)	<i>N</i> = 158 4-year students nonrandom	Secure maternal attachment and secure mentor attachment predicted college adjustment. Psychological parental control decreased academic success.
Attachment study using correlation		
Kenny & Donaldson (1991)	<i>N</i> = 226 4-year students nonrandom	College women were more attached to their mothers than college men. Securely attached college women demonstrated social competency and well-being. Secure attachment decreased stress.

Table 3 (continued)

Authors	Participants	Findings
Attachment study using structural equation modeling		
Cutrona, Cole, Colangelo, Assouline, & Russell (1994)	$N = 418$ 4-year students nonrandom	Attachment predicted grade-point average in two independent samples.

Adult Attachment Measures

There are several assessment techniques used to measure adult attachment: observation, interviews, and self-report scales and surveys, which include forced-choice paragraphs and checklists. Interviews are more likely to be used in qualitative studies, whereas self-report measures are more likely to be found in quantitative studies. Each assessment has added to the body of knowledge about adult attachment relationships and each has advantages and disadvantages.

Originally, the most widely used measures in attachment studies were systematic, naturalistic observations (Ainsworth, 1967; Bowlby, 1969). The most famous of these was the Strange Situation, a series of infant behavioral observations during various combinations of mother-infant, stranger-infant, mother-stranger-infant, and infant alone in a laboratory setting. Past research provided the basis for attachment theory and later measures of attachment relationships in other age groups. Naturalistic observations are time-consuming and, consequently, expensive.

The Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) is an interview that measures adult's parental relationship memories. The interview responses are analyzed by trained coders and categorized according to memory amount, style, and cohesiveness. Secure/autonomous attachments are identified when memories are coherent, organized, and cohesive. Adults in dismissing attachments minimize the description and the importance of parental relationships. Their memories are overly short and inconsistent during the interview. Adults in preoccupied attachments describe lengthy, angry, parental memories, sometimes change memories to the present tense, maximize the time spent discussing relationships, and might present incoherent information. Adults in unresolved/disorganized attachments have lapses in their memories of parental relationships. They might describe a serious loss or traumatic event that remains unresolved (George et al., 1985; Hesse, 1999). The AAI attempts to retrieve information from the participants' unconscious minds, but some researchers (Shaver & Mikulincer, 2004; Simpson & Rholes, 1998) question the validity of the AAI as an assessment tool because they believe that the unconscious is an abstract concept that cannot be measured.

Other adult attachment assessment tools use forced-choice paragraphs. These are several short paragraphs, each of which describes an attachment style. Participants select the paragraph that most closely resembles their attachment relationships. One example of forced-choice paragraphs is the Attachment Style Measure (ASM) of Hazan and Shaver (1987). Based on the proposition that adult attachment relationships are similar to earlier mother-child relationships, the ASM consists of three paragraphs that describe secure, avoidant, and anxious ambivalent adult attachment relationships. The ASM was published in the *Rocky Mountain News* on July 26, 1985 (Hazan & Shaver, 1987), and readers completed the survey

and returned it. This same survey was then administered to undergraduate students enrolled in a psychology class. Although these were nonrandom samples, results of both samples mirrored earlier studies of mother-infant relationships. In both samples, 56% chose the securely parental attachment description; 23% of the newspaper readers and 25% of the college students selected the description of avoidant relationships; and 20% of the newspaper readers and 19% of the college students chose the anxious-ambivalent description.

Respondents were also asked to describe their earlier parent-child relationships, and their descriptions correlated strongly with their adult attachment descriptions. The ASM and its variations have frequently been used as adult relationship measures. Advantages of forced-choice paragraphs are the ease with which the categories lend themselves to analysis and the retrieval of specific information. A disadvantage is that the participants are forced to choose a specific description even if they believe that they do not fit into a specific category. Self-report measures are also based on the honesty and accuracy of the participants' responses. Honesty and accuracy might vary among participants.

Another forced-choice paragraph measure, the Four-Group Model of Adult Attachment (MAA; Bartholomew & Horowitz, 1991), categorizes participants into one of four attachment styles: secure, preoccupied, dismissing, or fearful. The four descriptions are based on the participants' view of themselves and their attachment partner. Participants select the description that best describes them. In a two-part study, undergraduate psychology students completed interviews and questionnaires and matched themselves to one of the four attachment styles (Bartholomew & Horowitz, 1991). Then, each participant was interviewed, and trained raters matched the interview information with the self-assessment. The results confirmed the hypothesis that four separate attachment styles could be identified, each with

distinctive behavior patterns and characteristics (Bartholomew & Horowitz, 1991).

Participants' friends then completed the same reports, and self-report ratings were compared to the reports of their friends. Friends rated the dismissing group as having lower sociability scores than the other groups.

In the second part of the study (Bartholomew & Horowitz, 1991), participants answered survey questions about their attachments with family members and friends. Attachment interviews were conducted and trained interviewers categorized each participant's attachments. Corresponding family and peer ratings were correlated with each other for the secure, fearful, preoccupied, and dismissive ratings. The researchers found consistency between participants' descriptions and their family members and friends' descriptions.

A commonly used checklist of attachment is the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987). It is a self-report assessment with 25 items, each describing maternal, paternal, and peer attachment relationships using 5-point Likert-type rating scale. Vivona (2000) used the IPPA and another measure of attachment, the Parental Attachment Questionnaire (PAQ; Kenny, 1990), in a two-part study of four-year college students. The purpose of the first part of the study was to evaluate the construct validity of the IPPA. Participants were instructed to give one rating for both parents. Participants completed the PAQ and the IPPA, and their descriptions of their parental relationships were similar across the six dimensions that were assessed: trust, communication, and alienation in the IPPA; and affective quality of attachment, fostering of autonomy, and emotional support in the PAQ. Strong construct validity was found. Results

from one measure predicted the results from the other measure for 84% of participants (Vivona, 2000).

The purpose of the second part of the study (Vivona, 2000) was to replicate the results of the first part and to further examine insecure attachments. The second part of the study successfully replicated the first part and demonstrated attachment predictability and cross-validity for both instruments. Both parts showed that participants with secure attachments were more autonomous than participants with insecure attachments. Scores of the three IPPA subscales (Trust, Communication, and Alienation) were used to determine the attachment style of each participant. Participants who had high scores in Trust and Communication and low scores in Alienation were securely attached. Low scores in Trust and Communication and high scores in Alienation indicated insecure attachment (Vivona, 2000).

Earlier studies using the IPPA (Armsden & Greenberg, 1987) showed strong test-retest reliability over a 3-week span for the parent attachment scale (.93) and for the peer attachment scale (.86). Strong internal consistency (Cronbach's alpha) was found for the following scales: Trust (.91), Communication (.91), and Alienation (.86) for parent attachment scales. Strong internal consistency (Cronbach's alpha) was also found for the following scales: Trust (.87), Communication (.87), and Alienation (.72) for the peer measure. In summary, the IPPA is a strong measure of parental and peer attachment and has strong internal consistency.

Stress and Attachment Relationships

Adult attachments guide one's interpretations of potentially stressful events and one's reaction to the events (Simpson & Rholes, 1998). For example, insecurely attached adults

were more likely to perceive events as stressful and threatening and react with less effective coping mechanisms than securely attached adults. In a secure adult attachment, each person perceived available support from the other when it was needed (Cutrona et al., 1994; Howard & Medway, 2004). Individuals' attachment systems lie at the foundation of this interaction. The attachment system is activated when the person perceives environmental stress (Collins & Feeney, 2004; Mikulincer et al., 2000). Securely attached adults might seek support when confronted with stressful environmental events. Perceived support and safety are based on the belief that one is loved and valued by others (Collins & Feeney, 2004) and that, in stressful times, their support is reliable. Secure adult attachment provides a safety net when people experience stress and challenges in their environment. Securely attached adults are effective in problem solving, self-confident in trying various solutions, and experience a positive self-concept.

College is often unfamiliar territory for students because of its many new demands. These demands might include academic work, test preparation, and time-management. College students experience pressure to maintain their grades and complete their courses. Securely attached students are more likely to succeed than insecurely attached students. Those students will be optimistic and, thus, have high expectations. Exploratory behavior is increased in secure adult attachment relationships. Thus, securely attached students are more likely to explore possible solutions for stressful situations than insecurely attached students. Secure adult attachment provides resources and strategies to cope with stress and, thus, increase the chances of academic success in college. Secure adult attachment is expected to lower stress effects.

Stress and Attachment Studies Among College Students

Research indicated negative associations between stress and attachment in college students in several studies (Bradford & Lyddon, 1993; Howard & Medway, 2004; Kemp & Neimeyer, 1999; Kenny & Donaldson 1991; Lopez & Gormley, 2002; Mallinckrodt & Wei, 2005; McCarthy et al., 2006; McCarthy et al., 2001; Perrine, 1994; Scharfe & Cole, 2006; Solberg & Villarreal, 1997; Vogel & Wei, 2005). Regression, correlational, chi-square, and structured equation model analyses were used to examine the relationship between stress and attachment. Different methods of analyses led to similar conclusions throughout the research: Secure adult attachment reduces stress and provides positive strategies for coping with stress; insecure attachment is associated with stress and negative outcomes.

Several studies used regression analyses (Bradford & Lyddon, 1993; Kemp & Neimeyer, 1999; McCarthy et al., 2001; Perrine, 1994; Scharfe & Cole, 2006; Solberg & Villarreal, 1997). Bradford and Lyddon (1993) found that current parental attachment predicted psychological distress in college students. Insecure attachment was positively associated with distress, and secure attachment was negatively associated with distress. The IPPA was used to measure attachment. Bradford and Lyddon suggested that a secure base established by a secure adult attachment enabled college students to adapt to the environment more readily than students with an insecure attachment.

Kemp and Neimeyer (1999) also found that insecure attachment was positively associated with psychological distress. Insecure, preoccupied attachments were positively related to distress and psychological symptoms among four-year college students.

At a large university, participants from upper-division elective classes completed the IPPA and PSS. Lower attachment scores were related to higher stress scores; conversely,

higher attachment scores were related to lower stress scores. If parents became overprotective, a characteristic of insecure attachments as participants strived for autonomy at college, stress scores increased (McCarthy et al., 2001).

Perrine (1998) examined four-year college students' perceived stress and persistence in college as a function of attachment. It was found that students with secure attachment reported less perceived stress than those students with insecure attachments. Students with secure attachments were also less likely to quit college than students with insecure attachments. Perrine also found that grade-point average might differ as a function of attachment.

A study examined both moderator and mediator effects of attachment and found that stress mediated the stability of attachment among four-year college seniors. The assessment of senior students occurred in two stages. In the first phase, investigators examined whether interpersonal events changed the association between attachment at both the first and second assessment. They also investigated if stress acted as a mediator between attachment at both the first and second assessment. Bowlby (1973, 1980, 1988) proposed that attachment was likely to change in reaction to stressful events. This was confirmed when specific indexes of distress such as anxiety and depression changed the relationship between the first and second attachment assessments. The status of a relationship also changed attachment stability (Scharfe & Cole, 2006).

Another study examined how social support changed the relationship between stress and distress for Hispanic students. Social support was assessed using the Social Provisions Scale (SPS; Russell & Cutrona, 1984) that was based on six social provisions of relationships: attachment, social integration, reassurance of worth, reliable alliance, guidance,

and opportunity for nurturance (Weiss, 1974). Stress referred to environmental demands that were encountered by the students. Distress referred to the expression of the stress. Students who perceived that social support was available had lower distress ratings than students who perceived that social support was less available. Using social and cognitive factors, the researchers found that stress, self-efficacy, social support, acculturation, and gender accounted for almost half of the variance in college distress in Hispanic students (Solberg & Villarreal, 1997). Social support influenced the relationship between stress and distress.

Other studies (Howard & Medway, 2004; Kenny & Donaldson, 1991) used correlation analyses to investigate the relationship between stress and attachment. Howard and Medway (2004) examined how attachment impacted how adolescents coped with stress. They found that adolescent attachment security was positively associated with family communication and negatively associated with avoidance behaviors when encountering stressful situations. In contrast, attachment insecurity was positively correlated with avoidant behaviors, which included drug and alcohol use when encountering stress. Kenny and Donaldson (1991) found that insecure attachment was correlated with a lack of social competence and high stress as measured by psychological symptoms. Parental attachments were adaptive for college females, particularly when secure attachments supported becoming an adult.

Other studies (Lopez & Gormley, 2002; Vogel & Wei, 2005) used chi-square analyses to investigate the relationship between stress and attachment. Lopez and Gormley (2002) investigated the stability and change in adult attachment and their correlation with self-confidence, coping, and distress patterns during students' first years of college. Distress was defined as the psychological expression of stress. The first years of college were highly

stressful as students moved into a new environment, possibly far from attachment figures, and adapted to the rigors of college courses. In October and April of the freshman year, undergraduates completed six scales including the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) and the shortened version of the Experiences in Close Relationships (ECR; Brennan, Clark, & Shaver, 1998). Findings indicated that attachment styles were only moderately stable over the first year of college and that current attachments were related to stress levels. Stable secure attachment was correlated with high scores in self-confidence. Students who changed from insecure to secure attachment showed no differences in the area of self-confidence. However, students who changed from secure attachments to insecure attachments showed diminished coping and stable or a moderately high stress. Stress increased as attachment declined.

Research also indicated that four-year college students with avoidant attachment denied that they experienced stress. Avoidantly attached students were less likely to seek help than anxiously attached students who acknowledged stress and were more likely to seek help (Vogel & Wei, 2005). Thus, avoidantly attached students might not receive needed assistance and their performance might reflect the lack of assistance (Vogel & Wei, 2005).

Other studies (Mallinckrodt & Wei, 2005; McCarthy et al., 2006) used structural equation modeling to assess the relationship between stress and attachment. Social competencies, social support, and psychological stress were assessed using surveys administered to undergraduates including the Experiences in Close Relationships Scale (ECR; Brennan et al., 1998). Results demonstrated that problems in attachment were manifested in psychological stress and dysfunctional interpersonal relationships

(Mallinckrodt & Wei, 2005). There was a negative relationship between attachment and stress, but the researchers emphasized that this was a correlational, not causal, relationship.

Low parental attachment was positively correlated with stress symptoms and stress-produced emotions among four-year college students. Secure attachment was associated with lower levels of stress symptoms and lower levels of stress-produced emotions than insecure attachment (McCarthy et al., 2006). As secure attachment increased, stress symptoms and stress-produced emotions declined. If college students have avoidant adult attachments or feel uncomfortable asking questions of faculty, interacting with other students in groups, or giving class presentations, then they might achieve less academically, earn lower grade-point averages, and complete fewer courses successfully than securely attached students.

The term social support is frequently found in the attachment literature. Hoberman, Kamarck, and Cohen (1986) suggested that researchers examine how social support received in relationships alters the relationship between stress and its outcomes. Research indicated that adult attachment quality was synonymous with social support sources (Kenny & Rice, 1995). Cohen and colleagues (1986) specifically defined social support as “one’s interpersonal relationships” (p. 79). Other researchers have referred to social support as relationship support that is linked to maternal attachment (Sroufe et al., 2005). Sroufe and colleagues (2005) conceptualized attachment as a larger organizational construct encompassing specific constructs of social support. Other researchers used perceived parental social support (Cutrona et al., 1994) to describe parental attachment. In a study conducted by Cutrona and colleagues (1994), the anxiety subscale of the Adult Attachment Scale (Collins & Read, 1990) was used as a measure of parental support. Cutrona and colleagues defined social support as an overall framework for specific advantages derived from relationships

with others. Among these advantages were guidance, reliable alliance, attachment, and reassurance of worth. These advantages also described the qualities of secure relationships (Kenny & Donaldson, 1991; Kobak, 1999; Mattanah et al., 2004). When measuring social support, Solberg and Villarreal (1997) defined social support as parental and peer support. The researchers measured parental support with items such as “There is a trustworthy family member to whom I could turn for advice if I was having problems” and peer support with “I have close friendships that provide me with a sense of emotional security and well-being” (p. 191). These items represented the same secure attachments measured by the IPPA. In a previous study, self-efficacy was identified as an outcome of secure attachment (Cutrona et al., 1994). Solberg and Villarreal (1997) described social support as a buffer activated in stressful times that reduces the negative stress impact. This description matched that given for attachment systems during stressful times (Mikulincer et al., 2001). Thus, social support is synonymous with attachment.

Longitudinal Stress and Attachment Study

A major longitudinal study (Sroufe et al., 2005) examined persons’ growth and development from the prenatal period through adulthood in at-risk individuals from impoverished backgrounds. Sroufe and colleagues’ study was multidimensional, it investigated many factors that influenced individual development over time. Some factors such as poverty and lack of education were considered risk factors that contributed to stress. Strong attachment was viewed as a protective factor for individuals. Results indicated that they were able to predict dropping out (of high-school) with 77% accuracy when using only quality of-care measures during the first 3 1/2 years of life. Early behavior problems were strongly predicted by a history of inadequate care, lack of support, and high stress. This study

provided strong evidence for the quality of care that is part of the attachment framework and the consequences of secure and insecure attachment. Adults who returned to school to complete their diploma or receive a GED (general education diploma) had more positive early care and more secure attachments than students that did not return to school.

In summary, research consistently indicated negative correlations between stress and attachment for four-year college students (Howard & Medway, 2004; Kenny & Donaldson 1991; Lopez & Gormley, 2002; Mallinckrodt & Wei, 2005; McCarthy et al., 2006; McCarthy et al., 2001; Perrine, 1994; Scharfe & Cole, 2006; Solberg & Villarreal, 1997; Sroufe et al., 2005; Vogel & Wei, 2005). Insecure attachment was consistently correlated with high stress and, conversely, secure attachment was consistently associated with low stress. McCarthy et al. (2001) examined attachment and stress using the IPPA and PSS, and linked attachment and stress to college success. Thus, it is plausible that insecure attachment leaves people vulnerable to stress. Secure attachments leaves people less vulnerable to stress in the face of negative life events. Thus, attachment might decrease the impact of stress upon academic performance in two-year community college students. Table 4 summarizes the stress and attachment literature.

Table 4

Stress and Attachment Studies

Authors	Participants	Findings
Stress and attachment studies using regression analyses		
Bradford & Lyddon (1993)	$N = 157$ 4-year students nonrandom	Secure attachment was negatively associated with perceived psychological distress.
Kemp & Neimeyer (1999)	$N = 193$ 4-year students nonrandom	Securely attached adults experienced low levels of psychological distress, whereas preoccupied attachment was related to an increase in psychological distress.
McCarthy, Moller, & Fouladi (2001)	$N = 235$ 4-year students nonrandom	Secure attachment was associated with low levels of perceived stress, whereas insecure attachment was associated with high levels of perceived stress.
Perrine (1994)	$N = 97$ 4-year students nonrandom	Older students (over 25) had more stress than younger students. Stress and college persistence were a function of attachment style.
Scharfe & Cole (2006)	$N = 109$ 4-year students nonrandom	Distress was associated with attachment style change. Stable secure attachments predicted positive outcomes. Stable insecurity predicted negative outcomes.

Table 4 (continued)

Authors	Participants	Findings
Solberg & Villarreal (1997)	<i>N</i> = 164 4-year students nonrandom	Interaction effect of social support and stress indicated support has a buffering effect on high stress levels. Social Support minimized negative effects of stress.
Stress and attachment studies using correlation analyses		
Howard & Medway (2004)	<i>N</i> = 150 High school students nonrandom	Attachment is activated in stressful times. Securely attached individuals seek help when facing stress.
Kenny & Donaldson (1991)	<i>N</i> = 226 4-year students nonrandom	Secure parental attachment is adaptive for females and decreases stress.
Stress and attachment studies using Chi Square analyses		
Lopez & Gormley (2002)	<i>N</i> = 207 4-year students nonrandom	Change from insecure to secure resulted in less stress.
Vogel & Wei (2005)	<i>N</i> = 355 4-year students nonrandom	Avoidantly attached individuals do not seek help when faced with stress.

Table 4 (continued)

Authors	Participants	Findings
Mallinckrodt & Wei (2005)	$N = 430$ 4-year students nonrandom	Attachment anxiety and avoidance are positively associated with distress and negatively associated with perceived social support.
McCarthy, Lambert, & Moller (2006)	$N = 390$ 4-year students nonrandom	Students with low levels of attachment exhibited vulnerability to stress symptoms.

Use of Demographic Variables in Stress and Attachment Studies

The literature is inconsistent regarding the use of demographic variables describing relationships among stress, attachment, and both attachment and stress with academic success. Demographic variable use was inconsistent in the research on both stress and attachment. There appeared to be no general patterns of use or omission. Zajacova, Lynch, and Espenshade (2005) argued that sociodemographic variables had little correlation with academic outcomes. However, research indicated demographic differences in outcomes (Bernier et al., 2004; Fass & Tubman, 2002). When demographic variables were examined, gender, age, and ethnicity were most frequently used. Four studies examined the relationship between stress and academic success (Andrews & Wilding, 2004; De Meuse, 1985; Shields, 2001; Struthers et al., 2000). Of these four studies, two studies (De Meuse, 1985; Struthers et al., 2000) did not include any demographic variables. One study examined the differences

between persisters and nonpersisters in college and found no gender differences (Shields, 2001). However, older students had higher GPAs. Andrews and Wilding (2004) indicated no differences due to gender, age, and ethnicity. Thus, in studies of stress and academic performance, the use of demographic variables was not consistent. The examination of age and gender variables also varies in the literature. Some studies of acculturative stress (Gloria & Kurpius, 1996; Miville & Constantine, 2006; Solberg & Villarreal, 1997) did not examine age or gender variables. Because their samples were confined to only Latino students, they could not examine ethnic differences. In contrast, other studies examined these variables. Among several studies that examined the relationship of attachment and grades (Bernier et al., 2004; Cutrona et al., 1994; Fass & Tubman, 2002; Larose et al., 2005b; Mattanah et al., 2004; Soucy & Larose, 2000), one study did not use any demographic variables (Larose et al., 2005). Another study used gender analysis and found no differences in three separate analyses (Cutrona et al., 1994).

Bernier and colleagues (2004) tested for the following demographic variables: age, gender, parental income, parental education, college attended, major, residential status, number of siblings, rank in the family, and marital status of parents. Males reported higher adjustment scores than females and females had higher grades than males. Fass and Tubman (2002) examined age and gender, and found gender differences in peer attachment, but not in parental attachment. Females were more attached to peers than were males. Ethnic differences were also found. Hispanic American students had higher parental attachment, whereas Asian American students had less parental attachment.

Soucy and Larose (2000) tested for gender differences and found no differences. In contrast, Mattanah and colleagues (2004) found gender differences in one scale of academic

adjustment and in two scales of emotional adjustment. All differences were less than one standard deviation apart.

Among studies that examined the relationship between stress and attachment (Howard & Medway, 2004; Kenny & Donaldson 1991; Lopez & Gormley, 2002; Mallinckrodt & Wei, 2005; McCarthy et al., 2006; McCarthy et al., 2001; Scharfe & Cole, 2006; Solberg & Villarreal, 1997; Solberg et al., 1994; Vogel & Wei, 2005), several of these did not examine age, ethnicity, or gender (Mallinckrodt & Wei, 2005; Scharfe & Cole, 2006; Solberg & Villarreal, 1997; Vogel & Wei, 2005). One study examined Hispanic students but did not assess age or gender (Solberg et al., 1994). Three studies examined gender but did not indicate gender differences (Howard & Medway, 2004; McCarthy et al., 2006; McCarthy et al., 2001). Perrine (1998) indicated that attachment was not related to gender or age, but perceived stress was related to age with older students reporting higher levels of perceived stress than younger students.

Several studies found only slight differences regarding gender. Kenny and Donaldson (1991) indicated that all gender differences in their study were less than one standard deviation apart. Lopez and Gormley (2002) explored stability and change in attachment among several groups of freshmen and found gender differences that were also less than one standard deviation. In the group that changed from secure to insecure attachments during their freshman year, females had higher scores and bigger standard deviations on all scales as compared to males. In the group that changed from insecure-to-secure attachments during their freshman year, all gender differences were less than one standard deviation. In summary, in all scales except one, there was less than one standard deviation difference between the means between males and females. Gender was not significantly related to

attachment style. However, males scored higher than females on scales assessing academic confidence, and women scored higher than men on levels of depression.

In summary, there was no consistency in the examination of demographic variables in the attachment and stress literature reviewed for the present study. Ten studies did not examine demographic variables (De Meuse, 1985; Gloria & Kurpius, 1996; Larose et al., 2000; Mallincroft & Wei, 2005; Miville & Constantine, 2006; Scharfe & Cole, 2006; Solberg, et al., 1994; Solberg & Villareal, 1997; Struthers et al., 2000; Vogel & Wei, 2005). Four studies examined gender differences and did not find any (Cutrona et al., 1994; Howard & Medway, 2004; McCarthy et al., 2006; McCarthy et al., 2001). Two studies did not find gender differences, but found age differences (Perrine, 1998; Shields, 2001). Two studies examined gender, age, and ethnicity, but did not find differences (Andrews & Wilding, 2004; Soucy & Larose, 2000). Three studies found gender differences (Kenny & Donaldson, 1991; Lopez & Gormley, 2002; Mattanah et al., 2004). Fass and Tubman (2002) found gender differences in peer but not parental attachment and found ethnic differences in parental attachments.

Community College Students

Historically, two-year colleges were perceived to be extensions of high school that provided educational opportunities for students who were unable to attend a four-year college (Cohen & Brawer, 2003). This role expanded as community colleges continued to grow. Community colleges also provide opportunities for students who might have a poor high school academic record or might need to make up educational deficits (Horn & Nevill, 2006).

After World War II, two-year community colleges became a resource for training and provided the workers for American industry. Students were encouraged to seek a terminal

associate's degree and find employment after the two years. Consequently, community colleges provided educational and employment opportunities for students who were from minority groups or who lacked financial resources to attend a four-year school. They also provided education for students who were not academically prepared to attend a four-year university immediately following high school (Horn & Nevill, 2006).

Today, community colleges are known for hands-on learning and experiential education (Cohen & Brawer, 2003). Two-year programs allow for individual students' learning and provide self-paced classes. Programs in welding, automobile mechanics, computer technology, nursing, office management, and other practical programs are available. Open enrollment is a hallmark characteristic of community colleges. Open enrollment policies allow any eligible student to enroll for almost any course at any time. Academic transfer agreements allow students to transfer their courses from their first two-years at a community college to a four-year college or university (Horn & Neville, 2006).

Displaced homemakers frequently enroll in community college courses before entering or reentering the workforce. Current workers use courses to update work and technology skills. English as a Second Language classes are provided for new immigrants (Horn & Nevill, 2006). Distance learning classes are provided for students living in outlying areas. Classes are also offered on-line.

Community college students may be vulnerable to stress. They often struggle with poor study and academic skills; they lack support and preparation for college (Byrd, 2005; Roueche & Roueche, 1993). Economic difficulties might require that students work part-time or full-time at one or more jobs (Cohen & Brawer, 2003). In a study by Dowd and Coury (2006), students who used financial loans to pay for college were found to be less persistent

in their academic pursuits than those who did not use loans to pay for college (Dowd & Coury, 2006). Many are first-generation college students and other family members might not understand, accept, or support their quest for a college degree. Students may have one or more children under the age of 18 living with them and they might be the primary or only caregiver for these children. Parenting may impact their academic success (Tanaguchi & Kaufman, 2005). Family responsibilities and job requirements often conflict with attendance and study time (Byrd, 2005; Cohen & Brawer, 2003). Thus, nontraditional students have more responsibilities; and research indicates that older students experience less academic success than traditional students (Eppler, Carsen-Plentl, & Harju, 2000).

Present Study's Rationale

The community college student retention rate is declining (Horn & Nevill, 2006). Thus, it is important to examine factors that influence student retention. Based upon past research, two factors that affect students' academic success are stress and attachment. Therefore, the present study examined the relationship between stress, attachment, and two measures of academic success (grade-point average and course completion) among community college students. Research identified grade-point average as a reasonable measure of academic success among four-year students. Some studies used self-reported grade-point average as an outcome measure, whereas, the use of grade-point average obtained from the registrar's office is a much stronger measure because it is the actual recorded grade-point average. Students might not know their grade-point average or give an accurate self-report of it. Thus, this study used the registrar's reported grade-point average.

Another measure of student success, course completion, was also used in the present study. This was an objective, measurable, and accessible outcome that also reflected academic success.

The present study also examined two distinct measures of stress: the Perceived Stress Scale and the Cultural Congruity Scale. The PSS was designed to measure the general stress experienced by students in the last month before they filled out the scales. The CCS measured the congruity or comfort level of diverse students in the college setting. Because community college students are a diverse group, it was appropriate to measure the congruity level as well. It was also speculated that community college students with less secure adult attachment were expected to have less academic success than students with secure adult attachment.

Most of the literature reviewed for the present study used multiple regression analyses. Past analyses provided predictions of variable effects upon outcomes. Research indicated that attachment style was correlated with responses to stress and that differences in adult attachment were likely to be most pronounced under stressful conditions (Feeney & Noller, 1996). Constructive responses to stress were guided by secure adult attachment as attachment provided strategies for responding to stress (Rholes & Simpson, 2004). Attachment changed the effects of stress (Gotlib & Wheaton, 1997). Given the stress that college students experience, and the protective qualities of secure attachment, it was feasible to examine the relationship of attachment and stress and their effects on academic success (Hoberman et al., 1986) among community college students. Thus, it was reasonable to speculate that secure attachment lowered stress.

CHAPTER III

Method

Participants

Participants in the present study were 160 full-time students between the ages of 19 and 30 who attended a two-year community college at one of two campus sites in a Midwestern state in the Fall 2006 semester. This represents 91% of the qualified students invited to participate in the study.

The demographic characteristics of this group are found in Table 5. Data were collected for the categories seen in the left-most column of Table 5. The frequency and percentage of each category are presented in the right-hand columns. Age was important to document because participants were required by this researcher to be between the ages of 19 and 30. Those younger than 19 would require a parental or guardian's consent. Another study (Mikuliner, Shaver, Gillath, & Nitzberg, 2005) expanded participants' age group from 18–30. Because community college students might be older, nontraditional students, the age limits in the present study were expanded from 19–30. Other demographic information was also gathered.

Because acculturative stress was one focus of the present study, it was initially important to determine the number of students who were members of ethnic minorities to determine the presence of acculturative stress. Acculturative stress might add to their stress as community college students. Thus, data were obtained for participants' country of birth, mother's country of birth, father's country of birth, language generally read and spoken, language used as a child, language usually spoken at home, language used for thinking, and

language used with friends. Marital status and number of children under the age of 18 living with participants were also obtained to provide further descriptive data. See Table 5 for participants' descriptive information.

Table 5

Demographic Characteristics of Population (N =160)

Category

<u>Gender</u>	<u>Frequency</u>	<u>Percentage</u>
Male	58	36%
Female	102	64%
<u>Age</u>		
19	59	37%
20	38	24%
21	12	8%
22	10	6%
23	7	4%
24	10	6%
25	8	5%
26	2	1%
27	5	3%
28	3	2%

Table 5 (continued)

<u>Age (continued)</u>	<u>Frequency</u>	<u>Percentage</u>
29	3	2%
30	2	1%
<u>Country of birth of participant</u>		
United States	149	93%
Mexico	4	3%
Other	6	4%
<u>Mother's country of birth</u>		
United States	147	92%
Mexico	5	2%
Other	8	5%
<u>Father's country of birth</u>		
United States	146	91%
Mexico	5	3%
Other	8	5%
<u>Language generally read and spoken</u>		
Only Spanish	1	1%
Spanish better than English	2	1%
Both Equally	8	5%
English better than Spanish	34	21%
Only English	115	72%

Table 5 (continued)

<u>Language used as a child</u>	<u>Frequency</u>	<u>Percentage</u>
Only Spanish	8	5%
Spanish better than English	0	0%
Both equally	3	2%
English better than Spanish	7	4%
Only English	142	89%
<u>Language usually spoken at home</u>		
Only Spanish	2	1%
Spanish better than English	2	1%
Both equally	6	4%
English better than Spanish	4	3%
Only English	146	91%
<u>Language used for thinking</u>		
Only Spanish	2	1%
Spanish better than English	2	1%
Both equally	6	4%
English better than Spanish	7	4%
Only English	143	89%
<u>Language used with friends</u>		
Only Spanish	1	1%
Spanish better than English	3	2%

Table 5 (continued)

<u>Language used with friends (continued)</u>	<u>Frequency</u>	<u>Percentage</u>
Both equally	3	2%
English better than Spanish	12	8%
Only English	141	88%
<u>Marital status</u>		
Never Married	136	85%
Now Married	19	12%
Divorced	5	3%
Widowed	0	0%
<u>Number of children under the age of 18 living with participant</u>		
0	95	59%
1	31	19%
2	13	8%
3	2	1%
4	7	4%
5	1	1%
<u>Monthly income</u>		
Low:		
Under \$1,000.00	105	66%
\$1,000.00 - \$1,999.00	27	17%

Table 5 (continued)

<u>Monthly income (continued)</u>	<u>Frequency</u>	<u>Percentage</u>
Medium:		
\$2,000.00 - \$2,999.00	15	9%
3,000.00 - \$3,999.00	5	3%
High:		
\$4,000.00 - \$4,999.00	3	2%
\$5,000.00 and above	2	1%
<u>Mother's educational level</u>		
Less than High School Diploma	16	10%
High School Diploma	47	29%
Some College	50	31%
Bachelor's Degree	34	21%
More than Bachelor's Degree	13	8%
<u>Father's educational level</u>		
Less than High School Diploma	18	11%
High School Diploma	65	41%
Some College	42	26%
Bachelor's Degree	21	13%
More than Bachelor's Degree	12	8%

Based on the descriptive data collected, the typical participant was female, less than 21-years old, and born in the United States. The typical participant spoke only English, was never married, had no children, and earned less than \$1,000 each month. The participants' parents had varying educational levels. Most participants' mothers and fathers had at least a high school diploma. Some survey questions pertained to ethnicity but because so few ethnic minorities participated, this line of analysis was dropped.

In order to determine how representative the present sample was compared with the general college population (*Central Community College College Enrollment Report, 2007-08*) and the national community college population (Horn & Nevill, 2006), comparisons were drawn and are displayed in Table 6.

With respect to gender, when the demographic data of the present study was compared to college wide demographic data (*Central Community College Enrollment Report, 2007-08*) and to national demographic data (Horn & Nevill, 2006), the present sample was found to have 8% fewer males than the college population and 5% fewer than the national population. With respect to age, the present study did not collect data from students younger than 19 or older than 30. However, 37% of the college population were under the age of 19, and 12 % were over the age of 30. On a national basis, approximately 35% of community college students were over 30. Thus, the present convenience sample provided a limited sample of the community college student population. With respect to ethnicity, a larger majority of the present sample was Caucasian when compared to the college population and to the national population. The college population had twice as many students of Hispanic ethnicity, and the national population showed more than twice as many as the college population. In summary, the convenience sample of the present study had fewer

males, fewer younger and older students, and fewer Hispanic students than the college-wide population or the national population of community college students.

Table 6

Comparisons of Demographic Characteristics of the Sample, College, and National Populations

	Present Sample	College Population	National Population
<u>Gender</u>			
Male	36%	44%	41%
Female	64%	56%	59%
<u>Age</u>			
18-19	0%	37%	NA
19-24	85%	42%	47%
25-30	15%	9%	18%
Over 30	0%	12%	35%
<u>Ethnicity</u>			
Caucasian	92%	85%	60%
Hispanic	3%	6%	14%
Other	4%	9%	26%

Setting

The community college used in the present study has two campuses that provide education for a 25-county area in a Midwestern state. The two campuses are 25 miles apart. During the fall 2006 semester, one campus enrolled 458 full-time students. The other enrolled 928 full-time students. The full-time population of the combined campuses was 646 male and 740 female students.

Materials

This section lists and describes each measure used in the present study. The Demographic Questionnaire is discussed first, followed by the Inventory of Parent and Peer Attachment (IPPA), the Perceived Stress Scale (PSS), and the Cultural Congruity Scale (CCS). Student Services File Data are also discussed.

Demographic Questionnaire. Each participant completed a demographic questionnaire that requested name, student identification number, age, country of birth, mother's country of birth, father's country of birth, gender, primary language for reading and speaking, primary language used as a child, language used at home, language used for thinking, language usually spoken with friends, marital status of participants, number of children under the age of 18 living with participant, monthly income, and maternal and paternal educational level. Student identification numbers were used to obtain grade-point averages and courses completed at the end of the semester. See Appendix A for a copy of the Demographic Questionnaire.

The Inventory of Parent and Peer Attachment (IPPA). The IPPA is a self-report inventory of three scales, and each scale has 25 items. It is efficient and easily read and understood. The three scales measured attachment to mother, father, and peers, respectively.

Thus, there were 75 total items that measured attachment on a 5-point Likert-type scale ranging from 1 (*almost never or never true*) to 5 (*almost always or always true*). The dimensions of mutual trust, respect, and open communication are paramount in the conceptualization of attachment (Bowlby, 1969, 1980; Bretherton & Munholland, 1999; Colin, 1996). The Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987, 1989) is an attachment measure for use by adolescents and young adults that specifically measured the dimensions of mutual trust, respect, and open communication. For example, Item 22 on the maternal scale specifically measured the degree of mutual trust in the adult attachment relationship. That item was “I trust my mother.” Item 1 reflected the degree of mutual respect in the present attachment relationship. That item was “My mother respects my feelings.” Item 24, “I can count on my mother when I need to get something off my chest,” measured the degree of open communication in the attachment relationship and the sense of having a reliable attachment figure to turn to in stressful situations. Similar items were used for paternal and peer attachment. Thus, the IPPA measured the current attachments of the participants. The IPPA instructed respondents to answer with their current feelings. Only the total score was used in the present study. Higher IPPA scores indicated stronger attachment. The IPPA has strong internal consistency (.86–.93) for parent and peer attachment (Armsden & Greenberg, 1994). In another study (Armsden & Greenberg, 1994), the scales’ test-retest reliability was .93 for parents and .86 for peer subscales over a 3-week interval. Concurrent validity was also strong; the IPPA total scores have been correlated with measures of self-concept, self-esteem, positive outlook, life satisfaction, problem solving, and locus of control (Armsden & Greenberg, 1994). See Appendix B for a copy of the IPPA.

Perceived Stress Scale (PSS). The Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983) measured perceived stress for a situation or an event. It is an easily read and efficient measure. The PSS items measure current feelings of stress. For example, Item 2 in the PSS asked, “In the last month, how often have you felt you were unable to control the important things in your life?” Respondents were instructed to answer based on their feelings and thoughts during the last month. Thus, the PSS measured how community college students in the present study perceived stress. The 10-item version of the PSS (Cohen & Williamson, 1988) was initially examined using 2,388 participants from across the U.S. representative of the 1980 census data. Higher scores on the PSS indicated higher amounts of perceived stress. The responses were marked on a 5-point Likert-type scale. On the PSS, items ranged from 0 (*almost never*) to 4 (*very often*). The PSS has an internal consistency of .85 and a test-retest reliability of .85 (Cohen & Williamson, 1988). The PSS demonstrated concurrent validity with the items on the Life Satisfaction Scales (LSS; Neugarten, Havighurst, & Tobin, 1961). Coefficient alpha reliability ranged from .84–.86 in three samples (Cohen et al., 1983). See Appendix C for a copy of the PSS.

The Cultural Congruity Scale (CCS). The Cultural Congruity Scale (Gloria & Kurpius, 1996) measured the congruity a minority member feels with the cultural setting of the majority. A 7-point Likert-type scale measured items of cultural congruity ranging from 1 (*not at all*) to 7 (*a great deal*). This scale asked respondents to rate their lack of ease and comfort at school. Higher scores were indicative of higher cultural congruity. The CCS began with six items from the Perceived Threat Scale (Ethier & Deaux, 1990) based on information gleaned from minority student focus groups. However, the additional items in the CCS were based on the authors’ personal experiences (Gloria & Kurpius, 1996). Based

on their pilot study with 18 Latino students, Gloria and Kurpius deleted one item because it reduced internal consistency. Cronbach's alpha for the resulting Cultural Congruity Scale was .89 (Gloria & Kurpius, 1996).

For validation purposes, the CSS was completed by Latino students at the University of California at Irvine and Latino students at the Arizona State University. For this entire sample, comprised of participants from both universities, the alpha coefficient was .81 and the mean was 71.88, with a standard deviation of 12.55 (Gloria & Kurpius, 1996). Using regression, these scores were used to predict academic persistence (remaining in school and pursuing a degree) and accounted for 11% of the variance. Students demonstrated persistence when they experienced more "cultural fit" or "congruity" within the academic environment. Conversely, students who perceived a stressful environment demonstrated less persistence and were likely to quit school.

In the present study, the CSS was used with all participants. So that scale items on the PSS were also appropriate for nonminority participants, Item 11 was changed from "I feel accepted at school as an ethnic minority" to "I feel accepted at school." Item 12 was changed from "As an ethnic minority, I feel as if I belong on this campus" to "I feel as if I belong on this campus." These changes made the survey more meaningful for all participants. Higher scores on the CCS indicated greater cultural congruity and less acculturative stress. Lower scores on the CCS indicated less cultural congruity and greater acculturative stress. See Appendix D for a copy of the CCS.

Student Services File Data. The grade-point average, the number of credits registered for in the semester, and course completion for each participant were obtained from the registration files at the community college. Each student must register and pay for 12 credits

per semester to obtain full-time status. However, there is no requirement that a student successfully complete all 12 credits. Successful completion is defined as receiving a grade of D or above, sufficient to receive credit for the course. Most courses are 3 credit hours and most can be taken 1 hour at a time or all at once. This is a unique feature of community colleges. Hence, a community college student might register for a 3-credit course, complete 1 credit, and drop the remaining 2, reregister and repay, and complete the remaining 2 credits during a later semester. Grade-point averages were computed by dividing the number of grade-points earned by the number of credits completed at the end of the semester. Grade-point averages are typically used as measures of college success. Studies of identity sense in college, academic self-efficacy, health-related variables, and correlates of psychosocial and study skills have used grade-point average as a measure of academic achievement (Chemers et al., 2001; Lounsbury, Hoffstetler, Leong, & Gibson, 2005; Robbins et al., 2004). For a summary of the IPPA, PSS, CCS, Grade-point Average, and Course Completion, see Table 7.

Table 7

List of Variables, Measures, and the Nature of the Data

Variables	Measure	Range	Nature of Data	Score
Moderator and predictor variables				
Attachment	Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987) (75 5-point Likert-type items	75–375	Continuous	The sum of the ratings for all 75 items
Stress	Perceived Stress Scale (Cohen et al., al., 1983) (10 4-point Likert- type items)	75–375	Continuous	The sum of the ratings for all 10 items
Acculturative Stress	Cultural Congruity Scale (Gloria & Kurpius, 1996) (13 7-point Likert-type items)	13–91	Continuous	The sum of the ratings for all 13 items

Table 7 (continued)

Variables	Measure	Range	Nature of Data	Score
Outcome variables				
Grade Point Average	Grade-point average	0–4	Continuous	Semester grade-point average is the total number of points earned in the semester divided by the total number of courses.
Course Completion	Student Service File Data	0–12	Continuous	The student must register for at least 12 credits to be a full-time student. They might successfully complete all, some, or none of these.

Procedure

The general procedure involved three phases: student recruitment, completion of measures, and data entry. After approval of the proposal by the dissertation committee, the present study was submitted to the University Institutional Review Board (IRB) for approval.

After receiving approval from the IRB, a power analysis was completed and indicated that a minimum of 109 participants were needed to have an 80% chance of finding a medium effect size (.13) with an alpha of .05. Packets containing two copies of an informed consent letter for the study, the Demographic questionnaire, the IPPA, the CCS, and the PSS were prepared for distribution to potential participants. The consent letter invited students to participate, explained the purpose and procedures of the research, listed possible risks and benefits, assured confidentiality, explained that there was no compensation for participation in the study, and assured participants of their opportunity to ask questions. The consent letter assured participants of the freedom to withdraw at any time and assured participants were given the opportunity to sign and date the document indicating that they read and understood the document. A copy of the informed consent is found in Appendix G.

The present study used a convenience sample. Initially, a list of current classes on each of the two campuses was obtained from the registrar. The lists were cut up and put in two separate bowls. Then ten classes were chosen from one campus and nine classes from the other campus. This was done to provide a sufficient number of participants. Then, students from the nineteen classes were recruited. On both campuses, classes with less than 10 students were cancelled ten days after the semester began so only classes with more than 10 students were available. This ensured that there would be at least 190 potential participants. On one campus, the following morning, afternoon, and evening classes were visited: two English courses, two history classes, five psychology classes, and three office technology courses. From these courses, 87 (49%) full-time participants within the specified age group were obtained. On the other campus, the following morning, afternoon, and evening classes were visited: two history classes, three psychology classes, and two automotive technology

classes and 80 (46%) participants were obtained. Nine (5%) students were also recruited from 2 student gathering spots on both campuses (e.g., the library, lunchroom, or recreation rooms) to ensure an adequate number of participants.

All class instructors who were asked to allow data collection during class agreed to do so. The study was presented at each classroom and volunteers who were full-time students between the ages of 19 and 30 were invited to participate. At each visit, the researcher was introduced, explained the purpose of the study, and invited students to participate voluntarily. A copy of this explanation is available in Appendix E. Although many students offered to fill out the surveys, several were over 30 or only attending part-time and, therefore, could not participate. All qualified volunteers received packets and the researcher remained in the classroom or common area to answer any questions while the students completed the Demographic Questionnaire, IPPA, PSS, CCS, and consent form. All the surveys were placed in the same order in the packet and students were instructed to fill them out in that order. One copy of the consent form was left with each participant. The rooms were quiet and the students left after completing the above-named surveys. Although there was no time limit given, the majority of participants used 20-30 minutes to complete the surveys.

Across all visited classrooms and all common areas, 176 students were identified who met the qualifications of this study (age and full-time status). Of these, 174 volunteered to participate. Two students met the requirements but declined participation because they were studying for tests. Data from 10 participants were deleted because participants did not respond to any of the questions on the IPPA survey for attachment to fathers. Four participants failed to write their names legibly on the surveys and did not include student identification numbers. Therefore, grade-point average and course completion data could not

be determined for these four participants and their data were eliminated. After the grade-point average and course completion data were collected, names and student identification numbers were deleted from the database. One hundred and sixty participants, or 91% of those qualified for the study, remained in the study, thereby exceeding the target sample of 109 participants.

Analyses

All demographic data and each response for each question for the IPPA, CCS, and PSS were entered into a database by a separate party blind to the purpose of the study. Analyses were done using SPSS (Version 14.0) statistical software package. At the end of the semester, the grade-point average and the courses completed were collected from Student Services Accounts and entered into the database for each participant.

Input of data. The Demographic Questionnaire responses were entered in to the database and used as descriptive data. The IPPA contained 75 items, the CCS contained 13 items, and the PSS contained 10 items for a total of 98 items. Because there were 160 participants, there was a potential for 15,680 responses on the IPPA, CCS, and the PSS combined. There were just 15 missing responses on the three surveys and the mean of each item was substituted for the missing survey responses. This meant the substitution rate was less than 1/1000 for the missing survey responses.

Computations. Means, standard deviations, and correlation coefficients for each survey were determined. A composite stress score was computed by reverse scoring the CCS and calculating means for each combined score of CCS and PSS for each participant. The method used in the present study was based on research by Troxel and colleagues (2003) for their study of chronic stress. Troxel and colleagues reverse scored a stress scale, and then

combined four stress scales to create a composite stress score that included life events stress, ongoing stress, discrimination, and economic hardship. This method was also used in the present study. Then, in the present study, relationships among the independent variables of stress and attachment were analyzed. Analyses to determine if stress affected academic success were completed. Then regression analyses to test for stress and attachment effects on grade-point average and course completion were conducted. The data describing country of birth, primary language spoken in home, language used as a child, language used for thinking, language used with friends, marital status of participant, income, educational levels of parents, and number of children were compiled and used as descriptive data for the sample.

Research Questions, Predictions, and Rationales

Previous research indicated that stress reduced grade-point average for four-year college students. For example, Andrews and Wilding (2004) found that the stress of depression and financial difficulties resulted in lower grades. Shields (2001), De Meuse (1985), and Struthers and colleagues (2000) all found that high stress was associated with low grade-point average. Because past research indicated that community college students have more stress than four-year college students, the first research question for the present study asked if stress decreased grade-point average among community college students. It was predicted that stress would reduce grade-point average among community college students.

The literature review also indicated that stress negatively impacted course completion. Perrine (1998) found that stress reduced college persistence among four-year college students. Gloria and Kurpius (2001) found that students who experienced comfort in

the college environment were more likely than students who experienced discomfort to complete more courses. Conversely, acculturative stress resulted in less course completion. Thus, it was predicted in the present study that community college students who experienced less stress, including acculturative stress, completed more courses. Students who experienced more stress were predicted to complete fewer courses.

The second research question asked if adult attachment increased, decreased, or had no effect upon the relationship between stress and grade-point average or between stress and course completion for community college students. The review of literature indicated that attachment reduced stress effects. Bradford and Lyddon (1993) found that the current parental attachment was inversely associated with psychological distress. More securely attached students perceived less psychological distress than insecurely attached students. McCarthy and colleagues (2001) found secure parental attachments decreased perceived stress among participants. Perrine (1998) argued that stress and course completion were a function of attachment style. Past research indicated that a secure adult attachment decreased the stress among four-year college students. Thus, it was predicted that the same was true for community college students. A secure adult attachment was predicted to reduce stress and, consequently, result in higher grade-point average and more course completion for community college students, whereas students with less attachment were predicted to have more stress, lower grade-point average, and fewer courses completed.

CHAPTER IV

Results

Data for the present study included three predictor variables (PSS, CCS, and IPPA) and two outcome variables (grade-point average and course completion). The order of analyses for the present study was: the determination of means and standard deviations for the five variables, testing for the assumptions of the moderator model, computing a composite score of the PSS and CCS to represent stress, computing an interaction score of stress and attachment, then testing for relationships among the predictor variables of stress, attachment, and their interaction. Finally, regression analyses were completed to test the moderating effects of attachment upon the outcome variables (grade-point average and course completion).

Descriptive Statistics

The convenience sample of 160 two-year community college students (mean age = 21.22, $SD = 2.81$; $n = 58$ males; $n = 102$ females) completed the surveys for IPPA (attachment), PSS (perceived stress), and CCS (cultural congruity) during the fall semester of 2006. See Chapter 3 for demographic characteristics of the sample. Means, standard deviations, ranges, variance, and Cronbach's alphas for the five variables appear in Table 8. Participants successfully completed a mean of 10.46 ($SD = 4.37$) semester credits during the semester they completed surveys. Participants had a mean semester grade-point average of 2.64 ($SD = 1.18$) on a 0.0–4.0 scale with 4.0 equaling an A grade. The mean score for the IPPA was 273.13 ($SD = 40.24$). The mean score for the PSS was 18.71 ($SD = 7.50$). The range of possible scores for the PSS was 0–40. The mean for the CCS was 78.29 ($SD = 9.60$) with a minimum of 46 and a maximum of 91. The range of possible scores for the CCS was

13–91. Results showed adequate to good internal consistency for the three measures used in this study, with alphas ranging from .75 to .95 (Armsden & Greenberg, 1989; Cohen et al., 1983; Gloria & Kurpius, 1996). All analyses were based on mean scores.

Table 8

Descriptive Statistics for All Variables

Instrument	<i>N</i>	Min	Max	Mean	Standard Deviation	Variance	Cronbach's Alpha
IPPA	160	169	342	273.13	40.24	1619.38	0.95
PSS	160	0	36	18.71	7.5	56.27	0.882
CCS	160	46	91	78.29	9.6	92.17	0.753
Credits	160	0	18	10.46	4.37	19.13	
Grade Point							
Average	160	0	4	2.64	1.18	1.4	

Selection of the Moderator Model

When selecting the method of analyses, parsimony and elegance of data analyses were considered. Parsimony refers to using the least complex analyses to explain the data in the most meaningful manner. Cooper and Bright (2001) recommended the moderator model for studies involving stress. Moderator effects are confirmed by the presence of interaction effects found by multiple regression analyses (Cooper & Bright, 2001). A “moderator variable affects the direction and/or strength of the relationship between an independent or predictor variable and a dependent or criterion variable” (Baron & Kenny, 1986, p. 1176).

Moderator variables are always independent variables and the model tests for the interaction effects between the moderator and the predictor variable upon the outcome variables. There are three causal paths that feed into outcome variables: the impact of stress as a predictor; the impact of attachment as a moderator; and the impact of the interaction of stress and attachment. The moderator hypothesis is supported if the interaction between the two variables is significant. When a variable acts as a moderator, the variable will impact the effect of the independent variable upon the outcome variable. Because previous research demonstrated associations between attachment and stress, the moderator model was selected for the present study. This model can demonstrate any associations between the variables of stress and attachment and whether there is a buffer effect of secure attachment on the stress effects. In other words, the moderator model can show if secure attachment reduces stress and, thus, increases grade-point average and course completion. Thus, in this study, if attachment was a moderator, secure adult attachment would reduce the stress effects upon grade-point average and course completion.

Testing for the Assumptions of the Moderator Model

In order to use the moderator model, several assumptions must be met. The sample must be based on random selection to represent the population adequately. If the sample is nonrandom, the results only fit the tested population. The second assumption is normality. This means that the scores on the independent variables form a normal distribution. The data must be checked for skewness and kurtosis. Abnormal skewness invalidates the effectiveness of the resulting statistics. A normal distribution yields a skewness rating of around zero. If the distribution is skewed over 2 standard errors of skewness, the statistics are less reliable. Therefore, outliers must be removed to avoid skewing the data. Kurtosis refers to the peak or

flatness of the distribution. The normal kurtosis statistic is around zero. Kurtosis statistics over 2 standard errors violate the assumption of normality (Brown, 1997). The third assumption is the assumption of homoscedasticity. This means that the variances for all the values of the predictor variable are the same around the regression line. If this assumption is not met, then the statistical analysis loses power, which means it is less likely to identify relationships. The final assumption is collinearity.

In this study, the sample was obtained by recruiting volunteer participants from classes across two campuses. Thus, the results only reflect the tested sample. Histograms and scatterplots of the predictor and outcome variables were created using SPSS and visually inspected. There were no outliers in the data; thus, the assumption of normality was met. All variables were visually inspected for normal distribution. Skewness and kurtosis were acceptable ($<|2|$). The assumption of homoscedasticity was also met. Residuals were dispersed randomly throughout the range of the estimated outcome variables. Scatterplots of the data were examined and distributions were essentially symmetrical; the overall shapes were indicative of homoscedasticity, and linearity was observed.

The Computation of a Composite Stress Score

In this study, stress was measured with both the PSS representing general stress and the CCS representing cultural incongruity. Consequently, the initial step of the analysis was to combine the two stress scores, PSS and CCS, into a composite stress score for the predictor variable. This combination is in line with a tendency to combine related items into global scores (Chiriboga, 2004; Troxel et al., 2003). Because increasing scores on the PSS indicate increasing stress, whereas decreasing scores on the CCS indicate increasing stress, the CCS scores were reverse scored. (In the CCS, higher scores indicate higher levels of

comfort and lower scores indicate higher stress.) Thus, the PSS and reverse-scored CCS were summed to provide a single, composite stress score. The mean of the new stress score was 44.6 ($SD = 13.38$). See chapter 2 for further descriptions of these measures. The rationale for combining the scores of the PSS and CCS into a composite score was that both variables contributed to the construct of stress and one variable would be used to test the moderating variable. The disadvantages of combining the stress scores included less internal consistency and a weaker relationship with academic outcomes. The advantage of combining the stress scores was a broader definition of stress that acknowledged the diversity of the community college population and the comfort level of participants with their environment.

The Computation of an Interaction Score for Stress x Attachment

The next step in the preparation for analyses was to calculate a score that represented the interaction term of stress and attachment. The interaction term of stress x attachment was derived by the multiplication of the composite stress score and attachment score (Suarez, Fowers, Garwood, & Szapocznik, 1997). This resulted in one score to represent the interaction.

Analyses

Correlation analyses were conducted to address the first question of this study: Among community college students, does stress predict (a) grade-point average and (b) course completion? Correlation is used to show a relationship between two variables. The linear relationship between two variables is expressed as r , a Pearson Product-Moment Correlation Coefficient. Correlations range between -1.0 and +1.0. If $r = 0$, there is no relationship between the variables. If $r = 1.0$, it represents a perfect positive linear correlation. Thus, the next step in this analysis was to examine the correlation between the

moderator variable of attachment and the independent variable of stress. As shown in Table 9, there was a significant negative correlation ($r = -.502$; $p < .01$) between stress and attachment. As attachment increased, stress decreased; as attachment decreased, stress increased.

Table 9

Correlations (Pearson r) Among Predictor and Moderator Variables with a Composite Score for Stress

	Stress	Attachment
Attachment	-.502**	1.0
Stress x Attachment	.053	.085

** Significant at the .01 level (two-tailed).

The next step in this analysis was to examine the correlations between the predictor variable of stress and the outcome variables of grade-point average and course completion. As shown in Table 10, the correlations between stress and grade-point average and between stress and course completion were not significant. Also there were no correlations between attachment and grade-point average or between attachment and course completion. Thus, the expectation that stress would predict grade-point average and course completion among two-year community college students was not supported.

Table 10

Correlations (Pearson r) Among Predictor, Moderator, and Outcome Variables

	GPA	Course Completion
Stress	-.112	-.142
Attachment	.120	.134
Stress x Attachment	-.056	-.046

Note. None of the correlations were significant at the .05 level.

Analysis for Moderator Model

The basis of the moderator model is that a moderator variable alters or changes the strength or direction of the predictor variable on the outcome variable. In the present study, secure adult attachment might reduce, increase, or have no effects on stress. The moderator model is supported if there is an interaction effect between attachment and stress. Multiple regression analysis was used to assess the predictor value of stress and the interaction of stress x attachment. Regression analysis is a method for predicting values of one variable based on the values of one or more predictor variables. Data from samples determines the equation used to show the relationship. The statistic R^2 shows the proportion of the variance in the outcome variable explained by the regression model. Multiple linear regression analyses provide an equation in which two or more independent variables are used to predict the criterion or outcome variable (Leedy & Ormrod, 2005).

To test the prediction that attachment interacts with stress and that that interaction affects the outcome variable of grade-point average, multiple linear regression analyses were completed. The prediction of the moderating effect of attachment was tested by adding the interaction term “Stress x Attachment” to the same regression analyses. As shown in Table 11, the prediction was not confirmed. There was no significant predictor effect of stress and no interaction effect, $F(3,156) = 1.065, p = .366$. Attachment did not alter stress effects upon grade-point average for community college students.

Table 11

Regression Coefficients for Grade-Point Average: Moderating Influences of Attachment on Stress

Predictor	Unstandardized B	β	R^2
Stress	-.006	-.069	.749
Attachment	.002	.08	.893
Attachment x Stress	.0001	-.045	-.567

To test the prediction that attachment interacts with stress and that that interaction affects the outcome variable of course completion, multiple linear regression analyses were completed. The moderating effect of attachment was tested by adding the interaction term “Stress x Attachment” to the same regression analyses. As shown in Table 12, the prediction was not confirmed. There was no significant predictor effect of stress and no interaction

effect , $F(3,156) = 1.415$; $p = .24$. Attachment did not alter stress effects upon course completion among community college students.

Table 12

Regression Coefficients for Course Completion: Moderating Influences of Attachment on Stress

Predictor	B	β	t value	R^2
Stress	-.032	-.099	-1.086	
Attachment	.009	.081	.885	
Attachment x Stress	0	-.034	-.433	.026

Alternative Analyses

Although the use and results of demographic variables in previous studies were inconsistent, some researchers found gender differences (Bernier et al., 2004; Fass & Tubman, 2002; Lopez & Gormley, 2002; Mattanah et al., 2004); thus, demographic variables of gender were explored in this study. Due to limited participation by minorities, ethnic differences could not be explored. Similarly, because the age of participants was limited, it was not feasible to examine age differences. However, the data provided information to complete gender analyses. As shown in Table 13, males earned a mean difference of .06 (1/100 SD) more credits than females; that difference was not significant. When grade-point average was examined, females earned a nonsignificant mean difference of .29 (1/4 SD)

points higher than males. The mean for attachment for females was 5.76 points (a little more than 1/10 *SD*) higher than the mean for males, but still not significant. The mean for stress was 1.93 points for males (45.84) which was higher, although not significantly, than the mean for females (43.91). In summary, none of the reported differences between males and females were significant.

Table 13

Descriptive Statistics for Males and Females

	Males		Females		Comparison of Males and Females			
	<i>N</i>	Mean	<i>SD</i>	<i>N</i>	Mean	<i>SD</i>	<i>t</i>	Sig.
Credits	58	10.50	4.65	102	10.44	4.23	0.082	0.935
GPA	58	2.46	1.15	102	2.75	1.19	-1.521	0.13
IPPA	58	269.46	37.01	102	275.22	42.00	-0.871	0.385
Stress	58	45.34	14.73	102	43.90	12.55	0.653	0.389

Next, correlation analyses were completed to test for gender differences. As shown in Table 14, a significant negative correlation was noted between stress and grade-point average for females. As stress increased for females, grade-point average declined. As stress decreased for females, grade-point average increased. Also, as stress increased for females, course completion declined. Conversely, as stress declined for females, course completion increased. Significant correlations were not found for males. It appeared that stress had a stronger impact on academic outcomes for females than for males.

As shown in Table 14, a negative correlation was found between the stress x attachment interaction and course completion for males. As course completion increased, the interaction effect of stress x attachment declined; as course completion decreased, the interaction effect of stress x attachment increased. The stress x attachment interaction was correlated with course completion but not with grade-point average among males. The stress x attachment interaction was not correlated with either of the outcome variables for females. See Table 14.

Table 14

Correlations (Pearson r) Among Predictor, Moderator, and Outcome Variables for Males and Females

	Males		Females	
	GPA	Credits	GPA	Credits
Stress	.127	.342	-.258**	-.268**
Attachment	.11	.13	.12	.14
Stress x Attachment	-.178	-.282*	.019	.15

*Correlations were significant at the .05 level (2-tailed).

**Correlations were significant at the .01 level (2-tailed).

Separate regression analyses were then calculated for grade-point average for male participants. As shown in Table 15, these regression analyses showed no significant predictor effects, $F(3,54) = 1.855$; $p = .15$. Attachment did not alter stress effects on grade-point average for males.

Table 15

Regression Coefficients for Grade-Point Average: Moderating Influences of Attachment on Stress for Males

Predictor	Unstandardized			R^2
	B	β	t value	
Stress	.022	.279	1.765	
Attachment	.008	.257	1.625	
Attachment x Stress	0	-.171	-1.32	.093

Separate regression analyses were then calculated for grade-point average for female participants. As shown in Table 16, these regression analyses showed a main effect of stress on grade-point average and a trend toward attachment altering the stress effect on grade-point average for females, $F(3,98) = 2.381$; $p = .074$.

Table 16

Regression Coefficients for Grade-Point Average: Moderating Influences of Attachment on Stress for Females

Predictor	B	β	<i>t</i> value	R^2
Stress	-.025	-.261	-2.37*	
Attachment	.000	-.001	-.009	
Attachment x Stress	0	.04	.409	.07

*Significant at .05 level.

Separate regression analyses were then calculated for course completion among males. As shown in Table 17, these regression analyses showed a nonsignificant trend toward an interaction between stress and attachment and the outcome variable of course completion for male participants, $F(3,54) = 2.205, p = .098$.

Table 17

Regression Coefficients for Course Completion: Moderating Influences of Attachment on Stress for Males

Predictor	B	β	<i>t</i> value	R^2
Stress	.049	.155	.99	
Attachment	.026	.205	1.309	
Attachment x Stress	-.002	-.275	2.134*	.109

Separate regression analyses were then calculated for course completion among females. As shown in Table 18, regression analyses showed a significant relationship between the predictor variables and the outcome variables for female participants, $R^2 = .102$, $F(3,98) = 3.7$, $p = .014$. Attachment decreased stress effects on course completion among community college females. Thus, attachment decreased stress and increased course completion for females.

Table 18

Regression Coefficients for Course Completion: Moderating Influences of Attachment on Stress for Females

Predictor	B	β	<i>t</i> value	R^2
Stress	-0.090	-0.266	-2.454	
Attachment	0.003	0.033	0.303	
Attachment x stress	0.002	0.174	1.806	0.102

Summary of Research Questions and Results

In summary, attachment and stress were negatively correlated for the group of participants as a whole. As attachment increased, stress decreased; as attachment decreased, stress increased.

With respect to grade-point average in community college students, stress was negatively correlated with grade-point average among females. As stress increased for females, grade-point average decreased. As stress decreased, grade-point average increased. With respect to course completion, stress was negatively correlated with course completion among female students. As stress increased for females, course completion declined. As stress decreased, course completion increased.

Gender differences were found in the present study. With respect to the interaction of stress and attachment, the interaction did not affect grade-point average among males. However, there was a trend toward attachment reducing stress effects for course completion

for males. For females, there was a trend toward attachment moderating stress effects for grade-point average. For females, attachment reduced stress effects for course completion. Additionally, the main effect of stress on female's grade-point average was significant.

CHAPTER V

Discussion

This chapter summarizes the findings and discusses the present study's relationship with past research and educational applications. It also discusses limitations of this study and implications for future research.

Summary of Findings and Relationship with Previous Research

The present study found a negative relationship between stress and attachment for the group of participants as a whole. As secure adult attachment increased, stress decreased. Conversely, as secure adult attachment decreased, stress increased. There was a negative correlation between stress and grade-point average and between stress and course completion for females. Similarly, the main effect of stress on grade-point average was significant for females. Moreover, there was a trend toward attachment altering the stress effect on grade-point average for females and for attachment altering the stress effects on course completion for males. Attachment decreased the stress effects on course completion for females.

The inverse relationship between stress and attachment among community college participants was expected because past research found negative relationship between stress and attachment among four-year college students (Howard & Medley, 2004; Kenny & Donaldson, 1991; Lopez & Gormley, 2002; Mallinckrodt & Wei, 2005; McCarthy et al., 2006; McCarthy et al., 2001; Perrine, 1994; Scharfe & Cole, 2006; Solberg & Villarreal, 1997; Solberg et al., 1994; Sroufe et al., 2005; Vogel & Wei, 2005). Secure adult attachments provide security and resources for coping with stress (McCarthy et al., 2006; McCarthy et al., 2001; Soucy & Larose, 2000; Vogel & Wei, 2005). Resources provided in secure adult attachment include having an attachment figure to rely on in stressful times for comfort and

support, having an attachment figure to trust, and communicating with an attachment figure. A secure adult attachment reduces stress effects and results in better cognitive, physical, and emotional development (Ainsworth, 1989, 1991; Andrews & Wilding, 2004; Arend et al., 1979; Aspelmeier & Kerns, 2003; Bowlby, 1951, 1969, 1973, 1980, 1988; Feeney & Noller, 1986; Kenny, 1987; Mattanah et al., 2004; McCarthy et al., 2001; Rholes & Simpson, 2004; Sperling & Berman, 1994). Based on past and present findings, then, a secure adult attachment results in less stress among two-year and four-year college students.

The present study also revealed a negative correlation between stress and grade-point average for females. The relationship of lowered stress with higher grade-point average for females was expected because past research showed that stress was negatively correlated with academic success for four-year college students. De Meuse (1985), Shields (2001), and Struthers et al. (2000) found an inverse relationship between stress and academic success for both males and females in four-year college settings. As stress increased among four-year college students, their grade-point averages declined. In a special population study of males and females, Gloria and Kurpius (2001) found that higher stress scores were associated with dropping out (nonpersistence) or academic failure. In the present study, stress was inversely related to grade-point averages for female community college participants.

The effect of stress on grade-point average was shown for females, but not for males. The lack of a relationship between stress and grade-point average in male participants in the present study might be explained by a low number of male participants making any relationship undetectable. Present findings are supported by past research showing differences between males and females in stressful situations. For example, Fiske (1993) and Hudd et al. (2000) found that females experienced stress more often than males. Dusselier et

al. (2005) found that women experienced more overall performance pressure and self-imposed pressure than men. Sarafino (2002) found that females reported more major and minor stresses than males and suggested this was due to their minority status as females. Cooper and Bright (2001) found that females feel emotions more intensely and frequently than males and suggested this was because of cultural expectations. In addition, females are more likely than males to react to stress with hostility, distraction, passivity, and wishful thinking (Moos & Schaefer, 1993). Thus, past gender research on stress supports the present study's findings: increased stress among female community college students correlated with lower grade-point average.

Although it was expected that adult attachment would increase the academic outcomes of grade-point average and course completion for all two-year participants, such was not the case in the present study. Only among female students did the interaction of higher attachment and less stress predict more course completion and a trend toward higher grade-point average. Higher adult attachment did not impact stress and did not influence grade-point average among males. The results of the present study were consistent with the findings of Vivona (2000) who found attachment style affected college adjustment and intimacy for females, but not for males. It is likely that a variety of other factors impact the achievement of males. Vivona postulated that males are socialized with greater emphasis on independence and personal achievement as part of identity development. Vivona further theorized that during the first year of college, when the establishment of autonomy is an explicit goal, men might suppress attachment needs and face their challenges autonomously. Kenny and Donaldson (1991) also found that females reported more positive parental attachments than males and that parental attachment was more influential for females than

males. The authors theorized that sound relationships were more central to the psychological development of females than males. The findings of Vivona (2000) and Kenny and Donaldson (1991) support the findings of Fass and Tubman (2002) who found that females had higher levels of peer attachment and postulated that females traditionally have higher levels of friendship. Lopez and Gormley (2000) found that males reported more academic confidence and, thus, performed more autonomously without support from others. Thus, community college males might minimize the importance of secure adult attachments. Developing a sense of autonomy, self-confidence, and independence is central to the development of male identity, whereas interdependence is central to the development of female identity.

The present findings, showing that adult attachment lowered stress effects associated with course completion, are in contrast to the findings of Solberg et al. (1994) who found that social support did not lower stress effects associated with college adjustment among Hispanic students in a four-year university setting. In contrast, past research also indicated that a secure adult attachment decreased the effects of stress (Gotlib & Wheaton, 1997; Rholes & Simpson, 2004) but did not explore gender differences. The present study extended past research by examining gender differences among community college students.

Limitations of the Present Study and Implications for Future Research

This section discusses limitations of the present study and suggests corresponding implications for future research. The limitations include self-report measures, single data collection time, limiting participation to students 19-30 years of age, the use of a convenience sample, the use of grade-point average from total courses in the semester, and combining student scores from the two campuses into single sets of scores.

One limitation of the present study was that all independent variables were measured using self-report scales. Bernier et al. (2004) labeled self-reported measures as shortcomings in their study. Misra and Castillo (2004) suggested that participants might respond with socially desirable, rather than truthful answers, when completing self-reports. Self-report is, by nature, subjective. Participants might respond differently at different times depending on what is happening in their lives. Also, it is difficult to determine if the participants responded honestly or according to what they thought the researcher wanted to know. Therefore, these issues were addressed as best possible by asking participants to respond as honestly as they could. In addition, they were instructed to respond based on their current feelings of attachment and stress. In the future, researchers should follow Vogel and Wei's (2005) recommendation that self-report stress measures be validated with physiological stress measures.

Another limitation was using a single data collection time. The surveys for this study were conducted at the beginning of the semester when likely students experience less stress than later in the semester. If the surveys had been completed closer to the final part of the semester, students might have experienced higher stress levels and, perhaps, higher stress scores. The attachment system is activated during periods of high stress. Lopez and Gormley (2002) suggest that attachments might also change over time. Perhaps, the present students did not feel high levels of stress in the early part of the semester or perhaps their attachment relationships changed as the semester progressed. Surveying students at the beginning and at the end of the semester might also yield different results because stress and attachment might change throughout the semester. Other researchers have used two intervals for data gathering with varying results (Andrews & Wilding, 2004; Bernier et al., 2004; Chemers et al., 2001;

Gloria & Kurpius, 1996; Scharfe & Cole, 2006; Soucy & Larose, 2000; Struthers et al., 2000). Future research studies should take a more longitudinal approach and collect data at orientation and throughout the semester to examine stability and change in attachment and stress.

Another limitation might be the narrow age limit of participants (19-30) in the present study. Although the age restriction was recommended by scholars associated with this dissertation, and was consistent with or more liberal than past research age limits (Bradford & Lyddon, 1993; Mallinkroft & Wei, 2005; Miville & Constantine, 2006; Sharfe & Cole, 2006; Wei et al., 2005), the age restriction used here still excluded students many younger and older students. In the future, it might be helpful to extend the age limits to include participants from 19–40 or beyond. Community college students are often older students who bring other stress factors into play. Byrd and MacDonald (2005) recommended comparing stress of older and younger college students. Extending the age limits could allow a researcher to explore the differences between younger and older students. Future studies might also include early entry students, or those students less than 19 years of age. The community college used in the present study has an early entry college program and many other community colleges have similar programs. By restricting the age limit to those 19- 30, younger and older students were not included in the sample. In the college wide population for the community college used, 37% of the students are under 19 and 12% are over 30. Thus, 49% of the students were not represented in the sample. In rethinking this research design, it would have been more helpful to include both younger and older students.

Another limitation of the present study was the use of a convenience sample rather than a random sample. Thus, the findings can only be applied to the tested sample. Caution is

needed to prevent overgeneralization of the findings. If larger studies of random samples support these findings, then the findings could be generalized to the community college population in general. In future samples, a random sample could be obtained by mailing a survey to every full-time student at the community college studied.

Another limitation might be the use of overall grade-point average dependent on all courses completed during the semester. It is possible that stress experiences differ from course to course (Struthers et al., 2000). In the present study, all students take a final capstone course as part of their final program evaluation. The capstone course teaches the skills needed for students' future occupations. Thus, capstone courses have more meaning and importance to students and might be considered more stressful than their other courses. This study surveyed students enrolled in a wide variety of courses. Perhaps, some courses did not seem challenging enough to students to foster stress, whereas the more important capstone courses might be more stressful. Future studies might examine stress relative to a single course that might elicit greater stress than general courses.

Another limitation was that results were representative of community college students from two campuses in one midwestern state. Results might be different if this study was conducted on other community college campuses in other locations such as large urban settings. When comparing rural and nonrural students, Wright (2003) found higher levels of attachment among students from rural settings than nonrural settings. A future study might compare the results of rural and nonrural community college students. Potential areas of comparison could be rural, mid-size cities, and metropolitan areas.

Another limitation of the present study was combining scores from two campuses. One campus was a commuter campus without dormitories, and the other campus was a

resident campus where most students live on campus. In this study, scores were combined to achieve a sufficient sample size. Shields (2001) recommended examining commuter and resident campuses separately because they tend to have different academic experiences. Future studies could compare rather than combine outcomes for students at commuter and residential campuses.

In summary, the present study extended the research literature concerning stress, attachment, and academic success among community college students. Negative associations between stress and attachment were revealed. Gender differences in the relationship of stress, attachment, and academic achievement measures were also found. As stress increased for females, the two measures of academic achievement declined. This was not the case for males. For females, attachment reduced stress effects and increased course completion. Additionally, there was a trend toward reducing stress and increasing grade-point average. For males, there was a similar finding that showed attachment reduced stress effects and increased course completion. The present study provides useful information for community college personnel and parents as they interact with and guide their students. It also provides valuable information about stress and attachment for students as they strive to succeed in the community college setting. Using this information about stress, attachment, and academic success, parents, students, and college personnel can work together to help community college students achieve greater academic success.

Educational Applications

The present study's results suggest three educational applications. These proposed applications, of course, are suggested given the present study's limitations. Should the results be replicated with larger and more representative samples, it would add power to these

suggested applications. First, parents and college students should maintain secure adult attachments. Second, students could be given stress information pertaining to identification, outcomes, and reduction practices. Last, mentoring relationships between college students and college personnel that maintain secure adult attachment and reduce stress could be facilitated.

The present study indicates an inverse relationship between stress and attachment for male and female community college students and provides further support for maintaining secure adult attachments between college students and their parents. Transitioning to college is a challenge, and college students' perceived stress was decreased by secure adult attachment. In other words, students who experienced a secure attachment to their parents perceived less stress. Conversely, students who had less secure adult attachments perceived more stress. Thus, it is important for college students to trust and rely on their parents and to communicate openly with them. Parents might also be informed of the benefits of secure adult attachments and encouraged to maintain a secure attachment with their college students.

A close, nurturing relationship between parents and their college students has become a hot topic among college administrators and the popular press. College personnel presently identify "helicopter parents" as parents who are overly involved in their child's life. They remain highly influential in their child's life while in college and help their student make decisions about class selection, social life, and other problems (Kawam, 2008). College personnel maintain that helicopter parenting prevents students from being responsible or learning to solve problems. However, recent studies show that students with "helicopter parents" often excelled in all areas of college life (Shroup, 2008, as cited in Kawan, 2008).

Guidance and support from their secure adult attachments enhanced students' academic performance. Thus, it might be advantageous for the community college student, the parent, and the college to maintain secure adult attachment between the parent and the student. Because secure attachment between parent and student increases academic success in college, college personnel should encourage students to maintain close communication with their parents throughout the college experience from admission to graduation, rather than counsel students and parents to cut the attachment relationship. The college could facilitate this relationship by having workshops for parents and students, scheduling events for parents, circulating a monthly or quarterly newsletter, and obtaining the necessary releases to allow information sharing.

The present study also indicates an inverse relationship between stress and grade-point average and between stress and course completion for females. Given that there was a negative relationship between stress and academic success for females, colleges might implement a stress reduction program containing three primary elements: educational material concerning the effects of stress, potential stressors often found in a student population, and college and community resources available to help manage stress (Misra, 2000). The stress reduction program could include workshops offered during orientation and throughout the year. As a way to fortify the attachment bond between students and their parents, it might be helpful to have some of these sessions available to parents. The college might also decide to make it mandatory for college personnel to attend the workshops, because they need to be aware of stress and attachment issues and available resources (Misra, 2000; Ross et al., 1999).

The primary element of the stress reduction program could include general information on stress effects such as diminished grade-point average and course completion, as was found in this study. Students could be informed about how stress influences decision-making abilities. Decisions made under stressful conditions result in premature closure without considering all the relevant information and alternatives (Janis, 1993). Hudd and colleagues (2000) suggest that students be informed about the importance of good health habits that include a healthy diet, sufficient sleep, exercise, and relaxation, because poor health habits increase stress. Emotional control decreases stress (Lok & Bishop, 1999), whereas mental health issues, such as anxiety and depression, increase stress (Andrews & Wilding, 2004). Therefore, information on mental health and emotional control could be provided.

The second element in the stress reduction program could include information about the potential stressors often faced by college students. Some of these include financial difficulties (Andrews & Wilding, 2004; Ross et al., 1999), time management problems, academic pressure, social relationship issues, mental and physical health issues, and problems navigating the college bureaucracy. Pressure to adapt to the demands of the college environment (Misra & Castillo, 2004) increases stress. If the student is a minority student, acculturative stress is an additional burden (Gloria & Kurpius, 1996). Stress results in impaired information processing (Lok & Bishop, 1999) and memory impairment (Vondras et al., 2005).

The final element in the stress reduction program could include making students and parents aware of the available resources located at the college and in the community. Those resources might include time management classes, classes to improve study skills, and

college orientation classes. Hudd and colleagues (2000) recommends that students be taught time management skills and how to formulate realistic plans for course completion. It is also important to help students develop a realistic budget, as a way to decrease financial pressure. It is important that college personnel, students, and parents know where students can get financial, time management, or mental health assistance. It is also important to give students telephone numbers for emergency and resource personnel.

Past research indicates that mentoring and counseling relationships in college might fulfill the need for a secure adult attachment. College personnel could support students, refer them to appropriate resources, and encourage an atmosphere of mutual respect (Dusselier et al., 2005). It could be important for both the student and college personnel to recognize a problem as soon as possible and implement an intervention strategy quickly. Counseling could focus on constructive stress reactions and the replacement of negative coping behaviors with positive coping behaviors (Misra & Castilla, 2004). Additionally, community colleges could create a mission that underlies a holistic view of students that encompasses more than academic needs (Pope et al., 2005). Colleges need to improve communication between students and college personnel (Misra, 2000). Providing college personnel with knowledge of academic stress could prevent misunderstandings of academic expectations between college personnel and students (Misra, 2000).

In summary, secure attachment results in greater academic success among two-year and four-year college students. These attachments enhance the quality of life for college students and should be encouraged and maintained. Parents and students could be encouraged to maintain a secure adult attachment. College students could be informed of potential stress sources, stress reactions, and stress reduction strategies. Mentoring and

counseling relationships between college personnel and students could be encouraged and formulated.

What ever became of those Five Students and How Can Community Colleges and Parents

Unite to help Them?

This dissertation began with the introduction of five community college students: two young girls living in their cars, two young men living with their wives and children in one small apartment, and one single mother of five who enrolled and dropped out repeatedly. Only the two young men successfully completed courses and remained in school. What might have been done to retain the three community college students who dropped out? What information does this dissertation provide that could help prevent situations like this in the future?

In the sample used for the present study, 66% of the students had monthly incomes under \$1,000.00, and 83% had monthly incomes under \$1,999.00. Community college students often face insurmountable financial challenges for themselves and their families. Some students must work several jobs, and their jobs, while providing minimal needs, interfere with and reduce the time available to attend classes and study. More money is needed for scholarships, grants, and loans for community college students. Perhaps emergency funds could be made available for students who are in financial crises. Most community college funds are acquired from tax levies, and administrative leaders need to communicate these vital needs. More administrators need to visit classrooms, meet students in the hallways and gathering places, and listen carefully to their personal stories so that they gain a clearer understanding of students' financial needs and seek more funds for them.

Secure adult attachments are declining (Mickelson, et al., 1997; Vivona, 2000), whereas stress is increasing (Hobson, et al., 1998). Thus, more high stress and insecurely attached students will arrive at community college entrances in the next decade. More counselors are needed to provide a wider range of services for all students, not just acutely troubled ones. Counselors need to have time and resources to establish a positive, trusting relationship with each of their students, so that students feel comfortable seeking counseling when they need assistance. If students are encouraged to seek out their counselors when problems start, early interventions can resolve problems before they erupt into crises.

Faculty members need to be more sensitive to the needs of their students, listen carefully, and respond with proactive steps to help students. Perhaps the two young women living in their cars should have been escorted to counseling services, introduced to the counselors, and helped to find appropriate housing. If so, they might have been retained in college. Perhaps, more support systems could have been in place to allow the single mother of 5 children to attend school on a part-time basis. A wider-range of childcare services and rooms for all ages of children would have been helpful. Childcare for children with minor illnesses could be available for students with parental responsibilities.

Parents need to be encouraged to assist their college-aged children financially and emotionally. Parents and students need to be encouraged to establish and maintain secure attachments with each other. Parenting does not stop when a child turns 18. If parents are separated or divorced, they need to put aside their differences and focus on the child. However, community college personnel realistically have little or no influence on parental attitudes or choices. Community college personnel can support students and help them evaluate their options and make good choices. Assisting students to succeed and graduate

needs to be a priority for everyone. College-aged young people will face tremendous challenges in the future. They will need a good educational background to resolve issues and solve problems. It will take everyone working together to provide the best education possible to as many people as possible.

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APPENDIX A

Demographic Questionnaire

Please fill out the following blanks.

Name _____

Student Identification Number _____

Age _____

Country of Birth of participant:

1. U.S.A. _____

2. Mexico _____

3. Other _____

Mother's Country of Birth:

1. U.S.A. _____

2. Mexico _____

3. Other _____

Father's Country of Birth:

1. U.S.A. _____

2. Mexico _____

3. Other _____

Gender:

1. Male _____

2. Female _____

In general, what language(s) do you read and speak?

1. Only Spanish _____
2. Spanish better than English _____
3. Both equally _____
4. English better than Spanish _____
5. Only English _____

What was the language(s) you used as a child?

1. Only Spanish _____
2. Spanish better than English _____
3. Both equally _____
4. English better than Spanish _____
5. Only English _____

What language(s) do you usually speak at home?

1. Only Spanish _____
2. Spanish better than English _____
3. Both equally _____
4. English better than Spanish _____
5. Only English _____

What language(s) do you usually speak with your friends?

1. Only Spanish _____
2. Spanish better than English _____
3. Both equally _____
4. English better than Spanish _____
5. Only English _____

Marital Status:

1. Never Married _____
2. Now Married _____
3. Divorced _____
4. Widowed _____

Number of Children under the age of 18 living with you _____

Monthly Income:

Low:

1. Under \$1,000.00 _____

2. \$1,000.00 – 1,999.00 _____

Medium:

3. \$2,000.00 – 2,999.00 _____

4. \$3,000.00 – 3,999.00 _____

High:

5. \$4,000.00 – \$4,999.00 _____

6. \$5,000.00 and above _____

Mother's educational level:

1. less than high school diploma _____

2. high school diploma _____

3. some college _____

4. Bachelor's degree _____

5. more than Bachelor's degree _____

Father's educational level:

1. less than high school diploma _____

2. high school diploma _____

3. some college _____

4. Bachelor's degree _____

5. more than Bachelor's degree _____

APPENDIX B

IPPA

This questionnaire asks about your relationships with important people in your life – your mother, your father, and your close friends. Please read the directions to each part carefully.

Part I

Each of the following statements asks about your feeling about your mother, or the woman who has acted as your mother. If you have more than one person acting as your mother (e.g., a natural mother and a stepmother) answer the questions for the one you feel has most influenced you.

Please read each statement and circle the ONE number that tells how true the statement is for you now.

	Almost never never true	Not very often true	Some- times true	Often true	Almost always or always true
1. My mother respects my feelings.	1	2	3	4	5
2. I feel my mother does a good job as my mother.	1	2	3	4	5
3. I wish I had different mother.	1	2	3	4	5
4. My mother accepts me as I am.	1	2	3	4	5
5. I like to get my mother's point of view on things I'm concerned about.	1	2	3	4	5
6. I feel it's no use letting my feelings show around my mother.	1	2	3	4	5
7. My mother can tell when I'm upset about something.	1	2	3	4	5

8. Talking over my problems with my mother makes me feel ashamed or foolish.	1	2	3	4	5
9. My mother expects too much from me.	1	2	3	4	5
10. I get upset easily around my mother.	1	2	3	4	5
11. I get upset a lot more than my mother knows about.	1	2	3	4	5
12. When we discuss things, my mother cares about my point of view.	1	2	3	4	5
13. My mother trusts my judgment.	1	2	3	4	5
14. My mother has her own problems, so I don't bother her with mine.	1	2	3	4	5
15. My mother helps me to understand myself better.	1	2	3	4	5
16. I tell my mother about my problems and troubles.	1	2	3	4	5
17. I feel angry with my mother.	1	2	3	4	5
18. I don't get much attention from my mother.	1	2	3	4	5
19. My mother helps me to talk about my difficulties.	1	2	3	4	5
20. My mother understands me.	1	2	3	4	5
21. When I am angry about something, my	1	2	3	4	5

mother tries to be understanding.

22. I trust my mother. 1 2 3 4 5

23. My mother doesn't understand what I'm going through these days. 1 2 3 4 5

24. I can count on my mother when I need to get something off my chest. 1 2 3 4 5

25. If my mother knows something is bothering me, she asks me about it. 1 2 3 4 5

Part II

This part asks about your feeling about your father, or the man who has acted as your father. If you have more than one person acting as your father, (e.g., natural and stepfathers) answer the questions for the one you feel has most influenced you.

	Almost never never true	Not very often true	Some- times true	Often true	Almost always or always true
1. My father respects my feelings.	1	2	3	4	5
2. I feel my father does a good job as my father.	1	2	3	4	5
3. I wish I had a different father.	1	2	3	4	5
4. My father accepts me as I am.	1	2	3	4	5
5. I like to get my father's point of view on things	1	2	3	4	5

I'm concerned about.

6. I feel it's no use letting my feelings show around my father.	1	2	3	4	5
7. My father can tell when I'm upset about something.	1	2	3	4	5
8. Talking over my problems With my father makes me Feel ashamed or foolish.	1	2	3	4	5
9. My father expects too much from me.	1	2	3	4	5
10. I get upset easily around my father.	1	2	3	4	5
11. I get upset a lot more than my father knows about.	1	2	3	4	5
12. When we discuss things, my father cares about my point of view.	1	2	3	4	5
13. My father trusts my judgment.	1	2	3	4	5
14. My father has his own problems, so I don't bother him with mine.	1	2	3	4	5
15. My father helps me to understand myself better.	1	2	3	4	5
16. I tell my father about My problems and troubles.	1	2	3	4	5
17. I feel angry with my father.	1	2	3	4	5
18. I don't get much attention from my father.	1	2	3	4	5

19. My father helps me to talk about my difficulties.	1	2	3	4	5
20. My father understands me.	1	2	3	4	5
21. When I am angry about something, my father tries to be understanding.	1	2	3	4	5
22. I trust my father.	1	2	3	4	5
23. My father doesn't understand what I'm going through these days.	1	2	3	4	5
24. I can count on my father when I need to get something off my chest.	1	2	3	4	5
25. If my father knows something is bothering me, he asks me about it.	1	2	3	4	5

Part III

This part asks about your feelings about your relationships with your close friends. Please read each statement and circle the ONE number that tells how true the statement is for you now.

	Almost never never true	Not very often true	Some- times true	Often true	Almost always or always true
1. I like to get my friends' points of view on things I'm concerned about.	1	2	3	4	5

2. My friends can tell when I'm upset about something.	1	2	3	4	5
3. When we discuss things, my friends care about my point of view.	1	2	3	4	5
4. Talking over my problems with my friends makes me feel ashamed or foolish.	1	2	3	4	5
5. I wish I had different friends.	1	2	3	4	5
6. My friends understand me.	1	2	3	4	5
7. My friends help me to talk about my difficulties.	1	2	3	4	5
8. My friends accept me as I am.	1	2	3	4	5
9. I feel the need to be in touch with my friends more often.	1	2	3	4	5
10. My friends don't understand what I'm going through these days.	1	2	3	4	5
11. I feel alone or apart when I'm with my friends.	1	2	3	4	5
12. My friends listen to what I have to say.	1	2	3	4	5
13. I feel my friends are good friends.	1	2	3	4	5
14. My friends are fairly easy to talk to.	1	2	3	4	5
15. When I am angry	1	2	3	4	5

about something, my friends
try to be understanding.

16. My friends help me to understand myself better. 1 2 3 4 5

17. My friends care about how I am. 1 2 3 4 5

18. I feel angry with my friends. 1 2 3 4 5

19. I can count on my friends when I need to get something off my chest. 1 2 3 4 5

20. I trust my friends. 1 2 3 4 5

21. My friends respect my feelings. 1 2 3 4 5

22. I get upset a lot more than my friends know about 1 2 3 4 5

23. It seems as if my friends are irritated with me for no reason. 1 2 3 4 5

24. I can tell my friends about my problems and troubles. 1 2 3 4 5

25. If my friends know something is bothering me, they ask me about it. 1 2 3 4 5

APPENDIX C

Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate by writing a number in the space how often you felt or thought a certain way.

- 0 = Never
- 1 = Almost Never
- 2 = Sometimes
- 3 = Fairly often
- 4 = Very often

- ___ 1. In the last month, how often have you been upset because of something that happened unexpectedly?
- ___ 2. In the last month, how often have you felt you were unable to control the important things in your life?
- ___ 3. In the last month, how often have you felt nervous and “stressed”?
- ___ 4. In the last month, how often have you felt confident about your ability to handle your personal problems?
- ___ 5. In the last month how often have you felt that things were going your way?
- ___ 6. In the last month, how often have you found that you could not cope with all the things that you had to do?
- ___ 7. In the last month, how often have you been able to control irritations in your life?
- ___ 8. In the last month, how often have you felt that you were on top of things?
- ___ 9. In the last month, how often have you been angered because of things that were outside of your control?

____ 10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

APPENDIX D

Cultural Congruity Scale

For each of the following items, indicate the extent to which you have experienced the feeling or situation at school. Use the following ratings:

Not at all

A great deal

1

2

3

4

5

6

7

- ___ 1. I feel that I have to change myself to fit in at school.
- ___ 2. I try not to show the parts of me that are “ethnically” based.
- ___ 3. I often feel like a chameleon, having to change myself depending on the ethnicity of the person I am with at school.
- ___ 4. I feel that my ethnicity is incompatible with other students.
- ___ 5. I can talk to my friends at school about my family and culture.
- ___ 6. I feel I am leaving my family values behind by going to college.
- ___ 7. My ethnic values are in conflict with what is expected at school.
- ___ 8. I can talk to my family about my friends from school.
- ___ 9. I feel that my language and/or appearance make it hard for me to fit in with other students.
- ___ 10. My family and school values often conflict.
- ___ 11. I feel accepted at school.
- ___ 12. I feel as if I belong on this campus.
- ___ 13. I can talk to my family about my struggles and concerns at school.

APPENDIX E

Recruitment Script

Hi, my name is Linda Petroff and I am a faculty member at CCC.

As some of you might know, I am working on a degree at UNL and I am currently gathering data for a study of attachment, stress, and academic achievement in community college students. I am seeking 175 volunteers between the ages of 19 and 30 that are full-time students here at CCC. Your participation is completely up to you. If you choose to volunteer, there is a packet for you to fill out today during class time. Those of you that do not qualify or do not wish to participate will use this time to study. If you choose to participate, there will be two letters of consent to sign. You will keep one for your records. There will be a demographic questionnaire for you to complete, and there will be three surveys for you to complete. The surveys focus on your relationships with parents and your friends, and the stress that you might be experiencing in school. At the end of the semester, with your permission, I will gather your grade point average and the number of credits you have completed this semester according to the registrar's records.

This will take approximately 20 minutes of your time. Be assured that all your responses will be held in strict confidence. Information will only be presented as group information.

I will pass out the packets now. If you have decided to participate, please take a packet. Read the consent form carefully and complete the signatures and check the boxes. Fill out the demographic forms and complete the surveys. I will stay here to answer any questions that you might have and pick up the completed surveys.

APPENDIX F

PERMISSION FROM THE SETTING



Grand Island
 3134 West Highway 34
 Post Office Box 4903
 Grand Island, NE 68802-4903
 Phone: (308) 398-4222
 Toll-Free: 1-800-652-9177
 Fax: (308) 398-7398
 WWW.cccneb.edu

Linda Petroff
 General Education Department
 Central Community College
 Grand Island, NE 68801

RE: Request for Conducting Research for Doctoral Dissertation at Central Community College

Mrs. Petroff:

Your request to conduct a study of student attachment, emotional stress, and academic achievement for your doctoral dissertation has been approved. Please share a written summary of this study upon completion.

Sincerely,

A handwritten signature in cursive script, appearing to read "LaVern Franzen".

Dr. LaVern Franzen
 College President

A handwritten signature in cursive script, appearing to read "Dennis A. Tyson".

Dr. Dennis Tyson
 Vice President of Educational Services

A handwritten signature in cursive script, appearing to read "Lynn Black".

Dr. Lynn Black
 Vice President of the Grand Island Campus

A handwritten signature in cursive script, appearing to read "Eric Jones".

Dr. Eric Jones
 Dean of Educational Services

APPENDIX G

CONSENT FORM WITH IRB APPROVAL STAMP



IRB#2006-08-505 EP Date Approved: 8/23/06 Valid Until: 08/22/07

COLLEGE OF EDUCATION AND HUMAN SCIENCES
Educational Psychology

Attachment, Stress, and Academic Achievement in Community College Students Research Consent

Purpose of the research: This study will assess relationships with supportive others, stress, and academic success in community college students. You are invited to participate because you are a full-time community college student between the ages of 19 and 30.

Procedures: I am asking permission to assess Grade Point Average and the total number of hours completed at the end of the Fall '06 semester. Participation in this study will require approximately 20 - 30 minutes of your time. Participation is not required for your class. If you choose to participate in the study, please sign this informed consent. Keep one copy for yourself and return one copy to me with the completed Demographic information, IPPA; the PSS, and CCS surveys. The IPPA asks about your relationships with your mother, your father, and your close friends. The PSS asks you about thoughts and feelings that you have experienced during the last month. The CCS asks about your feelings and experiences at school. Then, at the end of the semester, I will ask the college registrar to tell us your semester grade point average and the number credits that you completed successfully in the Fall '06 Semester. After I have matched your survey information with your grade point and credits, your name and student identification number will be erased from our data file and replaced with a numerical code. I will analyze the survey information, grade point averages, and credits completed to find out if stress and supportive others relate to academic success.

Risks and/or discomforts: Answering the survey questions might cause you to remember stressful and uncomfortable situations that you have been in.

Benefits: The results of this study may help the community college instructors plan and implement more effective strategies to help you and other Central Community College students achieve their academic goals.

Confidentiality: Records from this study will be stored in a locked cabinet in the college researcher's office. Only numerical codes will identify you, and only the investigator will know your code. I may write about this study in scientific journals or talk about it at professional meetings, but I will not identify any participant.

Compensation: There is no compensation for participation in this study.

Opportunity to ask questions: You can ask questions about the study and get answers to your questions now or anytime during the study. Or, you can call Linda Petroff to discuss the study, telephone 308-398-4222 or email lpetroff@cccneb.edu. Or you can call Dr. Beth Doll at 1-402-472-2238 or e-mail bdoll2@unl.edu. If you have concerns about the study or if I cannot answer questions about your rights as a research participant, you can contact the University of Nebraska Lincoln Institutional Review Board, telephone 402-472-6965.

Freedom to withdraw. You do not have to participate in this study. Even if you agree to participate, you may change your mind at any time. If you withdraw from the study, it will not harm your relationship to Linda Petroff, the University of Nebraska-Lincoln, or Central Community College. If you withdraw, you will not lose any benefits that you are otherwise entitled to receive.

Consent: By signing, you are saying that you have decided to participate in the Attachment and Stress in Community College Student research study, and that you have read and understood the information above. You will be given a copy of this consent form to keep.

I agree that the investigators may obtain my grade point average and the number of credits I have completed at the end of the Fall '06 semester.
I have read and understood the information presented on this consent form and agree to participate in the study as described.

Participant Signature

Date

Linda Petroff, Principal Investigator,
Beth Doll, Doctoral Advisor,

Office: 1-308-398-4222
Office: 1-402-472-2238