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# The Relationship Between Attachment, Self-Regulation, and Resilience in Undergraduate Students' College Adjustment

Scott Tanner  
*Walden University*

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# Walden University

College of Social and Behavioral Sciences

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Scott Tanner

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Walden University  
2018

Abstract

The Relationship Between Attachment, Self-Regulation, and Resilience in  
Undergraduate Students' College Adjustment

by

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MS, State University of New York at Oswego, 1996

BS, State University of New York at Brockport, 1985

Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Doctor of Philosophy  
Clinical Psychology

Walden University

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## Abstract

Difficulty adjusting to college life is noted in nearly 20% of freshmen who fail to return to college. The purpose of this quantitative survey design study, grounded in attachment theory, was to investigate the best predictor (e.g., secure parental attachment, self-regulation, or resilience) of college adaptation, the combined contribution of the variables in predicting college adaptation, and whether a bivariate relationship existed between the variables and subcomponents of college adaptation. The Connor Davidson - Resilience Scale –Revised, Parental Attachment Questionnaire, Short Self-Regulation Questionnaire, and Student Adaptation to College Questionnaire were securely administered online to a sample of 68 full-time students from one university's freshmen class. In a multiple regression analysis, the combination of variables accounted for nearly 58% of the variance in college adaptation, with self-regulation as the single best predictor. A series of Pearson correlations revealed significant large positive relationships between self-regulation, resilience, and each of the college adaptation subcomponents. Secure parental attachment had a significant large positive relationship with personal/emotional adaptation and a significant medium positive relationship with academic adaptation. Based on the results, it is recommended that self-regulation and resilience be investigated as mediators between attachment and adaptation to college. This research, while making an important contribution to the literature, contributes to positive social change by highlighting key components to college adaptation, thereby focusing efforts on strengthening these qualities in students.

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## Dedication

I dedicate this work to my wife, Maria, my children (i.e., Jennifer, Brian, Allison, Michelle, and Joshua), my mother, and of course, God. It is through their love, tireless support, patience, and encouragement that I have found the strength and motivation to see this work through to its completion.

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## Chapter 1: Introduction to the Study

### **Introduction**

The transition from adolescence to young adulthood is a period of considerable development in which individuals are confronted with adapting to several physical, psychological, and social changes (Bakar, Jamaluddin, Symaco, & Darusalam, 2010; Buitelaar, 2012; Salazar-Pousada, Arroyo, Hidalgo, Perez-Lopez, & Chedraui, 2010; Singh, 2012). During this period, many adolescents are also presented with a number of challenges in terms of educational advancement, personal relationships, and personal growth (Bakar et al., 2010; Salazar-Pousada et al., 2010; Singh, 2012). Such changes and challenges have been associated with heightened levels of social and emotional stress and an increased vulnerability to mental health concerns (Bakar et al., 2010; Bennett, 2012; Benton, Robertson, Tseng, Newton, & Benton, 2003; Galatzer-Levy & Bonanno, 2013). They are often encountered when students are adjusting to college (Tao, Dong, Pratt, Hunsburger, & Pancer, 2000).

In 2011, approximately 18 million students in the United States were enrolled in either a 2-year or a 4-year undergraduate college; this enrollment rate is expected to grow to over 20 million students by the year 2021 (Aud et al., 2013). However, despite the growing rate of attendance, a sufficiently effective response to the problem of retention has yet to be found and as such many students continue to experience difficulty adjusting to college life (Aud et al., 2013; Tao et al., 2000). The challenges and new responsibilities connected with attending college have been

associated with an increased level of stress (Galatzer-Levy & Bonanno, 2013).

Roughly 20% of full-time students attending a 4-year college and 40% of full-time students attending a 2-year college did not return for their sophomore year (Aud et al., 2013). Further, approximately 40% of full-time students at 4-year institutions fail to complete their degree within 6 years and roughly 70% of students at 2-year colleges failed to complete their degree within 3 years (Aud et al., 2013).

In addition to adapting to the academic demands of college life, students are often confronted with adjusting to living away from home, creating new social networks, forming new friendships, managing finances, and balancing social demands with academic deadlines (Hiester, Nordstrom, & Swenson, 2009; Sargent, Crocker, & Luhtanen, 2006; Vaez & LaFlamme, 2008). While successful adaptation to these challenges can lead to the development of new skills, difficulty can also yield increased stress and precede the emergence of problems with mental health (Bakar et al., 2010; Bennett, 2012; Blanco et al., 2008; Galatzer-Levy & Bonanno, 2013; Tao et al., 2000). As the number of students faced with adjusting to college life has continued to rise (Aud et al., 2013), so has the number of students with problems in mental health (Gallagher, 2012; Hunt & Eisenberg, 2010).

Approximately 10% of undergraduates experience clinically significant levels of stress (Galatzer-Levy & Bonanno, 2013). Over one third of students, out of a sample of 278,000 students who received mental health services from 293 campus centers, display severe psychiatric symptoms, with 6% of these students dropping out of college despite the mental health services (Gallagher, 2012). Further, suicide is the



second leading cause of death among college students over 19 years of age and the third leading cause of death for students 19 years old and younger (Heron, 2013).

A number of studies have sought to identify factors that would better predict a student's adjustment to college. Lapsley and Edgerton (2002) as well as Mattanah, Hancock, and Brand (2004) explored the relationship between attachment, separation-individuation, and college adjustment. Hinderlie and Kenny (2002) considered the role of parental attachment and on-campus social support in college adjustment. The role of social support in college adjustment has also been considered in relation to coping strategies (Tao et al., 2000), to attachment, and coping (Schmidt & Welsh, 2010), as well as in relation to psychological well-being, ways of coping, and locus of control (Banyard & Cantor, 2004). Mooney, Sherman, and LoPresto (1991) focused on the role of academic locus of control, self-esteem, and distance from home as factors in adjustment to college. Vaez and LaFlamme (2008) focused on such factors as age, gender, psychological symptoms, and experienced stress. While Allan, McKenna, and Dominey (2014) considered the role of resilience in college adjustment, Park, Edmondson, and Lee (2012) explored the role of self-regulation. Fike and Fike (2008) explored college adjustment in relation to a broad range of factors: age, gender, ethnicity, completion of developmental courses (e.g., reading, writing, and math), participation in a student support services program, receipt of financial aid, enrollment in internet courses, number of hours enrolled in the first semester of college, number of hours dropped in the first semester of college, and level of parental education. Despite the variety of factors

explored, no one factor or set of factors has been identified as highly predictive of a freshman student's ability to successfully adapt to the multiple demands confronted in college.

In light of the growing number of students enrolling in college and the range of difficulties that can be experienced in adjusting to college life (Aud et al., 2013; Bakar et al., 2010; Bennett, 2012; Blanco et al., 2008; Tao et al., 2000), there is value in research on a set of factors that, as a group, are more highly predictive of a freshman student's overall level of adjustment to the multiple areas of demand. Although the quality of a person's attachment, the capacity for self-regulation, and the level of resilience have all been linked to a positive adjustment to college (Ames et al., 2011, DeRosier, Frank, Schwartz, & Leary, 2013; Hartley, 2011; Holt, 2014; Melendez & Melendez, 2010; Park et al., 2012; Parker, Hoffman, Sawilowsky, & Rolands, 2013), such research has focused on either exploring subcomponents of these factors or has tended to consider a freshman student's adaptation to college using a more narrow focus (e.g., in one or two of the multiple areas comprising adjustment to college). An investigation exploring the full impact of these factors, rather than the impact of some of their subcomponents, provides an increased understanding of these factors' individual and combined ability to predict a freshman's adjustment across the multiple areas of demand in college. In addition, mental health practitioners can use this knowledge when targeting intervention efforts toward enhancing college adjustment. This information is also of value to colleges as they seek to achieve smoother transitions for incoming freshmen.

The study of attachment explores the role of early caregiver-child interactions on a child's behavior as well as on a child's developing personality (Bowlby, 1969/1982). The quality of this relationship can be described as secure or insecure forms of attachment (Ainsworth, Blehar, Waters, & Wall, 1978). The quality of a person's attachment has been considered to be a factor in an adolescent's successful transition into adulthood (Kenny, 1987) and more recently, it has been associated with a student's adjustment to college (Garriott et al., 2010; Hiester et al., 2009; Hinderlie & Kenny, 2002; Lapsley & Edgerton, 2002; Lopez, Mitchell, & Gormley, 2002; Mattanah et al., 2004; Melendez & Melendez, 2010). Such research indicates that increased levels of secure parental attachment are linked to healthier adjustment in college (Garriott et al., 2010; Hiester et al., 2009; Hinderlie & Kenny, 2002; Lapsley & Edgerton, 2002; Lopez et al., 2002; Marmarosh & Markin, 2007; Mattanah et al., 2004; Melendez & Melendez, 2010). In addition, the quality of a person's attachment has been viewed as a protective factor, with secure attachment associated with the presence of resilience (Jones & Morris, 2012; Masten, 2007; Masten & Coatsworth, 1998; Masten, & Narayan, 2012; Rutter, 1987; Werner, 1995). However, in attachment theory, the quality of a person's attachment, along with the level of resilience, are part of a developmental pathway that can lead toward or away from healthy adjustment and a healthy personality development (Bowlby, 1988). Bowlby (1988) noted that the quality of a person's attachment was based on the person's interactions with primary caregivers and the environment. Over time, if

the person's experience with his or her primary caregivers or the environment were to significantly change, this change could impact the quality of the person's attachment to the primary caregivers. Lopez and Gormley (2002) found only a moderate degree of stability in freshmen students' attachment styles during the first year of college.

The literature includes a variety of definitions for self-regulation due to theorists and researchers differing conceptualizations (Morf & Mischel, 2002). Bandura (1986) views self-regulation as a function in which action is initiated in a response to how well the individual's behavior conforms to a set of personal standards. Self-regulation has been described as a variety of strategies (e.g., reward, monitoring, goal setting, and environmental organization) used by a person for self-control (Byrd-Bredbenner, Abbot, & Cussler, 2011). Self-regulation has been defined in terms of subcomponents viewed as comprising this concept (Magno, 2011). A variety of subcomponents have been identified as a part of self-regulation including such components as self-evaluation, planning/goal setting, information gathering, monitoring, consequences, seeking help, and practice (Magno, 2011). While there are a variety of definitions for self-regulation (Morf & Mischel, 2002), one definition that a number of researchers agree upon is that self-regulation is comprised of processes and skills focused on modulating a person's thoughts, emotions, attention, and behavior such that the person will be able to sustain efforts toward achieving a goal (Karloly, 1993; Lengua, 2002; Posner & Rothbart, 1998; Williams et al., 2008). The development of self-regulation has been posited to occur through a person's

interactions with primary caregivers and the environment (Fonagy & Target, 2002; Padykula & Conklin, 2010; Schore & Schore, 2008; Schore & Schore, 2014; Silverman, 1998; Waters et al., 2010). Over time, a person's capacity to self-regulate can be influenced by such internal and external factors such as maturation, level of emotional exhaustion, level of cynicism, and the person's experience with the environment (Cameron & Nicholls, 1998; Duru, Duru, & Balkis, 2014; Park et al., 2012). A person's capacity to self-regulate has also been linked with a student's adjustment to college (Cameron & Nicholls, 1998; Duru et al., 2014; Kitsantas, Winsler, & Huie, 2008; Park et al., 2012). Increases in the capacity for self-regulation have been positively associated with academic performance (Duru et al., 2014; Kitsantas et al., 2008) and mental health (Cameron & Nicholls, 1998; Park et al., 2012). In addition, self-regulation has been viewed as a protective factor for resilience (Dishion & Connell, 2006; Masten, 2007; Masten & Coatsworth, 1998; Masten & Narayan, 2012; Werner, 1995). Self-regulation, which also emerges from a person's interactions with primary caregivers and the environment, has been considered a part of the same developmental pathway leading toward healthy adjustment and personality development as attachment and resilience (Fonagy & Target, 2002; Padykula & Conklin, 2010; Schore & Schore, 2008; Schore & Schore, 2014; Silverman, 1998; Waters et al., 2010).

Resilience reflects a person's capacity to successfully adapt in the face of adversity (Bakar et al., 2010; Masten, 2014). However, this adaptive capacity is not a static quality but rather results from the interaction of dynamic processes employed

in adapting to a variety of adverse situations (Masten, 2014; Rutter, 2013; Rutter, 2007). In addition, this adaptive capacity can be diminished by risk and vulnerability factors as well as enhanced by protective and promotive factors (Masten, 2014; Rutter, 2013; Rutter, 2007). Recently, a number of studies have focused on the role of resilience in mitigating some of the challenges faced by college students as well as how this capacity to adapt might be correlated with student success (Allan et al., 2014; DeRosier et al., 2013; Hartley, 2012; Hartley, 2011; Hartley, 2010; Johnson, Dinsmore, & Hof, 2011; Klibert et al., 2014). Although challenges in college life can occur across such areas of demand as academics, interpersonal life, mental health, and commitment to educational goals (Baker & Siryk, 1984); resilience studies have not been as broad in their focus. While a number of studies have focused on the link between the undergraduate student's level of resilience and the level of mental health concerns present (DeRosier et al., 2013; Hartley, 2012; Hartley, 2011; Hartley, 2010; Johnson et al., 2011; Klibert et al., 2014), other studies have focused on the link between academic performance and resilience (Allan et al., 2014; Hartley, 2011). In addition, improved mental health (DeRosier et al., 2013; Hartley, 2012; Hartley, 2011; Hartley, 2010; Johnson et al., 2011; Klibert et al., 2014) and improved academic outcomes (e.g., GPA, academic attainment) have been associated with greater levels of resilience (Allan et al., 2014; Hartley, 2011).

This chapter highlights the difficulties that may be faced as freshmen students' enter and adjust to college, as well as identifies some of the factors linked

to successful adaptation to college. After identifying a current gap in the literature, a quantitative study is outlined to address this gap by investigating the relationship between attachment, self-regulation, and resilience and their combined ability to predict a freshman's overall adjustment to college, as well as indicates which of these variables is the best predictor of their adjustment. Grounding this study in the tenets of attachment theory and modern attachment theory (Bowlby, 1969/1982; Schore & Schore, 2008) supports the hypothesized relationship between attachment, self-regulation, and resilience and adjustment. This study provides a number of implications for social change. In highlighting key components of college adaptation, this study emphasizes the importance of strengthening these qualities in students. As such, it provides (a) colleges with information on key qualities of adaptation to target in planning for smoother transitions for freshmen and (b) mental health practitioners with information on key qualities of adaptation useful in selecting interventions.

## **Background**

### **Attachment**

Bowlby (1969/1982), in integrating aspects of a variety of theoretical approaches (e.g., ethological, psychoanalytic, developmental, control systems, behavioral), outlined his theoretical tenets about the role that early caregiver-child interactions play in establishing the quality of a child's attachment as well as its role in the child's developing personality. Ainsworth et al. (1978), in her research using the Strange Situation, described the style of a child's attachment (e.g., secure,

ambivalent-resistant, avoidant) and established the concept of a secure base from which the child feels safe to explore the world. Bowlby (1988) expanded on the implications of a secure base, considered its role in the healthy development of the child, and indicated that early patterns of attachment behavior are not just confined to childhood but have implications for adolescence and adulthood. Bowlby (1969/1982, 1988) theorized that a child develops working models of caregivers and self that are based on his or her early attachment experiences. These models, once internalized, are then taken forward into new interactions and affect how the child relates to others. Hazan and Shaver (1987) provided support to Bowlby's theory through their research on adult romantic attachments. Their work identified both a similar type and proportion of attachment styles to be present in adults as those found in children (Hazan & Shaver, 1987). Currently, attachment has been the focus of study in regards to a student's adjustment to college (Garriott et al., 2010; Hiester et al., 2009; Hinderlie & Kenny, 2002; Lapsley & Edgerton, 2002; Lopez et al., 2002; Marmarosh & Markin, 2007; Mattanah et al., 2004; Melendez & Melendez, 2010). A number of studies have found a positive correlation between the successful adjustment to college and a secure style of attachment (Garriott et al., 2010; Hiester et al., 2009; Hinderlie & Kenny, 2002; Lapsley & Edgerton, 2002; Marmarosh & Markin, 2007; Mattanah et al., 2004; Melendez & Melendez, 2010). One study noted a link between an insecure attachment style and college student distress (Lopez et al., 2002). A negative correlation has been noted between a successful college adjustment and fearful or preoccupied styles of attachment (Lapsley & Edgerton,



2002). Although attachment is considered a protective factor for resilience (Jones & Morris, 2012; Masten, 2007; Masten & Coatsworth, 1998; Masten & Narayan, 2012; Rutter, 1987; Werner, 1995), only a few studies were noted to compare these two variables (Gilbert & Sifers, 2011; Shibue & Kasai, 2014). Gilbert and Sifers (2011) indicated that college students with secure attachments to their parents reported less distress after a relationship breakup than did their insecurely attached peers. Shibue and Kasai (2014) found that resilience was positively correlated with secure attachment in a sample of Japanese college students.

### **Self-Regulation**

Self-regulation comprises processes and skills that modulate a person's thoughts, emotions, attention, and behavior such that the person will be able to sustain efforts to achieve a goal (Karlovy, 1993; Lengua, 2002; Posner & Rothbart, 1998; Williams et al., 2008). A number of theorists view the development of self-regulation as occurring through a person's interactions with primary caregivers and the environment (Fonagy & Target, 2002; Padykula & Conklin, 2010; Schore & Schore, 2008; Schore & Schore, 2014; Silverman, 1998; Waters et al., 2010).

Although considerable attention has been paid to a subcomponent of self-regulation (e.g., affect regulation) as it emerges from the early emotional interactions with primary caregivers (Buelow, Lyddon, & Johnson, 2002; Drake, Belsky, & Fearon, 2013; Gilliom, Shaw, Beck, Schonberg, & Lukon, 2002; Kidwell & Barnett 2007; Kimball & Diddams, 2007; Schore & Schore, 2008; Schore & Schore, 2014; Waters et al., 2010), a number of theorists have further postulated that the initial development

of affect regulation also contributes to the later development of a person's broader capacity to self-regulate (Fonagy & Target, 2002; Padykula & Conklin, 2010; Schore & Schore, 2008; Schore & Schore, 2014; Silverman, 1998). In addition, some studies have provided support for a connection between self-regulation and attachment (Sroufe, 2005; Tangney, Baumeister, & Boone, 2004; Waters et al., 2010; Zeinali, Sharifi, Enayati, Asgari, & Pasha, 2011). Although self-regulation has been viewed as a protective factor for resilience (Dishion & Connell, 2006; Masten, 2007; Masten & Coatsworth, 1998; Masten & Narayan, 2012; Werner, 1995), little evidence is available that support this theoretical position (Lengua, 2002). However, one study did find that children with a decreased capacity to self-regulate were less resilient to multiple risks (Lengua, 2002). Further, a person's capacity to self-regulate has been linked with a student's adjustment to college (Kitsantas et al., 2008; Lee, Hamman, & Lee, 2007; Park et al., 2012; Zimmerman, 2002)

### **Resilience**

The investigation of a child's capacity for resilience has been ongoing since the 1970s and has progressed through four distinct phases (Bonanno & Diminich, 2013; Masten, 2007). During the first phase, research focused on delineating what resilience was as well as considered how best to measure such a capacity (Bonanno & Diminich, 2013; Masten, 2007; Richardson, 2002). In addition, research from this phase targeted the identification of qualities as well as relationships associated with resilience (Bonanno & Diminich, 2013; Masten, 2007; Richardson, 2002). As research moved into the second phase, emphasis shifted to the processes that

contributed to or detracted from the capacity for resilience (e.g., risk and protective factors; Bonanno & Diminich, 2013; Masten, 2007; Richardson, 2002). During this second phase, attachment and self-regulation were identified as protective factors for resilience (Dishion & Connell, 2006; Jones & Morris, 2012; Masten, 2007; Masten & Coatsworth, 1998; Masten, & Narayan, 2012; Rutter, 1987; Werner, 1995).

Further, research considered the interactions between the processes that contributed to a person successfully adapting to adversity (Bonanno & Diminich, 2013). The third phase of research investigated preventive measures as well as interventions that could be implemented once a person was faced with adversity (Bonanno & Diminich, 2013; Masten, 2007; Richardson, 2002). In the current phase of research, the focus has been on developing approaches that integrate multiple processes and investigate moderators of risk factors for adversity (Bonanno & Diminich, 2013; Masten, 2007). In addition, the definition of resilience has continued to be adjusted as more knowledge has been gained. While resilience continues to reflect the capacity to adapt in the face of adversity, this definition has come to include systems (e.g., an economy, a forest, global climate, security system) as well as people (Masten, 2014; Masten & Narayan, 2012). The level of adversity has also broadened to include more situations by defining adversity as “problematic or difficult environments or circumstances” (Li, Martin, Armstrong, & Walker, 2011, p.269) or “disturbances that threaten system function, viability, or development” (Masten, 2014, p. 6).

As the definition of situations in which resilience could play a role has broadened, research has explored the role of resilience in a student's successful adaptation to college (Allan et al., 2014; DeRosier et al., 2013; Hartley, 2011; Hartley, 2010; Johnson et al., 2011; Klibert et al., 2014). Hartley (2010) discussed the value of resilience research and how it could be employed to address college retention rates. A student's level of resilience has also been linked to increases in academic performance when factors such as aptitude and achievement have already been accounted for (Hartley, 2011). Similarly, Allan et al. (2014) noted a correlation between the resilience of college students and their academic performance. In a study by DeRosier et al. (2013), increases in resilience in first year college students was correlated with an increased ability to adapt to stressors connected with a transition to college. Increased levels of resilience in college students have also been associated with decreased amounts of alcohol consumption for those students (Johnson et al., 2011).

Freshmen students are faced with adapting to multiple areas of demand in college (Tao et al., 2000). Although a number of factors have been linked to student adjustment in college (Allan et al., 2014; Banyard & Cantor, 2004; Fike & Fike, 2008; Hinderlie & Kenny, 2002; Lapsley & Edgerton, 2002; Mattanah et al., 2002; Mooney et al. 1991; Park et al., 2012; Schmidt & Welsh, 2010; Tao et al., 2000; Vaez & LaFlamme, 2008), a literature review indicated that no one factor has yet been identified that is sufficiently predictive of a student's ability to adapt across the multiple demands faced in college. In addition, variables theoretically posited to be

associated with healthy adjustment and personality development (e.g., the level of secure parental attachment, the capacity to self-regulate, and a person's level of resilience) have not been studied in relation to their collective ability to predict a general adaptation to college. Given the problems associated with a failure to successfully adapt to college, there is value in research on variables that, collectively, better predict college adaptation. In addition, mental health practitioners can use this knowledge to develop interventions to enhancing college adjustment. Further, this information is also of value to colleges as they seek to achieve smoother transitions for incoming freshmen.

### **Problem Statement**

Adapting to the multiple demands of college life continues to be problematic for many undergraduate freshmen each year (Aud et al., 2013; Bakar et al., 2010; Bennett, 2012; Duru et al., 2014; Galatzer-Levy & Bonanno, 2013; Gallagher, 2012, Heron, 2013). Difficulty in adapting to these demands has not only been associated with poor academic performance (Aud et al., 2013; Duru et al., 2014), but also with heightened levels of social and emotional stress as well as an increased vulnerability to problems in mental health (Bakar et al., 2010; Bennett, 2012; Galatzer-Levy & Bonanno, 2013; Gallagher, 2012, Heron, 2013). Although a number of factors have been linked to student adjustment in college (Allan et al., 2014; Banyard & Cantor, 2004; Fike & Fike, 2008; Hinderlie & Kenny, 2002; Lapsley & Edgerton, 2002; Mattanah et al., 2002; Mooney et al. 1991; Park et al., 2012; Schmidt & Welsh, 2010; Tao et al., 2000; Vaez & LaFlamme, 2008), no one factor has yet been identified that

is sufficiently predictive of a student's ability to adapt in the face of the college's multiple demands. In addition, some of these variables have been theoretically identified as a part of a developmental pathway that leads to healthy adjustment and personality development, for example, the level of secure parental attachment, the capacity to self-regulate, and a person's level of resilience (Bowlby, 1988; Fonagy & Target, 2002; Padykula & Conklin, 2010; Schore & Schore, 2008; Schore & Schore, 2014; Silverman, 1998; Waters et al., 2010). The problem is that a freshman's level of secure parental attachment, capacity to self-regulate, and level of resilience have not been studied in relation to their collectively ability to predict a freshman student's overall adaptation to college, a variable that encompasses multiple areas of demand, which include academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984). Further, of these three factors, it is unclear which variable is the most predictive of adaptation to college. Given the problems associated with a failure to successfully adapt to college, there is value in research on variables that, collectively, better predict college adaptation. Therefore, this study sought to delineate the relationship between these variables and a freshmen student's overall adjustment, a variable that encompasses multiple areas of demand in college.

### **Purpose of the Study**

The purpose of this quantitative study was to investigate the collective ability of the independent variables of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience to predict his or her

overall adaptation to college, a dependent variable that encompasses multiple areas of demand, for example, academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984), as well as to explore which of these variables is the single best predictor of a freshman student's adaptation to college given these multiple areas of demand. A quantitative survey design was used to explore the degree of connection between secure parental attachment, capacity for self-regulation, level of resilience, and college adjustment. Such a study fills a gap in the literature, which has yet to examine the collectively ability of the level of secure parental attachment, the capacity to self-regulate, and a person's level of resilience to predict an undergraduate freshman's adaption to the multiple areas of demand in college. The results of this study, in highlighting key components in adaptation, are expected to provide beneficial information to colleges as they seek to achieve smoother transitions for incoming freshmen. Further, exploring the role of these factors in increasing the successful transition into college gives mental health practitioners new knowledge that is useful in focusing intervention efforts to enhance college adjustment.

### **Research Questions and Hypotheses**

Because the relative contribution of the level of secure parental attachment, capacity for self-regulation, and level of resilience, as a group, has not been studied, particularly in the context of the overall adjustment of college freshmen to the multiple areas of demand in college, the following research question was investigated: What, if any, statistical relationship exists between the levels of secure

parental attachment, self-regulation, and resilience and how is this relationship correlated with an undergraduate freshman student's adjustment to college?

### **Research Question 1**

Which is the best single predictor of a freshman's *adjustment to college*: the level of *secure parental attachment*, a capacity for *self-regulation*, or the level of *resilience*?

*H*<sub>10</sub>: The level of *Secure parental attachment* as measured by the Parental Attachment Questionnaire (PAQ) total score, capacity for *self-regulation* as measured by the Short Self-Regulation Questionnaire (SSRQ) total score, and level of *resilience* as measured by Connor Davidson Resilience Scale – Revised (CD-RISC-R) total score equally predict an undergraduate freshman's *overall adaptation to college* as measured by the Student Adaptation to College Questionnaire (SACQ) total score.

*H*<sub>1a</sub>: One of the variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score is the single best predictor of an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

### **Research Question 2**



What are the relative contributions of each of the predictor variables (e.g., *secure parental attachment*, *self-regulation*, and *resilience*) in explaining a freshman student's *overall adjustment to college*?

*H2<sub>0</sub>*: None of the variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score contribute to explaining the variance in an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

*H2<sub>a</sub>*: The variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score each make a contribution to the explanation of variance in an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

### Research Question 3

Is there a bivariate relationship between any of the predictor variables (e.g., level of *secure parental attachment*, capacity for *self-regulation*, level of *resilience*) and the sub-components of college adaptation (e.g., *academic*, *personal/emotional*, *social*, *institutional commitment*)?

*H3<sub>0</sub>*: No bivariate relationship exists between the variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of

*resilience* as measured by CD-RISC-R total score and the subcomponents of *overall college adaptation: academic adaptation* as measured by the SACQ academic score, *personal/emotional adaptation* as measured by the SACQ personal/emotional score, *social adaptation* as measured by the SACQ social score, and *institutional commitment* as measured by the SACQ institutional commitment score.

*H3<sub>a</sub>*: At least one of the predictor variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score has a relationship with at least one of the subcomponents of *overall college adaptation: academic adaptation* as measured by the SACQ academic score, *personal/emotional adaptation* as measured by the SACQ personal/emotional score, *social adaptation* as measured by the SACQ social score, and *institutional commitment* as measured by the SACQ institutional commitment score.

### **Theoretical Framework for the Study**

Attachment, self-regulation, and resilience have each been associated with successful adjustment to college (Ames et al., 2011, DeRosier et al., 2103; Hartley, 2011; Holt, 2014; Melendez & Melendez, 2010; Park et al., 2012; Parker et al., 2013). In addition, attachment, self-regulation, and resilience have been considered to be a part of the same developmental pathway leading toward healthy adjustment and healthy personality development (Bowlby, 1988; Fonagy & Target, 2002; Padykula

& Conklin, 2010; Schore & Schore, 2008; Schore & Schore, 2014). This section provides a theoretical foundation that explains these factors and their role in healthy adjustment. Both attachment theory (Bowlby, 1969/1982) and a current expansion of this theory, modern attachment theory (Schore & Schore, 2008), are used to provide a theoretical framework that captures the connection of these variables to a developmental pathway leading toward healthy adjustment and healthy personality development. A more detailed explanation of this theoretical foundation is provided in Chapter 2.

### **Attachment Theory**

In his seminal work on attachment, Bowlby (1969/1982) sought to integrate a variety of theoretical approaches (e.g., ethological, psychoanalytic, developmental, control systems, behavioral). According to attachment theory, it is the early caregiver and child interactions that are critical in establishing the quality of a child's attachment (Bowlby, 1969/1982). Attachment theory views the quality of a child's attachment as playing a key role in the development of a child's personality (Bowlby, 1969/1982). Ainsworth et al. (1978) used the "Strange Situation" to study attachment style (e.g., secure, ambivalent-resistant, avoidant) and established the concept of a secure base from which the child feels safe to explore the world. Bowlby (1988) expanded on the implications of a secure base, considered its role in the healthy development of the child, and indicated that these early patterns of attachment behavior are not just confined to childhood but have implications for adolescence and adulthood. Bowlby (1988) theorized that the child develops

working models of caregivers and self that are based on early attachment experiences. These models, once internalized, are then taken forward into new interactions and thus impact how the child relates to others. This progression forward occurs down a developmental pathway that varies based on the individual's response to life events. Bowlby (1988) also theorized that the early patterns of attachment, initially developed during early child-caregiver interactions, play a key role in the child's resilience in the face of stressful life events. Hazan and Shaver (1987) provided support to Bowlby's (1969/1982) theory regarding early attachment experiences being carried forward into adulthood. Hazan and Shaver's (1987) research on adult romantic attachments indicated that similar types of attachment styles were present in an adult sample in approximately the same proportion to those found in children. These styles of childhood attachment are also comparable to the differing descriptions that the adults under study provided for their romantic relationships (Hazan & Shaver, 1987).

### **Modern Attachment Theory (a Self-Regulation Theory)**

Since Bowlby's (1969/1982) initial work with attachment, psychologists have continued to use and build upon this foundation (Fonagy & Target, 2002; Padykula & Conklin, 2010; Schore & Schore, 2008; Schore & Schore, 2014; Silverman, 1998; Waters et al., 2010). In doing so, some theorists have focused on the role that these early interactions with primary caregivers play in the development of a person's capacity to self-regulate (Fonagy & Target, 2002; Padykula & Conklin, 2010; Schore & Schore, 2008; Schore & Schore, 2014). Fonagy

and Target (2002) hypothesized that the quality of early interactions with primary caregivers creates biological changes in the brain that can promote or hinder the development of a self-regulatory capacity. In this reformulation of attachment theory, Fonagy and Target (2002) posited that the development of this self-regulatory capacity impacts how well people cope in the face of adversity. However, Schore and Schore (2008) used more recent psychological and neurobiological research, and proposed a modern attachment theory that remains the most consistent with the original tenets of Bowlby's attachment theory. Early interactions with primary caregivers are viewed as opportunities for the caregiver and infant to engage in a mutual regulation of the infant's emotional state (Schore & Schore, 2008; Schore & Schore, 2014). The quality of these early experiences is hypothesized to mediate the mutual regulation of emotion, and in doing so promote structural changes in the brain (Schore & Schore, 2008; Schore & Schore, 2014). These changes can support or hinder a person's development of a capacity to self-regulate (Schore & Schore, 2008; Schore & Schore, 2014). It is the repetition of these early interactions, although at times unsuccessful, that also contributes to the development of resilience in the face of adversity or stress (Schore & Schore, 2008; Schore & Schore, 2014). It is through a framework of attachment theory and its current extrapolation, modern attachment theory, that the connection of attachment, self-regulation, and resilience to a developmental pathway that leads toward healthy adjustment can be best understood. A more detailed description of the tenets of these theories is provided in Chapter 2.

### **Nature of the Study**

This quantitative study used surveys to investigate the relative contribution of the independent variables (a) a freshman student's level of secure parental attachment, (b) capacity to self-regulate, and (c) level of resilience to the prediction of the dependent variable of overall adaptation to college, a variable that encompasses multiple areas of demand. In addition, this study explores which of these independent variables is the single best predictor of a freshman student's overall adaptation to college given the multiple areas of demand. These students, who were 18-21 years of age, completed the PAQ, a measure of adult secure parental attachment (Kenny, 1987); the SSRQ, a measure of the capacity to self-regulate behavior (Carey, Neal, & Collins, 2004); the CD-RISC-R, a measure of resilience (Campbell-Sills & Stein, 2007); and the SACQ, a measure of student adjustment to college (Baker & Siryk, 1984). A multiple regression analysis was used to explore whether there was a statistically significant impact between the variables and a freshman student's adjustment to college.

### **Definitions**

*Adjustment to college:* a student's ability to meet the challenges and performance expectations that are encountered at a collegiate level (Feldt, Graham, & Dew, 2011).

*Attachment:* a bond or relationship initially formed between an infant and a caregiver during the first few years of life, which is largely based on the overall pattern of their interactions (Ainsworth et al., 1978).

*Attachment behavior:* actions that help form and maintain the attachment relationship (Ainsworth et al., 1978).

*Attachment patterns:* a configuration of attachment behaviors that have been organized based on patterns of early interactions with caregivers (Bowlby, 1988).

*Anxious avoidant:* an insecure form of attachment based on a pattern of early caregiver interactions in which the individual's attempts to seek comfort or protection were inconsistently responded to by the caregiver (Bowlby, 1988).

*Anxious resistant:* an insecure form of attachment based on a pattern of early caregiver interactions in which the individual's attempts to seek comfort or protection were routinely turned down by the caregiver (Bowlby, 1988).

*Secure:* a form of attachment based on a pattern of early caregiver interactions in which the individual's attempts to seek comfort or protection were routinely met by the caregiver (Bowlby, 1988).

*Resilience:* a person's ability to persevere in the face of adversity (Bakar, et al., 2010)

*Self-regulation:* a person's capacity to use the processes and skills tied to the modulation of an individual's thoughts, emotions, attention and behavior, such that a person may sustain efforts to achieve a particular goal (Karoly, 1993; Lengua, 2002; Posner & Rothbart, 1998; Williams et al., 2008).

### **Assumptions**

For this investigation, seven assumptions were made.

- Given the anonymous nature of this investigation, students who participated in the study felt the most comfortable sharing their experience and so completed the surveys in a manner that accurately reflected their experience.
- Students who participated in the study accurately indicated their eligibility to participate.
- The use of surveys rather than observation is a more accurate and efficient means of investigating the variables in this study.
- Given that the variables under study are hypothesized to be a part of the same developmental pathway and may have some relationship with each other, each variable makes its own relative contribution to the prediction of a freshman student's overall adjustment to college.
- The students who volunteered to participate in the study had sufficient computer skills and English language proficiency to accurately complete the surveys.
- Freshmen who volunteered for the study are representative of the population of freshmen attending college in the United States.
- In transitioning from high school to college, students are confronted with new situations to adjust to (e.g., academic demands of college, living away from home, creating new social networks, forming new friendships, managing finances, balancing social demands with academic deadlines).

### **Scope and Delimitations**



The scope of this investigation was delimited in a number of ways. First, although there are several factors associated with a student's successful adjustment to college (Tao et al., 2000), this study focused on a particular gap in the literature (i.e., the role of attachment, self-regulation, and resilience in predicting freshmen students' adjustment to college). In focusing on these particular factors, this study investigated variables that are considered to be a part of the same developmental pathway. In doing so, this study does not explore other variables that may have an impact on the freshmen students' overall adjustment to college, such as additional life stressors, mental health concerns, or socioeconomic status. The scope of this study was also narrowed through the use of surveys that were completed via computer in a secure online environment (e.g., Survey Monkey). In addition, this study sampled college freshmen who were 18-21 years of age and were attending college in New Jersey. The choice in narrowing the scope of this sample to that age, avoided ethical concerns about using a vulnerable group in research (e.g., minors/children). In addition, sampling freshmen rather than all undergraduate students, maintained a focus on a period transition in the students' life that has been equated with the strange situation scenario (Kenny, 1987), an experience that has evoked differences in the quality of young children's attachment responses (Ainsworth et al., 1978). However, limiting the sample in this way also limited the scope of inferences that could be drawn from the results. Further, in choosing to use surveys to collect the data, the results were correlational rather than causal in

nature, an element that also limited the scope of inferences that could be drawn from the results.

### **Limitations**

Some limitations are also noted to be present within this study. The selected population was a convenience sample limited to freshmen students attending a college in New Jersey. As such, this study was a time limited sampling and presented only a snapshot of the population at a specific time and under specific conditions, limiting the inferences that could be drawn from the results. In that the sample also consists of students who volunteered, the sample may be reflective only of individuals who prefer to complete surveys, a potential source of self-selection bias. The voluntary nature of the sampling procedure reduced the likelihood that the sample was well matched to the ethnic diversity and gender distribution present at the university or within the larger population of freshmen attending college in the United States. Such a limitation impacts the generalizability of the results across both ethnic and gender groups. The use of surveys rather than interviews increases the possibility of missing data with the surveys as well as inadvertent erroneous response selection by the participants. In addition, the participants' ability to voluntarily withdraw from the study at any point is also a potential source of missing data on some surveys. To ensure that missing data did not impact the results of the study, survey packets with missing data were identified and excluded from the final sample. Further, because correlational rather than causal results were gained, this also limited the inferences that could be drawn from the results. Given

these limitations, caution must be used when interpreting the results; the inferences must be limited to a more regional population. However, suggestions are presented for further areas of study with more representational samples.

### **Significance**

This study's significance lays in its important contribution to the existing literature. In focusing on a student's overall adjustment to college, this study brings attention to the value that a holistic conceptualization of adjustment contributes to the better understanding of a freshman student's transition to college beyond that presented by a focus on any particular individual area of demand encountered in college life. In addition, this study highlights the value of the independent variables by indicating the relative contribution of each variable as a predictor of overall college adjustment, as well as in exploring which of these variables is the best predictor of a freshman student's overall adjustment to college. In specifically focusing on the role of attachment, self-regulation, and resilience in undergraduate students' who are adjusting to their first year of college, this study provides information that is expected to spark further research, which is needed to address the problems that some students have with an overall adjustment to college life (Bakar et al., 2010; Bennett, 2012; Blanco et al., 2008; Tao et al., 2000). Further, grounding this study in attachment theory and modern attachment theory provides future researchers with a theoretical framework which posits that attachment, self-regulation skills, and resilience are a part of a developmental pathway leading to healthy adjustment. In highlighting the combined contribution these variables may

provide to healthy adjustment and personality development, this study provides a further opportunity for researchers to explore this particular gap in the literature.

This study, in addressing the problem of an adolescent student's transition into college, provides an opportunity for positive social change. The results of this study, in highlighting key components of college adaptation, this study emphasizes the importance of strengthening these qualities in students. As such, it provides (a) colleges with information on key qualities of adaptation to target in planning for smoother transitions for freshmen and (b) mental health practitioners with information on key qualities of adaptation useful in selecting interventions. Such research also enhances social change by providing this valuable information on college adjustment to freshmen and their families seeking to enhance college adjustment.

### **Summary and Transition**

This chapter has highlighted the problems that have been associated with some freshmen students' transition to college, as well as some of the factors linked to overall adjustment to college. In recognition of a gap in the literature, a quantitative study has been outlined that investigated the relative contribution of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience to a prediction of his or her overall adaptation to college, which encompassed the multiple areas of demand encountered in college. In addition, this study explored which of these variables was the single best predictor given these multiple areas of demand. Grounding this study in the tenets of

attachment theory and modern attachment theory, a theoretical framework which posits that attachment, self-regulation, and resilience are a part of a developmental pathway leading to healthy adjustment, that the relationship between these variables and a freshman student's overall adjustment to college can best be understood. This study provides a number of implications for social change. In highlighting key components of college adaptation, this study emphasizes the importance of strengthening these qualities in students. As such, it provides (a) colleges with information on key qualities of adaptation to target in planning for smoother transitions for freshmen and (b) mental health practitioners with information on key qualities of adaptation useful in selecting interventions. Such research also enhances social change by providing this valuable information on college adjustment to freshmen and their families seeking to enhance college adjustment.

In Chapter 2, a review of relevant literature on attachment, self-regulation, resilience, and college adjustment is provided, which further articulates the theoretical foundation of the study. In Chapter 3, a description of the research design and its rationale as well as the methodology for this study is provided. In Chapter 4, a description of the data collection procedures implemented and the sample and its comparability to the larger population of freshmen students at the university is provided as well as the results of the data analyses. In Chapter 5, the results are interpreted through the theoretical framework of attachment theory, the findings are compared to the existing research literature, the limitations of this

current study are discussed, and recommendations for further research are provided.

## Chapter 2: Literature Review

### Introduction

Although a growing number of students are attending college each year, a sufficiently effective response to the problem of retention has yet to be found and, as such, many students continue to experience difficulty adjusting to college life (Aud et al., 2013; Tao et al., 2000). Aud et al. (2013) reported that one fifth of students will not return to their 4-year institution after the first year. For students attending a 2-year college, the failure to return rate is as high as 40% of freshmen (Aud et al., 2013). In addition, more than one third of full-time students fail to complete a 4-year degree within 6 years of their initial enrollment and 10% of college students report experiencing clinically significant levels of stress (Aud et al., 2013; Galatzer-Levy & Bonanno, 2013). Further, suicide is noted to be the third leading cause of death among college students under 19 years of age (Heron, 2013).

Although the quality of a person's attachment, capacity for self-regulation, and level of resilience have all been linked to a positive adjustment to college (Ames et al., 2011, DeRosier et al., 2013; Hartley, 2011; Holt, 2014; Melendez & Melendez, 2010; Park et al., 2012; Parker et al., 2013), such research has focused on either exploring subcomponents of these factors or has tended to consider a freshman student's adaptation to college more narrowly, for example, in one or two of the multiple areas comprising adjustment to college life. The purpose of this study was to investigate the collective ability of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience to predict his or her

adaptation to college across multiple areas of demand, for example, academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984), as well as explore which of these variables was the single best predictor of adaptation given the multiple areas of demand. This study has implications for social change.

An investigation exploring the full impact of these factors, rather than the impact of some of their subcomponents, is expected to give colleges an increased understanding of these factors' individual and combined ability to predict a freshman student's adjustment across the multiple areas of demand and to help colleges plan smoother transitions for freshmen. In addition, mental health practitioners could use this knowledge when developing interventions to enhance college adjustment.

This chapter covers the following topics:

- an overview of the major tenets of attachment theory and modern attachment theory
- the theoretical foundation that supports a relationship between attachment, self-regulation, and resilience
- the relationship between these variables and college adjustment as well as their connection to attachment and modern attachment theory
- a review of research related to the relationship between attachment and factors such as adjustment, college adjustment, self-regulation, and resilience



- a review of research related to self-regulation and the factors of adjustment, college adjustment, and resilience
- a review of research related to resilience research and its connections to both adjustment and college adjustment in particular
- the relationship between the variables of attachment, self-regulation, and resilience

### **Literature Search Strategy (1970-2015)**

In searching through the literature, the following databases were accessed: Academic Search Complete, ERIC, Expanded Academic ASAP, Google Scholar, ProQuest Central, PsycARTICLES, PsycINFO, Sage Premier, SocINDEX. Given the breadth of literature available regarding the topics of *attachment, college adjustment, resilience, and self-regulation*, the literature search was narrowed by using the following terms either individually or in combination: *adolescence, adult, attachment, adjustment, college, measures, resilience, resiliency, self-regulation, theory, and transition*. In addition, key authors connected with the theoretical foundation were further explored including: Ainsworth, Beebe, Bowlby, Fonagy, Kenny, Lachmann, Masten, Schore, and Stern. Several books written by some of these key authors were acquired to provide a more in-depth source of information for use in establishing a theoretical foundation.

### **Theoretical Foundation**

#### **Attachment Theory**

Bowlby, in his seminal works on attachment, provides a theoretical conceptualization, not only for the development of attachment and personality, but also for the pathways that lead to resilience and mental health (Bowlby, 1969/1982, 1973, 1980, 1988). In constructing the theoretical tenets of attachment theory, Bowlby (1969/1982) seeks to integrate elements of several different theoretical approaches (i.e., developmental psychology, ethology, biology, psychoanalysis, and behavioral control systems) with his conceptualization of early childhood development. From this perspective, the affectional bond of attachment is viewed as an adaptive and compelling motivation, especially in adverse circumstances, for an individual to seek or maintain a closeness to or physical contact with a particular person for example, a caregiver (Bowlby, 1969/1982). The quality of this affectional bond is seen as influential in a person's developmental progression down a path toward resilience and healthy adjustment as well as toward impaired mental health and psychopathology (Bowlby, 1973, 1988).

The quality of an individual's attachment bond to a primary caregiver is formed during the first few years of life and is largely based on the overall pattern of interactions with his or her primary caregivers (Bowlby, 1969/1982). Once the child has been able to integrate the behavioral systems responsible for regulating the purposeful display of attachment behavior, these influential interactions with a primary caregiver play a key role in setting the pattern of attachment behavior that the child implements when seeking proximity or physical contact with a primary caregiver, for example, attachment style (Bowlby, 1969/1982). It is also through

these early interactions that Bowlby (1988) posited primary caregivers are established as a secure base from which the child can feel confident to explore his or her world, returning when in need of physical or emotional nurturance (e.g., distressed, fatigued, hungry, sick, anxious, afraid). Although, as the child matures, he or she tends to increase the time and distance spent away from the secure base; this base of support continues to play an important role in the person's wellbeing throughout his or her life, particularly in times of significant need (Bowlby, 1988).

Although infants can display several actions that indiscriminately bring them into contact with other people, such activities are not considered attachment behavior (Bowlby, 1969/1982). An attachment behavior is any action that the individual displays which will reliably result in the individual coming into proximity or physical contact with an attachment figure, for example, primary caregiver (Bowlby, 1969/1982). The initiation and cessation of these attachment behaviors is regulated through a control system, which is postulated to be housed within the central nervous system (Bowlby, 1988). Envisioned as a regulatory system that is activated and terminated when conditions in the environment exceed set limits, much as a thermostat regulates the temperature in a home (Bowlby, 1969/1982), "...the attachment control system maintains a person's relation to his attachment figure between certain limits of distance and accessibility, using increasingly sophisticated methods of communication for doing so" (Bowlby, 1988, p. 123). The goal of this adaptive system is to maintain the person in relationship with this base of support, so that the person can feel confident that this base of support will be

readily accessible in times of need (Bowlby, 1969/1982). Further, this self-correcting system allows for adjustments to be made in the attachment behaviors displayed, particularly when such behaviors fall short of meeting the attachment goal (Bowlby, 1969/1982). In order to maintain this desired relationship with the attachment figure, attachment behaviors are displayed, not only as actions that move the individual toward the attachment figure (e.g., approach), but also as actions that motivate the attachment figure to come into proximity or physical contact with the individual (e.g., signaling) (Bowlby, 1969/1982). Common signaling behaviors that are more likely induce a primary caregiver to come into proximity or physical contact with the individual include: crying, changes in facial expressions (e.g., smiling), babbling, changes in tone of voice, and gestures, for example, raised arms (Bowlby, 1969/1982).

In order for an individual to select and implement attachment behaviors that effectively achieve the attachment goal, Bowlby (1969/1982, 1973, 1988) postulated that the individual must create working models of the self and the world (e.g., of the environment and attachment figure). These models of the self and an attachment figure are initially built based upon the quality of early attachment experiences, in particular on the accessibility and responsiveness of attachment figures, and are referenced when formulating a plan to achieve the attachment goal (Bowlby, 1973, 1988). These models are later able to be reworked as needed, based on new experiences in the individual's life (Bowlby, 1973, 1988). It is through this lens of working models that the individual views events, anticipates a caregiver's

response, and plans to influence a caregiver's actions in the direction of attaining the attachment goal (Bowlby, 1973, 1988). In addition, the individual uses these models to self-evaluate and estimate his or her own acceptability to the caregiver (Bowlby, 1969/1982, 1973). As an individual matures, these working models, considered to be an equivalent to the psychoanalytic concept of internal object, are referenced even when the caregiver is not present to appraise situations, plan, or take action (Bowlby, 1988).

Bowlby (1969/1982, 1973, 1988) has further postulated that early attachment experiences are integrally linked to the development of personality and resilience as well as play a role in the stability of a person's mental health. The overall quality of these early formative experiences is influential in the attachment style an individual adopts and tends to maintain into his or her adult life (Bowlby, 1988). The pattern of thoughts, feelings, and behaviors associated with a particular attachment style are repeatedly experienced during the child's developmental years, and are postulated to impact how the child's personality becomes structured as well as how well the child is able to adjust to life (Bowlby, 1969/1982, 1988). When the child experiences early interactions with primary caregivers who are consistently accessible and supportive, the child develops confidence that his or her caregivers will be available and supportive in the future, particularly if the child should experience difficulty (Bowlby, 1988). Bowlby (1969/1982) described such securely attached children as self-controlled and resilient, as well as being able to persevere despite difficult circumstances. In addition, it was postulated that such individuals

would be less likely to experience heightened or sustained states of fear (Bowlby, 1973). Conversely, a child, who experienced early interactions with primary caregivers who were inconsistently available or supportive, is likely to lack confidence that his or her caregivers will be accessible or supportive in the future (Bowlby, 1988). Bowlby (1969/1982) described such insecurely attached children as having difficulty with self-control and displaying an increased vulnerability to stress. In view of the impact that early childhood attachment experiences are postulated to have on personality development, Bowlby (1973) considered the quality of an individual's attachment as the foundation from which stable mental health or psychopathology develop.

Bowlby (1973, 1988) conceptualized personality development as potentially progressing along a variety of distinct pathways, a limited number of which follow a pattern of relatively healthy development. Initially, an individual has a greater variety of pathways down which he or she can travel, but as the individual matures the options are increasingly limited as pathways become more divergent from one another (Bowlby, 1973, 1988). Bowlby (1973, 1988) viewed pathways that diverged from the main ideal pathway of healthy development as contributing to instability in mental health. The greater a pathway diverges, the more likely it is that instability could develop (Bowlby, 1973, 1988). Although it is possible to shift from one pathway to another, the combination of pressures exerted from an individual's internal development and the external environment tends to maintain an individual on particular pathway (Bowlby, 1973, 1988). However, early in development, when

the quality of attachment is more heavily under the influence of the relationship with primary caregivers, it is possible for the person to more easily shift between a variety of pathways, particularly those that are still grouped more closely together (Bowlby, 1973, 1988). A person, once diverted from the ideal pathway, is unlikely to fully return to this pathway (Bowlby, 1973, 1988). Although, it is possible for a person traveling along a diverted pathway, particularly those that initially are only slightly off of the ideal path, to over time return to a pathway which more closely parallels the main pathway (Bowlby, 1973, 1988).

### **Modern Attachment Theory**

Schore and Schore (2008), in developing a modern attachment theory, sought to build upon Bowlby's seminal work. Using key concepts and current research, Schore and Schore (2008) expand upon the tenets of attachment theory to posit a link between early caregiver interactions, environmental experiences, brain maturation, and the development of self-regulation. In doing so, Schore and Schore (2008) maintain that early interactions with caregivers plays a key role in the development of personality. Theorizing that early interactions with caregivers provide an environment that externally modulates a child's emotional experiences, Schore and Schore (2008) posit that such experiences impact the development of an experience dependent brain in areas that play a key role in self-regulation.

Unlike Bowlby (1988), who only generally surmised that attachment was linked to the central nervous system, Schore and Schore (2014) view the formative interactions with early caregivers as playing an important role in supporting brain

development. The brain, which is considered experience dependent, is reliant on these early interactions between primary caregiver and infant for optimal development (Schore, 1994; Schore & Schore, 2008, 2014). In particular, the prefrontal cortex in the brain's right hemisphere, which is undergoing development during this critical period, is influenced by the interactions between the infant and primary caregiver (Schore, 1994). These social and emotional experiences are viewed as mediating changes in brain chemistry that support the growth and development of limbic structures housed in this area of the brain (Schore, 1994). When the social and emotional stimulation for this growth and development is not maintained within an acceptable range, healthy development is impacted or even arrested (Schore, 1994). Given that the capacity for self-regulation and the quality of attachment are postulated to be connected with these brain structures, such functions are also viewed as impacted by these early experiences (Schore, 1994).

Further, Schore and Schore (2014) postulate that the early caregiver interactions, through which the attachment bond is formed, yields more than a quality of attachment (e.g., secure, insecure), but also a capacity for self-regulation. The infant's signaling behavior used in maintaining a desired relationship with the primary caregiver is also used to communicate the infant's emotional state (Schore & Schore, 2008, 2014). The caregiver, during these early interactions, becomes an external source through which the infant can be assisted in regulating his or her emotional state (Schore & Schore, 2008, 2014). During these early interactions, the primary caregiver not only is able to help quell negative emotional states such as



fear and anger but also help induce the experience of positive emotions such as excitement and joy (Schoore & Schoore, 2008, 2014). The degree to which the primary caregiver, over time, is able to consistently maintain attunement with the infant or recover following a mis-attunement is the degree to which these early caregiver interactions assist in modulating nervous system arousal (Schoore & Schoore, 2008, 2014). Experiences, in which the primary caregiver was available and responsive, assist the infant in regulating his or her emotional state (Schoore, 1994; Schoore & Schoore, 2014). However, experiences, where the primary caregiver was unavailable and unresponsive, can contribute to the infant's dysregulation (Schoore 1994; Schoore & Schoore, 2014).

The development of internal working models as described by Bowlby (1969/1982) is viewed by Schoore (1994) to be internal objection relations. During the process in which the relationship between the infant and the primary caregiver is internalized, the infant stores a mental representation of these early interactions with the primary caregiver, inclusive of how the caregiver responded to his or her emotional state (Schoore, 1994). Schoore (1994) attributes the ease at which the regulatory capacities of the primary caregiver are internalized by the infant to the consistency of these early interactions. As the infant begins to use these internal working models to anticipate the caregiver's response, the child begins to develop the capacity to self-regulate even in the caregiver's absence (Schoore, 1994). As the child matures and is able to more consistently, adaptively, and effectively self-regulate his or her states of arousal; the child gains regulatory control of his or her

emotions, thoughts and behavior (Schore, 1994). This self-regulatory capacity plays a role in the person's psychological and social functioning throughout his or her life (Schore, 1994).

In addition, Schore (1994) postulates that early interactions with caregivers and the environment can also foster the development of resilience. Through a pattern of mis-attunements and re-establishing attunement as well as when confronted with new situations, a child learns to develop resilience in the face of such stress (Schore, 1994; Schore & Schore, 2008, 2014). When a primary caregiver displays a consistent pattern of accessibility, responsiveness, and successful recovery from mis-attunements, the child, using an internal working model, anticipates that the caregiver will continue to be available to assist with such stress (Schore, 1994; Schore & Schore, 2008, 2014). In addition to the confidence that internal working models can provide to a child who is exploring his or her world, these internal working models also provide the child with access to successful patterns of coping in stressful environments (Schore, 1994; Schore & Schore, 2008, 2014). While healthy personality development is seen as emerging from secure attachments and successful affect regulation, the development of psychopathology is viewed as having a foundation in patterns of unsuccessful affect regulation during early interactions with a primary caregiver (Schore, 1994; Schore & Schore, 2008, 2014).

### **Application of Attachment Theory**

Research exploring variations in the quality of attachment began shortly following the publication of Bowlby's (1969/1982) initial seminal work on attachment theory (Ainsworth et al., 1978). Using the strange situation procedure, Ainsworth et al. (1978) observed the attachment behavior of 106 infants interacting with their mothers. The results of these observations yielded three distinct patterns of attachment behaviors that were used to describe variations in the quality of the attachment bond (Ainsworth et al., 1978). In addition to a secure form of attachment, Ainsworth et al. (1978) noted two forms of insecure attachment (e.g., ambivalent-resistant, avoidant).

Main, Kaplan, and Cassidy (1985), using the strange situation procedure, later identified a third insecure form of attachment (e.g., disorganized-disoriented) and began exploring Bowlby's (1988) hypothesis regarding the enduring nature of attachment. In addition, Main et al. (1985), using the strange situation procedure, examined the stability of attachment in 40 children (e.g., 6 years of age) and found that the early quality of attachment, particularly to mothers, remained relatively unchanged at age 6. Further, Main et al. (1985) developed the Adult Attachment Interview (AAI) to assess the quality of mothers and fathers attachment to their own parents. The quality of each parent's attachment was then compared to the quality of the child's attachment. Main et al. (1985) noted a strong positive relationship between a mother's quality of attachment and that of her child.

Research into adult attachment was broadened through the development of self-report measures of attachment style (Hazan & Shaver, 1987; Kenny, 1987).

Although Hazan and Shaver (1987) focused on adolescent and adult (e.g., ages 14-82) romantic attachments as the basis for developing a self-report measure, Kenny (1987) focused on the quality of freshmen college students' attachment to their parents. Using Ainsworth's et al. (1978) descriptive qualities of secure attachment, Kenny developed the PAQ, a self-report attachment measure based on a sample of 173 residential college freshmen. One of the six most frequently used self-report questionnaires, the PAQ continues to be the best aligned with Ainsworth et al. (1978) work on the quality of secure attachment (Wilson & Wilkinson, 2012). Research conducted with the use of self-report measures regarding the role of attachment and its relationship to a student's adjustment to college continues to be an area of active investigation (Hiester et al., 2009; Holt, 2014; Mattanah, Lopez, & McGovern, 2011; Melendez & Melendez, 2010; Schmidt & Welsh, 2010; Swenson, Nordstrom, & Hiester, 2008; Yazedjian, Toews, & Navarro, 2009).

The transition to college continues to present difficulty for some students (Aud et al., 2013). Although the quality of a person's attachment, the capacity for self-regulation, and the level of resilience have all been linked to a positive adjustment to college (Ames et al., 2011, DeRosier et al., 2013; Hartley, 2011; Holt, 2014; Melendez & Melendez, 2010; Park et al., 2012; Parker et al., 2013), such research has focused on either exploring subcomponents of these variables or has tended to consider a freshman student's adaption to college in a more narrow focus (e.g., in one or two of the multiple areas comprising adjustment to college life). An investigation exploring the full impact of these factors, rather than the impact of

some of their subcomponents, provides an increased understanding of their individual and combined ability to predict a freshman student's adjustment across multiple areas of demand at college. The theoretical tenets of attachment theory and modern attachment theory suggest that the quality of early caregiver interactions impact the later development of the individual. Bowlby postulated that early caregiver interactions are linked to the development of attachment and resilience (Bowlby 1969/1982, 1973, 1988). Although Bowlby posits that both a secure quality of attachment and resilience are on a developmental pathway that leads to healthy adjustment, he does not discuss the role of self-regulation (Bowlby, 1969/1982, 1973, 1988). Rather, he envisioned the attachment process as a regulatory system, describing securely attached individuals as self-controlled and resilient and insecurely attached individuals as having difficulty with self-control and displaying an increased vulnerability to stress (Bowlby, 1969/1982).

However, modern attachment theory views all three variables (e.g., attachment, self-regulation, resilience) as emerging from early caregiver interactions and experiences in the environment (Schore, 1994; Schore & Schore, 2008, 2014). Schore (1994) attributes the ease at which the regulatory capacities of the primary caregiver are internalized by the infant to the quality of these early caregiver interactions. As the infant begins to use these internal working models of the primary caregiver to anticipate the caregiver's response, the child begins to develop the capacity to self-regulate, even in the caregiver's absence (Schore, 1994). Through a pattern of mis-attunement and re-establishing attunement as well as

when confronted with new situations, a child learns to develop resilience in the face of such stress (Schoore, 1994; Schoore & Schoore, 2008, 2014). Attachment theory and modern attachment theory provide a theoretical context in which the potential relationship between attachment, self-regulation, and resilience and a student's adjustment to college is made clear. Drawing from the tenets of these theories, it can be hypothesized that the level of secure parental attachment, the capacity to self-regulate, and the level of resilience would each uniquely support a more successful transition to college and together would provide a greater ability to predict a freshmen student's adjustment to college. The results of this study present additional support for attachment theory and modern attachment theory. Further, such information provides beneficial information to colleges as they seek to achieve smoother transitions for incoming freshmen as well as provide mental health practitioners with new knowledge that is useful in targeting interventions efforts focused on enhancing college adjustment.

## **Literature Review**

### **College Adjustment**

The literature provides information regarding the variety of difficulties that students can experience when adjusting to college across multiple areas of demand (e.g., confronted with having to adjust to living away from home, creating new social networks, forming new friendships, managing finances, balancing social demands with academic deadlines) (Hiester et al., 2009; Sargent et al, 2006; Vaez & LaFlamme, 2008).

Adapting to the multiple demands of college life continues to be problematic for many undergraduate freshmen each year (Aud et al., 2013; Bakar et al., 2010; Bennett, 2012; Duru et al., 2014; Galatzer-Levy & Bonanno, 2013; Gallagher, 2012; Heron, 2013). Despite the multiple problems that freshmen can encounter during adjustment to college, little research is available on an undergraduate student's overall adjustment to college and the factors that contribute to this adjustment (Hiester et al., 2009; Yazedjian et al., 2009). In 2009, Heister et al. explored the consistency of students' perceptions regarding elements of secure parental attachment across time (e.g., trust, alienation, and communication), as measured by subscales of the Inventory of Parent and Peer Attachment (IPPA). Through this research, a positive relationship was noted between a student's perception of the quality of his or her parental attachment relationship and the overall adjustment to college (Hiester et al., 2009). In addition, Yazedjian et al. (2009) found that the relationship between parental variables (e.g., attachment, level of education) and student GPA were mediated by an overall college adjustment for white undergraduate students but not for Hispanic students. Yazedjian et al. (2009), in exploring attachment, focused on elements associated with secure parental attachment, as measured by the subscales of the PAQ (e.g., emotional support, affective quality, parental fostering of autonomy). Given the range of difficulties undergraduate students can have in adjusting to college, this current study, in focusing on a freshman student's overall adjustment to college, seeks to bring attention to the value of a holistic conceptualization of adjustment when attempting

to better understand a freshman student's transition to college beyond that presented by a focus on any individual area of demand encountered in college life.

### **College Student Attachment and Psychological Adjustment**

Consistent with Bowlby's (1969/1982, 1973, 1988) and Schore's (1994) theories regarding the role of attachment in the emergence of healthy adjustment, the quality of a college student's attachment (e.g. secure, insecure) has been linked with a student's general level of psychological adjustment, for example, decreased ratings of distress or increased ratings of psychological adjustment (Frey, Beesley, & Miller, 2006; Garriott et al., 2010; Moller, Fouladi, McCarthy, & Hatch, 2003).

Although secure attachment has been associated with a student's improved psychological adjustment and insecure attachment linked with increased levels of psychological distress, attachment has not been the sole factor contributing to a college student's general level of psychological adjustment (Frey et al., 2006; Garriott et al., 2010; Lopez, Mauricio, Gormley, Simko, & Berger, 2001; Moller et al., 2003). Factors such as a student's level of self-esteem, availability of social support, effectiveness of coping styles, and quality of peer as well as community relationships have also been explored in conjunction with attachment (Frey et al., 2006; Garriott et al., 2010; Lopez et al., 2001; Moller et al., 2003).

While some studies consider the relationship of peer or romantic attachments to a student's general level of psychological adjustment (Moller et al., 2003; Lopez et al., 2001), a focus has continued to be placed on the link between the quality of parental attachment and a student's level of psychological adjustment



(Frey et al., 2006; Garriott et al., 2010). In a study using 245 undergraduate students, Frey et al. (2006) found that overall secure parental attachments, as measured by the PAQ total score, were predictive of decreased psychological distress in both men and women. In addition, both the quality of peer and community relationships for women and the quality of community relationships for men have been noted to be predictive of decreased psychological distress beyond that accounted for by overall secure parental attachment (Frey et al., 2006). In a study with a sample of 82 Latino undergraduate college students, Garriott et al. (2010) considered the relationship between parent and peer attachment with psychological distress and self-esteem. The subscales of the IPPA (e.g., trust, alienation, and communication) were used as measures of a student's perspective on the security of his or her attachment to parents and best friends (Garriott et al., 2010). Higher scores on the IPPA trust and communication subscales were reflective of a student's view that a more secure attachment was present in the relationship, while higher ratings on the IPPA alienation subscale were reflective of a student's view that a less secure attachment was present in the relationship (Garriott et al., 2010). Using the IPPA subscale scores, Garriott et al. (2010) reported a significant negative correlation between secure parental attachment and psychological distress, as measured by the Hopkins Symptom Checklist 25 (HSCL 25). In addition, both secure parental and peer attachment have been associated with increased levels of self-esteem, as measured by the Self-Esteem Questionnaire (SEQ) (Garriott et al., 2010). Further, self-esteem has been found to mediate the

relationship between both parental and peer attachment and psychological distress (Garriott et al., 2010).

Recently, Lac, Crano, Berger, and Alvaro (2013) investigated the influence of peer and parental attachment on risky behavior (i.e., underage drinking). In a sample of 351 undergraduate students under the age of 21, the student's view of both maternal and peer (e.g., close friend) attachments were measured using the IPPA subscales, for example, trust, alienation, and communication (Lac et al., 2013). In addition, a student's attitudes and intentions toward alcohol use, his or her perceptions of the drinking behavior and attitudes of influential people in the student's life (e.g., norms), as well as the student's behavioral control were measured through a series of Likert scale questions (Lac et al., 2013). In a follow up survey, students responded to questions regarding their actual alcohol use during the month that followed the completion of the initial surveys (Lac et al., 2013). It was found that the degree to which student intentions were favorable toward alcohol use was indicative of future alcohol consumption (Lac et al., 2013). In addition, the nature of these intentions was positively correlated with the nature of the students' attitudes, norms, and behavioral control (Lac et al., 2013). For example, intentions that were in favor of alcohol use were related to attitudes, norms, and behavioral control that promoted alcohol use, while the reverse was true for intentions that were opposed to alcohol use (Lac et al., 2013). Lac et al., (2013) found that while peer attachment was predictive of student's norms in favor of alcohol use as well as a level of behavioral control that supported alcohol use, a

secure maternal attachment had a negative relationship with attitudes in favor of alcohol use and a level of behavioral control supporting alcohol use. In addition, this indirect influence of a secure maternal attachment remained influential even when peer attachment was controlled for (Lac et al., 2013).

Secure attachment has been associated with elements of healthy adjustment such as decreased psychological distress and a negative attitude toward alcohol consumption (Frey et al., 2006; Garriott et al., 2010; Lac et al., 2013). In addition, secure attachment was noted to be one factor of several factors associated with healthy adjustment (Frey et al., 2006; Garriott et al., 2010; Lopez et al., 2001; Moller et al., 2003). Such findings are consistent with Bowlby's (1969/1982, 1973, 1988) and Schore's (1994) theories regarding the role of attachment as one of the factors influential in the emergence of healthy adjustment. While these studies provide support for the influence of secure attachment on healthy adjustment, they do not explore other variables (e.g., self-regulation, resilience) in conjunction with secure attachment that are posited by attachment theory to influence the developmental path to healthy adjustment (Bowlby, 1988; Schore 1994). In addition, these studies did not consider the role of attachment in predicting a freshmen students' adjustment across multiple areas of demand in college.

### **Parental Attachment and Student Adjustment to College**

The transition to college has been equated with Ainsworth's et al. (1978) strange situation procedure, one in which parents can be viewed as a secure base from which the student leaves to explore an unfamiliar environment (Kenny, 1987).

Securely attached students are hypothesized to be able to make such a transition successfully because they are confident that his or her parents will be available for nurturance and support in times of need or increased stress (Kenny, 1987). The notion that a relationship exists between the quality of a student's parental attachment and a successful transition to college has repeatedly gained support in the literature (Hiester et al., 2009; Hinderlie & Kenny, 2002; Holmbeck & Wandrei, 1993; Holt, 2014; Kalsner & Pistole, 2003; Lapsley, Rice, & Fitzgerald, 1990; Mattanah et al., 2004; Mattanah et al., 2011; Rice, Fitzgerald, Whaley, & Gibbs, 1995). Secure parental attachment has been associated with a successful adjustment to college (Hannum & Dvorak, 2004; Hiester et al., 2009; Hinderlie & Kenny, 2002; Holmbeck & Wandrei, 1993; Lapsley et al., 1990; Mattanah et al., 2004; Melendez & Melendez, 2010; Rice et al., 1995; Wright, Scherman, & Beesley, 2003), while insecure parental attachment has been link to undergraduate students having difficulty in transitioning to college (Bernier, Larose, Boivin, & Soucy, 2004; Vivona, 2000). Although the quality of attachment has been linked to aspects of college adjustment in all classes of undergraduate students (i.e., freshman through senior year) (Hinderlie & Kenny, 2002; Kalsner & Pistole, 2003; Mattanah et al., 2004; Melendez & Melendez, 2010; Schultheiss & Blustein, 1994), several studies have specifically focused on the transition of freshmen students to college (Hannum & Dvorak, 2004; Hiester et al., 2009; Holmbeck & Wandrei, 1993; Lapsley et al., 1990; Rice et al., 1995; Wright et al., 2003; Vivona, 2000).

However, as studies began to explore specific demographic characteristics (e.g. student gender, parent gender, and ethnic background) in relation to parental attachment and college adjustment, mixed results were noted. Although several studies have indicated that there was no difference in the level of college adjustment based on the quality of attachment to a student's mother or father (Hiester et al., 2009; Holmbeck & Wandrei, 1993; Lapsley et al., 1990; Mattanah et al., 2004; Rice et al., 1995; Wright et al., 2003), Hannum and Dvorak (2004) as well as Hinderlie and Kenny (2002) noted unique aspects in the relationship between attachment, based on parental gender, and college adjustment. In a study a study of 95 freshmen, Hannum and Dvorak (2004) investigated the relationship between a student's overall secure maternal and paternal attachment, as measured by the PAQ total score, and elements of adjustment to college. These researchers found that secure maternal attachment was a better predictor of decreased psychological distress in college and secure paternal attachment was a better predictor of social adjustment in college. Further, through a study that investigated the relationship between on-campus social support, attachment, and college adjustment; Hinderlie and Kenny (2002) noted differences in the level of college adjustment based on the parental gender and overall level of attachment security. Using a sample of 186 undergraduate African American students, who were attending college with a student population that was predominately white, Hinderlie and Kenny (2002) found that overall secure maternal attachment, as measured by the PAQ total score, was significantly correlated with academic and personal/emotional adjustment

even after on campus social support had been accounted for. Overall secure paternal attachment, as measured by the PAQ total score, was found to be significantly correlated with academic, personal/emotional, and institutional adjustment (Hinderlie & Kenny, 2002). Although Heister et al. (2009), Kalsner and Pistole (2003), Schultheiss and Blustein (1994), as well as Vivona (2000) report variations in the attachment/adjustment relationship based on a college student's gender, a number of other studies do not support these findings, reporting that no gender differences were present (Hannum & Dvorak, 2004; Holmbeck & Wandrei, 1993; Holt, 2014; Lapsley et al., 1990; Mattanah et al., 2004; Rice et al., 1995).

In exploring the relationship between parental attachment, self-competence, psychological distress, and college adjustment, Hiester et al. (2009) reported differences based on gender. In a sample of 271 college freshmen, Hiester et al. (2009) noted that women showed an improvement in parental attachment across time, as measured by the IPPA subscales (e.g., trust, alienation, and communication), while men who were living at home had an increasing negative perception of their parental attachment relationship. In addition, from a sample of 252 undergraduate students, ranging in age from 16-30 years old, Kalsner and Pistole (2003) found that secure parental attachment, as measured by the subscales of the PAQ (e.g., emotional support, affective quality, parental fostering of autonomy), was not related to college adjustment in women. However, elements of parental attachment (e.g., emotional support, parental fostering of autonomy) contributed to college adjustment in men, for example, social adjustment, goal commitment, personal

adjustment, and decreased levels of psychological distress (Kalsner & Pistole, 2003). Further, Schulthesis and Blustein (1994), in a study of 139 undergraduate students, reported that parental attachment, as measured by the maternal and paternal subscales of the revised IPPA, was linked to college student adjustment for women but not for men. Similarly, Vivona (2000) reported that insecure parental attachment, as measured by the pattern of IPPA subscale scores (e.g., trust, alienation, and communication), was linked to difficulties in college adjustment and decreased levels of intimacy in women but not in men.

Ethnicity is another demographic factor that has yielded mixed results in terms of the relationship between parental attachment and college adjustment (Hinderlie & Kenny, 2002; Kalsner & Pistole, 2003; Melendez & Melendez, 2010; Yazedjian et al., 2009). Melendez and Melendez (2010) reported ethnic group differences in a sample of African American, Latina/Hispanic, and White female undergraduate students. The affective quality of secure parental attachment, as measured by the subscale of the PAQ (i.e., affective quality), was related to academic adjustment for White students and academic as well as personal/emotional adjustment for African American students. However, it was parental support, as measured by the subscale of the PAQ (i.e., parental fostering of autonomy), that was related to institutional adjustment for Latina/Hispanic students. In addition, Yazedjian et al. (2009) found that parental variables (e.g., attachment, level of education) and student GPA were mediated by college adjustment for white undergraduate students but not for the Hispanic students. Yazedjian et al. (2009), in

exploring attachment used elements associated with secure parental attachment, as measured by the subscales of the PAQ (e.g., emotional support, affective quality, parental fostering of autonomy). Further, Hinderlie & Kenny (2002) found that the affective quality of secure parental attachment, as measured by the PAQ subscale (i.e., affective quality), was related to academic, personal/emotional, and institutional adjustment for a sample of African American undergraduate students. Finally, Kalsner and Pistole (2003) conducted a study with a multi-ethnic sample (i.e., African American, Asian, Asian Indian, Hispanic, and White) of 252 undergraduate college students. However, although some ethnic group differences were noted in responses to the self-report surveys, it was in terms of student gender that differences in the relationship between parental attachment, as measured by the subscales of the PAQ (e.g., emotional support, affective quality, parental fostering of autonomy), and college adjustment became relevant (Kalsner & Pistole, 2003).

Mattanah et al. (2011), in conducting a meta-analysis, sought to clarify the diverse findings in the literature related to the relationship between parental attachment and college adjustment. The sample included 156 studies (N= 32,969) from 1987 through 2009 that utilized self-report measures of parental attachment and college adjustment (Mattanah et al., 2011). Parental attachment was primarily measured through the IPPA (e.g., approximately 70 studies), the PAQ (e.g., 40 studies), and the Parent Bonding Instrument (PBI) (e.g., 35 studies) (Mattanah et al., 2011). Some studies used other attachment measures but the individual frequency



of these measures did not have more than on four occasions of use across the 25 studies (Mattanah et al., 2011). The results of the meta-analysis indicated that maternal and paternal attachment were equally important to both male and female undergraduate students' development (Mattanah et al., 2011). In addition, ethnicity, nationality, gender, and year in school were not found to moderate the attachment adjustment relationship (Mattanah et al., 2011). Also, attachment was noted to be linked to multiple elements of college adjustment, with a stronger relationship existing for students who were living away from home (Mattanah et al., 2011). Further, parental attachment was found to be only a moderate predictor (ES,  $r = 0.23$ ) of college adjustment (Mattanah et al., 2011). Given these results, Mattanah et al. (2011) posit that the attachment adjustment relationship is likely to be consistent across gender, ethnicity, and culture. In addition, the moderate relationship noted between parental attachment and college adjustment suggests that other developmental processes, along with parental attachment, are likely to be involved when predicting college adjustment (Mattanah et al., 2011). This conclusion is consistent with attachment theory and modern attachment theory which suggests that attachment, along with self-regulation and resilience lead to a healthy pattern of adjustment (Bowlby 1969/1982, 1973, 1988; Schore, 1994; Schore & Schore, 2008, 2014). Finally, Mattanah et al. (2011), in finding the subscales of parental attachment to be consistent with the attachment full scale score, concluded that attachment may be more unidimensional by later adolescence,

and encouraged the use of a single full scale attachment score on self-report measures.

In 2014, Holt conducted a study to investigate the impact of help seeking attitudes on the relationship between parental attachment and college adjustment. From a sample of 93 freshmen college students, Holt (2014) found that more secure parental attachment, as measured by the IPPA subscales (e.g., trust, alienation, and communication), was linked with an individual's positive view toward seeking academic support. In addition, it was noted that women held significantly more positive views regarding the pursuit of academic support than men (Holt, 2014). Further, a person's view on the pursuit of academic support was found to mediate the relationship between parental attachment and college adjustment. In light of this outcome, Holt (2014) views parental attachment as only one predictor of college adjustment and encourages further exploration of other potential variables that also could have more of an impact on college adjustment.

Secure parental attachment has been investigated in conjunction with multiple areas of college adjustment and with consideration to a number of demographic variables including gender, parent gender, year in school, ethnicity, and culture (Hiester et al., 2009; Hinderlie & Kenny, 2002; Holmbeck & Wandrei, 1993; Holt, 2014; Kalsner & Pistole, 2003; Lapsley et al., 1990; Mattanah et al., 2004; Mattanah et al., 2011; Rice et al., 1995). While both the IPPA and the PAQ have been used to measure elements associated with parental attachment in relation to college adjustment (Hiester et al., 2009; Holt, 2014; Kalsner & Pistole, 2003; Melendez &

Melendez, 2010; Vivona, 2000; Yazedjian et al., 2009), the PAQ has also been used to represent overall secure parental attachment in relation to college adjustment (Hannum & Dvorak, 2004; Hinderlie & Kenny, 2002). Secure parental attachment was found to be only a moderate predictor (ES,  $r = 0.23$ ) of college adjustment regardless of the demographic variables studied (Mattanah et al., 2011). In addition, secure attachment was noted to be only one of several factors associated with college adjustment (Hiester et al., 2009; Hinderlie & Kenny, 2002; Holmbeck & Wandrei, 1993; Holt, 2014; Kalsner & Pistole, 2003; Lapsley et al., 1990; Mattanah et al., 2004; Mattanah et al., 2011; Rice et al., 1995). Such findings are consistent with Bowlby's (1969/1982, 1973, 1988) and Schore's (1994) theories regarding the role of attachment as one of the factors influential in the emergence of healthy adjustment. While these studies provide support for secure parental attachment having influence on college adjustment, they do not explore other variables (e.g., self-regulation, resilience) in conjunction with secure attachment that are posited by attachment theory to influence the developmental path to healthy adjustment (Bowlby, 1988; Schore 1994).

### **Self-Regulation**

The literature provides a variety of definitions for self-regulation. This diversity in descriptions emerges from the differing conceptualizations that theorists and researchers have posited regarding this concept. (Morf & Mischel, 2002). However, a number of researchers support the definition of self-regulation as comprised of processes and skills focused on modulating a person's thoughts,

emotions, attention, and behavior such that the person will be able to sustain efforts toward achieving a goal (Karoly, 1993; Lengua, 2002; Posner & Rothbart, 1998; Williams et al., 2008). The development of self-regulation has been posited to occur through a person's interactions with primary caregivers and the environment (Fonagy & Target, 2002; Padykula & Conklin, 2010; Schore & Schore, 2008; Schore & Schore, 2014; Silverman, 1998; Waters et al., 2010)

### **Self-Regulation and Adjustment to School**

The ability to self-regulate has been linked to positive school adjustment for elementary school students as well as for adolescents entering college (Cameron & Nicholls, 1998; Duru et al., 2014; Park et al., 2012; Wyman et al., 2010). In a sample of 226 early elementary school children (e.g., kindergarten to third grade), who had been identified with increased behavioral and social concerns in school, Wyman et al. (2010) conducted a wait listed randomized trial study to explore the impact of strengthening emotional self-regulation skills on school adjustment. Following instruction in 14 skill building lessons from the Rochester Resilience Project on emotional self-regulation, students displayed a reduction in the behavioral and social concerns previously reported at school (Wyman et al., 2010).

The beneficial role of self-regulation has also been explored with students in college (Cameron & Nicholls, 1998; Duru et al., 2014; Park et al., 2012). Cameron and Nicholls (1998) investigated the benefits of a self-regulation writing task for college freshmen. A sample of 122 college freshmen was divided into a control group, students who engaged in a disclosure writing activity, and students who

engaged in a self-regulation writing activity (Cameron & Nicholls, 1998). In addition, students completed self-report measures regarding their level of optimism (e.g., Life Orientation Test), adjustment to college, (e.g., SACQ), and mood, for example, an author developed questionnaire (Cameron & Nicholls, 1998). In a one month follow up, students who self-rated as optimistic and completed either the self-regulation or disclosure activity were noted to have decreased visits to the college's medical clinic (Cameron & Nicholls, 1998). However, for students who self-rated as pessimistic, only those who engaged in self-regulation activity had decreased visits to the medical clinic (Cameron & Nicholls, 1998). In addition, students who completed the self-regulation activity sustained their level of college adjustment and mood at the seven week follow up, while the control group displayed a decrease in college adjustment and an increase in negative mood upon follow up (Cameron & Nicholls, 1998).

Park et al. (2012) investigated the impact of a set of self-regulation skills on college adjustment, which were hypothesized to increase as a student aged (e.g., constructive thinking, emotional regulation, and personal mastery). College adjustment was assessed through measures of depression, anxiety, and stress (Park et al., 2012). Although maturation, for the 162 freshmen in the sample, did not typically result in increases in self-regulation skills, any increases in self-regulation skills were correlated with enhanced college adjustment (Park et al., 2012).

More recently, Duru et al. (2014) explored the relationship between self-regulation, academic achievement, and burnout. A sample of 383 undergraduate

students completed the Self-Regulation Scale (SRS) and the Maslach Burnout Inventory-Student Survey (MBSS), with the student's grade point average serving as an indicator of academic achievement. While Duru et al. (2014) found a negative relationship between burnout and academic achievement, a positive relationship was noted between self-regulation and academic achievement. In addition, self-regulation was noted to partially mediate the relationship between emotional exhaustion and cynicism as well as fully mediate the relationship between reduced academic efficiency and academic achievement (Duru et al., 2014).

A small number of studies have been conducted on the role of self-regulation in college adjustment (Cameron & Nicholls, 1998; Duru et al., 2014; Park et al., 2012). While this research has been limited in scope by either the areas of college adjustment explored or by a focus on emotional regulation, an element of self-regulation; this research indicates that self-regulation has a positive influence on college adjustment (Cameron & Nicholls, 1998; Duru et al., 2014; Park et al., 2012). In addition, self-regulation was noted to be one of several factors associated with college adjustment (Cameron & Nicholls, 1998; Duru et al., 2014; Park et al., 2012). Such findings are consistent with modern attachment theory (Schore, 1994) which posits that self-regulation is one of the factors influential in the emergence of healthy adjustment. While these studies provide support for self-regulation having an influence on healthy adjustment, they do not explore other variables (e.g., secure parental attachment, resilience) in conjunction with self-regulation, nor do they

consider the influence of self-regulation in the adjustment of freshmen students to the multiple areas of demand in college

### **Resilience**

The investigation of a child's capacity for resilience has been ongoing since the 1970s and has progressed through four distinct phases (Bonanno & Diminich, 2013; Masten, 2007). During the first phase, research focused on delineating what resilience was as well as considered how best to measure such a capacity (Bonanno & Diminich, 2013; Masten, 2007; Richardson, 2002). In addition, research from this phase targeted the identification of qualities as well as relationships associated with resilience (Bonanno & Diminich, 2013; Masten, 2007; Richardson, 2002). As research moved into the second phase, emphasis shifted to the processes which contributed to or detracted from the capacity of resilience, for example, risk and protective factors (Bonanno & Diminich, 2013; Masten, 2007; Richardson, 2002). During this second phase, attachment and self-regulation were identified as protective factors for resilience (Dishion & Connell, 2006; Jones & Morris, 2012; Masten, 2007; Masten & Coatsworth, 1998; Masten & Narayan, 2012; Rutter, 1987; Werner, 1995). Further, research considered the interactions between the processes that contributed to a person successfully adapting to adversity (Bonanno & Diminich, 2013). The third phase of research investigated preventive measures as well as interventions that could be implemented once a person was faced with adversity (Bonanno & Diminich, 2013; Masten, 2007; Richardson, 2002). In the current phase of research, the focus has been on developing approaches that

integrate multiple processes and investigate moderators of risk factors for adversity (Bonanno & Diminich, 2013; Masten, 2007). In addition, the definition of resilience has continued to be modified as more knowledge has been gained. While resilience continues to reflect the capacity to adapt in the face of adversity, the definition has come to include systems (e.g., an economy, forest, global climate, security system) as well as people (Masten, 2014; Masten & Narayan, 2012). Further, the definition of the level of this adversity has broadened to include more situations, by considering adversity as “problematic or difficult environments or circumstances” (Li et al., 2011, p.269) or “disturbances that threaten system function, viability, or development” (Masten, 2014, p. 6).

### **College Student Resilience and Psychological Adjustment**

Resilience is a factor that has been associated with psychological adjustment in college students (Johnson et al., 2011; Khademi & Aghdam, 2013). Using a sample of 88 undergraduate students, Johnson et al. (2011) explored the relationship between a student’s level of resilience, as measured by the Connor-Davidson Resilience Scale (CD-RISC), and the level of alcohol consumption, as measured by an author developed self-report scale. The negative association which was noted between the student’s level of resilience and alcohol consumption indicated that resilience was a potential predictive factor of students at risk for excessive alcohol consumption. (Johnson et al., 2011). In 2013, Khademi and Aghdam investigated the relationship between resilience and homesickness. A sample of 470 freshmen and seniors completed the CD-RISC, as a measure of resilience, and Von Vliets



Questionnaire, as a measure of homesickness (Khademi & Aghdam 2013). The significant negative correlation found between resilience and homesickness adds support to the notion that resilience has a role in the positive psychological adjustment of college students (Khademi & Aghdam 2013).

Resilience has been associated with elements of healthy adjustment such as decreased homesickness and limited alcohol consumption (Johnson et al., 2011; Khademi & Aghdam 2013). Such findings are consistent with Bowlby's (1969/1982, 1973, 1988) theory regarding the role of resilience as one of the factors influential in the emergence of healthy adjustment. While these studies provide support for resilience having influence on healthy adjustment, they do not explore other variables (e.g., self-regulation, secure parental attachment) in conjunction with resilience that are posited by attachment theory to influence the developmental path to healthy adjustment (Bowlby, 1988; Schore 1994). In addition, these studies do not consider the influence of resilience in the adjustment of freshmen students to the multiple areas of demand in college

### **Resilience and Student Adjustment to College**

As the definition for situations in which resilience could play a role has broadened, research has explored the role of resilience in a student's adaptation to college (Allan et al., 2014; DeRosier et al., 2013; Hartley, 2011; Hartley, 2010). Hartley (2010) discussed the value of resilience research and how it could be employed to address college retention rates. In addition, a student's level of resilience has been linked to increases in academic performance when factors such

aptitude and achievement have already been accounted for (Hartley, 2011). A sample of 605 undergraduate students completed measures of intrapersonal resilience (e.g., CD-RISC), interpersonal resilience (e.g., Social Support Questionnaire), and mental health, for example, Mental Health Inventory-5 (Hartley, 2011). Using a student's high school GPA and performance on the SAT or ACT as indicators of baseline aptitude and achievement, intrapersonal resilience was noted to account for variance in college academic performance, when aptitude and achievement were controlled for (Hartley, 2011).

Similarly, Allan et al. (2014) noted a link between the resilience of college students and academic performance. A large sample of 1534 freshmen completed the CD-RISC as a measure of resilience, which was compared to academic performance at the end of the first year (Allan et al., 2014). A positive association between total resilience scores and academic performance was reported (Allan et al., 2014). Interestingly, although small increases in resilience scores for women yielded an increased probability of a higher grade profile, this was not the case for men (Allan et al., 2014). As incremental increases in the total resilience score occurred for men, it yielded an increased probability of a poorer grade profile (Allan et al., 2014).

In a study by DeRosier et al. (2013), increases in resilience in first year college students was correlated with an increased ability to adapt to the stress related to transitioning into college. A sample of 644 freshmen completed several self-report measures including: College Stress Inventory, My Responses to Stress,

My Resilience Factors, and My Self Care (DeRosier et al., 2013). A positive relationship was noted between resilience and the ability to manage stress in that, as levels of resilience increased, so did a student's ability to cope with stress. In addition, increased ratings of resilience were associated with increased levels of self-esteem and a higher frequency of behaviors linked to improved well-being (DeRosier et al., 2013). These positive relationships were found to be sustained after controlling for college stress level and counterproductive reactions to stress (DeRosier et al., 2013).

A small number of studies have been conducted on the role of resilience in college adjustment (Allan et al., 2014; DeRosier et al., 2013; Hartley, 2011). While this research has been limited in scope by the areas of college adjustment explored, this research indicates that resilience has a positive influence on college adjustment (Allan et al., 2014; DeRosier et al., 2013; Hartley, 2011). In addition, self-regulation was noted to be only one of several factors associated with college adjustment (Allan et al., 2014; DeRosier et al., 2013; Hartley, 2011). Such findings are consistent with attachment theory (Bowlby, 1969/1982, 1973, 1988) which posits that resilience is one of the factors influential in the emergence of healthy adjustment. While these studies provide support for resilience having influence on healthy adjustment, they do not explore other variables (e.g., secure parental attachment, self-regulation) in conjunction with resilience that are identified by attachment theory as influencing the developmental path to healthy adjustment (Bowlby,

1988). In addition, these studies do not consider the influence of resilience in the adjustment of freshmen students to the multiple areas of demand in college.

### **Attachment and Self-Regulation – Young Children**

Modern attachment theory posits that self-regulation also develops out of interactions with caregivers (Schore, 1994; Schore & Schore, 2008, 2014). The literature includes studies from infancy to adulthood, which include self-regulation and attachment (Gillom et al., 2002; Kidwell & Barnett, 2007; Kimball & Didams, 2007; Tangney et al., 2004; van Bakel & Riksen-Walraven, 2004; Waters et al., 2010; Zenali et al., 2011). A number of studies with infants and preschoolers have focused on a potential relationship between the quality of attachment and a component of self-regulation, specifically the ability to regulate emotions (Gillom et al., 2002; Kidwell & Barnett, 2007; van Bakel & Riksen-Walraven, 2004; Waters et al., 2010).

Using a sample of 56 preschoolers from low income families, Kidwell and Barnett (2007) explored possible predictors of adaptive emotional regulation (e.g., attachment, vagal tone). Although vagal tone and attachment, as measured by the strange situation procedure, were not found to be directly linked with emotional regulation, a combined effect was noted (Kidwell & Barnett, 2007). While children with increased vagal tone and secure parental attachments tended to display a better ability to self-regulate emotion, preschoolers with insecure attachments and decreased vagal tone were more likely to display less ability to self-regulate (Kidwell & Barnett, 2007).

Gillom et al. (2002) also considered the relationship of attachment to emotional regulatory strategies in preschoolers. In a sample of 189 boys from families with a low social economic status, a relationship between quality of attachment, maternal control, and use of regulatory strategies was noted (Gillom et al., 2002). Preschoolers with a secure parental attachment, as measured by the strange situation procedure, and in an environment with positive maternal control were found to be positively correlated with the effective use of emotional regulatory strategies (Gillom et al., 2002).

Waters et al. (2010) also investigated the influence of attachment on the emotional regulatory capacity of a sample of 73 preschoolers and their mothers. Children with secure parental attachment, as measured by the Attachment Q-sort, were more likely to have mothers who were accepting of his or her self-report of emotion as well as who valued attending to their child's emotional experience (Waters et al., 2010). In addition, securely attached children were more willing to discuss their negative feelings with their mothers (Waters et al., 2010). These studies and their findings support the importance of early parent-child interactions in the development of self-regulation, and are consistent with Schore's postulation that self-regulation develops out of early caregiver interactions (Schore, 1994; Schore & Schore, 2008, 2014).

Infant research has also considered whether attachment plays a role in emotional regulation (van Bakel & Riksen-Walraven, 2004). A sample of 85 infants was assessed in terms of cognitive functioning, cortisol reactivity, quality of

attachment, and temperament (van Bakel & Riksen-Walraven, 2004). Infants who were either more likely to become angry or had higher cognitive functioning were noted to have increased cortisol levels following exposure to a mild fear inducing event, for example, the presence of a scary toy robot (van Bakel & Riksen-Walraven, 2004). However, the quality of parental attachment, as measured by the Attachment Q-set and through the strange situation procedure, for infants with higher cognitive functioning was found to moderate the cortisol level. Infants with higher cognitive functioning and secure parental attachment had decreased cortisol reactivity (van Bakel & Riksen-Walraven, 2004).

In addition, one study focused on the combined mediational influence of attachment and emotional regulation within an elementary school environment (Schwarz, Stutz, & Ledermann, 2012). Using a sample of 180 fourth grade students, Schwarz et al. (2012) considered the role of attachment quality, as measured by the Security Scale, and emotional regulation on the quality of students' friendships during a period of parental marital conflict. Schwarz et al. (2012) found that students who identified that there was parental conflict at home were at greater risk for relational problems with their close friends. However, this risk was mediated both by a secure parental attachment and the student's ability to regulate emotions (Schwarz et al., 2012).

Attachment and emotional regulation, a subcomponent of self-regulation, have been explored using infants, preschoolers, and elementary school students to investigate a potential relationship between the two variables as well as their

combined impact in mediating the risk of relational problems in friendship (Gillom et al., 2002; Kidwell & Barnett, 2007; Schwarz et al., 2012; van Bakel & Riksen-Walraven, 2004; Waters et al., 2010). While some relationship between these variables was noted, as both attachment and emotional regulation develop out early caregiver interactions, the two variables were not highly correlated (Gillom et al., 2002; Kidwell & Barnett, 2007; Schwarz et al., 2012; van Bakel & Riksen-Walraven, 2004; Waters et al., 2010). In addition, none of these studies utilized both secure parental attachment and the broader factor of self-regulation. Further, attachment and emotional regulation were noted to have a combined mediational impact on the risk of relational problems in friendship (Schwarz et al., 2012). Such findings are consistent with attachment theory (Bowlby, 1988; Schore, 1994), which identifies both attachment and self-regulation as factors that are influential in the emergence of healthy adjustment. Although, one study using elementary school children provides support for the influence of both attachment and self-regulation on healthy adjustment, it does not explore other variables such as resilience, which have been posited to influence the development of healthy adjustment (Bowlby, 1988).

### **Attachment and Self-Regulation – Adolescents and Adults**

Studies in the literature have also been conducted using the variables of attachment and self-regulation in adolescents and adults (Kimball & Diddams, 2007; McCarthy, Lambert, & Moller, 2006; Zeinali et al., 2011). Zeinali et al. (2011) investigated the relationship between susceptibility to addiction, attachment, self-regulation, and parenting style. From a sample of 508 high school students, ranging

in age from 14 -19, Zeinali et al. (2011) found that a secure attachment, promoted through an authoritative parenting style, was associated with the development of a higher levels self-regulation, and was correlated with a decrease in susceptibility to addiction (Zeinali et al., 2011). Conversely, an insecure attachment, promoted through an authoritarian parenting style, was associated with a lower level of self-regulation, and was correlated with an increase in susceptibility to addiction (Zeinali et al., 2011).

In addition, the role of self-regulation as a mediator between attachment and adjustment in college students has started to be explored (Kimball & Diddams, 2007; McCarthy et al., 2006). In a sample of 216 undergraduate students, Kimball and Diddams (2007) investigated the relationship between affect regulation, attachment, as measured by the Attachment Style Questionnaire (ASQ) subscales (e.g., secure, preoccupied, fearful, dismissing), and deliberate self-harm. Affect regulation was found to be a mediator between attachment and self-harm (Kimball & Diddams, 2007). Further, insecure attachment was noted to be associated with maladaptive affect regulation (Kimball & Diddams, 2007). McCarthy et al. (2006) also explored the mediational role of affect regulation. In a sample of 390 undergraduate students, McCarthy et al. (2006) found that an individual's expectations regarding their ability to regulate negative mood states, along with their level of preventative coping resources, mediated the relationship between parental attachments and stress generated emotions and symptoms.



Attachment and emotional regulation, a subcomponent of self-regulation, have also been explored with adolescents and adults (Kimball & Diddams, 2007; McCarthy et al., 2006). These studies provide some support for emotional regulation having a mediating role between attachment, as measured by either subscales of the ASQ (e.g., secure, preoccupied, fearful, dismissing) or subscales of the PAQ (e.g., quality, support), and forms of psychological distress, for example, self-harm and stress produced emotions (Kimball & Diddams, 2007; McCarthy et al., 2006). In this research, one study investigated a relationship between attachment, as measured subscales by the ASQ (e.g., secure, preoccupied, fearful, dismissing), and self-regulation (Zeinali et al., 2011). While some relationship was noted between the variables, the two variables were not highly correlated (Zeinali et al., 2011). Such findings are consistent with attachment theory (Bowlby, 1988; Schore, 1994), which identifies both attachment and self-regulation as developing from early caregiver interactions and as influential in the emergence of healthy adjustment. However, none of these studies utilizing both secure parental attachment and self-regulation focused on freshmen adjustment to college across multiple areas of demand in college (Kimball & Diddams, 2007; McCarthy et al., 2006). Although, one study (Zeinali et al., 2011) incorporated the use both attachment and the broader factor of self-regulation, it did not explore other variables such as resilience, which also has been posited to influence the developmental path to healthy adjustment (Bowlby, 1988)

### **Attachment and Resilience**

Consistent with attachment theory and modern attachment theory (Bowlby 1969/1982, 1973, 1988; Schore, 1994), the literature explores the relationship between attachment and resilience and provides some support for a collaborative impact of attachment and resilience on college students' healthy adjustment (Banyard & Cantor, 2004; Shibue & Kasai, 2014). Shibue and Kasai (2014), using a sample of 343 undergraduate students, explored the relationship between attachment, resilience, and earned security. While students with a secure attachment, as measured by the secure subscale of the Internal Working Model scale (IWM) were found to have a positive relationship with increased levels of resilience, a negative relationship was noted for students with an insecure ambivalent attachment, as measured by the ambivalent subscale of the IWM (Shibue & Kasai, 2014). However, no relationship was found for students with avoidant attachment, as measured by the avoidant subscale of the IWM, and either resilience or earned security (Shibue & Kasai, 2014). In addition, Banyard and Cantor (2004) also investigated the relationship between attachment and resilience for students as they transitioned into college. Using a sample of 367 undergraduate students with a history of trauma, Banyard and Cantor (2004) found that students who had more frequent trauma experiences generally had greater difficulty adjusting to college. However, increased levels of resilience were noted for students who were securely attached, as measured by the IPPA, to family and friends and who reported that social support was both available and helpful (Banyard & Cantor, 2004). Further, students who were insecurely attached, as measured by the IPPA, and who reported

that social support was both unavailable and unlikely to be helpful were noted to have lower resilience scores (Banyard & Cantor, 2004).

Other studies have considered the collaborative influence of attachment and resilience on adjustment outcomes. Galatzer-Levy and Bonanno (2013), in a sample of 157 undergraduate students, found that the combination of secure attachment (i.e., low levels of anxious attachment), as measured by the Relationship Scale Questionnaire (RSQ) and resilience (i.e., flexible coping with adversity) was linked to improved psychological adjustment in college. Using a sample of 329 undergraduate students, Li (2008) found that attachment and resilience differentially predicted a student's ability to cope with stress. While secure attachment, as measured by the secure subscale of the Revised Adult Attachment Scale (AAS-Revised), was predictive of coping for situations with general stress, resilience was predictive of coping in all stress situations, for example, high, low and general (Li, 2008). Further, Li and Yang (2009) noted different mediational roles for attachment and resilience in the relationship between stress and coping responses. Using a sample of 326 undergraduate students, Li and Yang (2009) found that while secure attachment, as measured by the secure subscale of the AAS-Revised, mediated between stress and seeking social support, resilience mediated between stress and avoidance.

Attachment and resilience have been explored in an undergraduate student population (Banyard & Cantor, 2004; Galatzer-Levy & Bonanno, 2013; Li, 2008; Li & Yang, 2009; Shibue & Kasai, 2014). While some relationship between attachment

and resilience was noted, the two variables were not highly correlated (Banyard & Cantor, 2004; Shibue & Kasai, 2014). However, this research did support a distinct impact of attachment and resilience on healthy adjustment (Galatzer-Levy & Bonanno, 2013; Li, 2008; Li & Yang, 2009). Such findings are consistent with attachment theory (Bowlby, 1988), which identifies both attachment and resilience as factors that are influential in the emergence of healthy adjustment. However, none of these studies utilizing both secure parental attachment and self-regulation focused on freshmen adjustment to college across multiple areas of demand in college life (Kimball & Diddams, 2007; McCarthy et al., 2006). Although, this research investigated the relationship between attachment and resilience in some areas of adjustment to college, it did not explore other variables such as self-regulation, which also has been posited to influence the development of healthy adjustment (Bowlby, 1988)

### **Self-regulation and Resilience**

While modern attachment theory suggests a collaborative impact of self-regulation and resilience on healthy adjustment (Schore, 1994); only a few studies using school age children have explored this relationship. Lengua (2002) conducted a study with 101 elementary school children (e.g., third to fifth grade) that explored the relationship between emotionality, subcomponents of self-regulation (e.g., emotional regulation, attention, impulsivity), adjustment, and resilience. Lengua (2002) found that the quality of emotionality and subcomponents of self-regulation were associated with both positive and negative adjustment as well as with

resilience. A positive emotionality and increases subcomponents of self-regulation were associated with a positive adjustment and increased resilience, while a negative emotionality and decreases in subcomponents of self-regulation were associated with a negative adjustment and low levels of resilience (Lengua, 2002). However, in this study the measures of adjustment (e.g., adjustment problems, positive adjustment) were used to indicate both level of adjustment as well as were combined with the number of risk factors present to indicate the level of vulnerability and resilience (Lengua, 2002). While a relationship between subcomponents of self-regulation and adjustment was able to be more clearly demonstrated, the small sample size and the combined use of the adjustment measure to indicate the level of adjustment as well as the level of vulnerability and resilience makes the relationship between the subcomponents of self-regulation and resilience less clear (Lengua, 2002). In addition, Curtis and Cicchetti (2007) considered the relationship between abnormality in brain activity, level of resilience, and emotion regulation in children who had experienced abuse and neglect, comparing it with that of children who had been well cared for. Using a sample of 503 children, ranging in age from 6-12 years old, Curtis and Cicchetti (2007) found brain activity was only predictive of resilience (e.g., determined based on multiple elements of functioning) in children exposed to abuse, while the ability to regulate emotions was associated with resilience across the whole sample. Further, Wong (2008) investigated the potential link between academic self-regulation, resilience, and parenting (e.g., perceived parental involvement,

autonomy of support) in a sample of 171 middle school students. Wong (2008) defined resilience as the presence of parental risk factors (e.g., a parent who attained only a high school diploma, a parent who was not fluent in English) in a subject with better academic outcomes. Wong (2008) found that the combination of positive parental practices and increased academic self-regulation were associated with better academic outcomes (e.g., resilience). In addition, self-regulation was noted to mediate the relationship between parental practices and academic performance as well as with classroom behavior (Wong, 2008).

Resilience and subcomponents of self-regulation have also been explored in children (Curtis and Cicchetti, 2007; Lengua, 2002; Wong 2008). While these studies provide some support for a relationship between subcomponents of self-regulation and resilience, it should be noted that resilience was uniquely defined in each study based on elements of adaptation and functioning (Curtis and Cicchetti, 2007; Lengua, 2002; Wong 2008). The diversity of elements of adaptation and functioning used to define resilience and the focus on subcomponents of self-regulation in each study makes more global conclusions regarding the relationship between resilience and self-regulation problematic (Curtis and Cicchetti, 2007; Lengua, 2002; Wong 2008). In addition, none of the research reviewed utilizing the variables of resilience and self-regulation focused on a freshmen student's adjustment to college or explored other variables such as attachment, which also has been posited to influence the development of healthy adjustment (Bowlby, 1988)

### **Attachment, Self-regulation, and Resilience**

Although the investigation of the relationship between attachment, self-regulation, and resilience has spanned roughly 30 years, the literature provides only a few studies that explore the combination of these variables (Axford, 2007; Caldwell & Shaver, 2012; Kobak & Sceery, 1988; Sroufe, 2005). However, the studies available lend support to Bowlby's (1969/1982, 1973, 1988) and Schore's (1994) conceptualization of the relationship between these variables (Axford, 2007; Caldwell & Shaver, 2012; Kobak & Sceery, 1988; Sroufe, 2005).

Kobak and Sceery (1988) investigated the relationship between attachment, as measured by the AAI, affect regulation, and ego-resiliency using a sample of 53 freshman college students. Securely attached students, who indicated low levels of distress and increased social support, were also noted to have increased levels of ego-resiliency as well as lower levels of observable anxiety and hostility. Students with insecure attachment (dismissing, preoccupied) were reported to have lower levels of ego-resiliency (Kobak & Sceery, 1988). In addition, students with a dismissing style of attachment were described as more hostile, while students with a preoccupied style of attachment were described as more anxious (Kobak & Sceery, 1988). Sroufe (2005), in reviewing a 30 year longitudinal study, commented on a variety of variables that had been assessed through questionnaire as well as observation, including the relationship between attachment, as measured through the strange situation procedure, emotional regulation, and ego-resiliency. Sroufe (2005) indicated that individuals with secure attachment were both rated and described as having an increased ability to regulate emotions and higher levels of

ego-resiliency than their peers with insecure forms of attachment. Further, Axford (2007), in a study of 280 undergraduate students, found a negative relationship between students with insecure forms of attachment, as measured by the Experiences in Close Relationships Inventory (ECR), and resilience. In considering the various forms of affect regulation, Axford (2007) noted that insecure attachment (e.g., anxious avoidance) had a positive relationship with emotion-oriented affect regulation. However, only avoidant attachment (e.g., anxious, avoidant) was found to have a negative relationship with task-oriented affect regulation. Finally, Caldwell and Shaver (2012), using a sample of 388 adults, explored the relationship between attachment, as measured by the ECR, emotional expression and regulation, and ego-resiliency. Caldwell and Shaver (2012) found that both forms of insecure attachment (e.g., anxiety, avoidance) were related to decreased mood repair (e.g., ineffective emotional regulation) and lower levels of ego-resiliency.

Attachment, resilience and emotional regulation, a subcomponent of self-regulation, have been utilized in research with adolescents and adults (Axford, 2007; Caldwell & Shaver, 2012; Kobak & Sceery, 1988; Sroufe, 2005). While, the results of these studies suggest some relationship exists between these factors, these variables were not highly correlated (Axford, 2007; Caldwell & Shaver, 2012; Kobak & Sceery, 1988; Sroufe, 2005). In addition, none of these studies focused on a freshman student's adjustment to college across multiple areas of demand in college life, nor utilized the broader concept of self-regulation. Further, most studies focused on comparing attachment and emotional regulation to ego resiliency, a



subcomponent of resilience. As such, a gap in the literature was noted. While attachment theory and modern attachment theory (Bowlby, 1988; Schore, 1994) identify secure parental attachment, resilience, and self-regulation as factors that are influential in the emergence of healthy adjustment; these factors have not been studied in relation to their combined impact on a freshman student's adjustment across multiple areas of demand in college. In addition, these variables have not been compared so as to identify which variable is the best predictor of a freshman student's adjustment across multiple areas of demand in college life.

### **Summary and Transition**

This chapter reviewed the major tenets of attachment theory and modern attachment theory in order to lay a theoretical foundation for the relationship between the level of secure parental attachment, capacity for self-regulation, level of resilience, and a freshman student's adjustment across multiple areas of demand in college life. Building upon this foundation, it can be hypothesized that the combination of these variables will be predictive of a more successful transition to college. A review of the literature revealed a number of quantitative studies that support elements of this hypothesis. While a couple of studies have explored an overall secure parental attachment, as measured through the PAQ total score, it has been in relation to a few elements of adjustment to college and not with regard to overall adaptation to college, which encompasses multiple areas of demand encountered in college (Hannum & Dvorak, 2004; Hinderlie & Kenny, 2002). Through a discussion of the literature, each of the independent variables for this

research has been linked to some aspects of college adjustment. Attachment theory and modern attachment theory view early caregiver interactions and experiences with the environment as playing a key role in the development of these variables. In addition, the literature provides some support for a relationship between these variables. However, none of the independent variables were found to be highly correlated with each other (e.g.,  $r = .9$  or greater) (Pallant, 2010). Further, the literature provides some support for each variable having a distinct impact on college adjustment. The relationship between these variables and their role in college adjustment was discussed. In addition, these variables (e.g., parental attachment, self-regulation, resilience) have not been studied together in relation to college adjustment. This study, in clarifying the relationship between attachment, self-regulation, and resilience and their combined ability to predict an undergraduate freshman's adjustment to college, as well as indicating which independent variable is the best predictor of freshman student's college adjustment, provides further support for attachment theory and modern attachment theory. In addition, such information provides beneficial information to colleges as they seek to achieve smoother transitions for incoming freshmen as well as provides mental health practitioners with new knowledge that is useful in targeting interventions efforts focused on enhancing college adjustment.

In Chapter 3, there is a detailed description of the quantitative research design used to study this gap in the literature.

## Chapter 3: Research Method

### **Introduction**

In light of the growing number of students enrolling in college and the range of difficulties that can be experienced in adjusting to college life (Aud et al., 2013; Bakar et al., 2010; Bennett, 2012; Blanco et al., 2008; Tao et al., 2000), there is value in research on a set of factors that, as a group, are more highly predictive of a freshman student's overall adjustment to the multiple areas of demand in college. The purpose of this quantitative study was to investigate the collective ability of the independent variables of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience to predict his or her overall adaptation to college, a dependent variable that encompasses multiple areas of demand in college: academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984), as well as explore which of these variables is the single best predictor of a freshman student's adaptation to college given these multiple areas of demand. Such a study fills a gap in the literature on the relative contribution of the level of secure parental attachment, the capacity to self-regulate, and a person's level of resilience to predict an undergraduate freshman's adaptation to the multiple areas of demand in college. The results from this study are expected to provide beneficial information on the full impact of these factors, rather than the impact of some of their subcomponents, providing colleges an increased understanding of these factors' individual and combined ability to predict a freshman student's adjustment across the multiple areas of demand and to help

colleges plan smoother transitions for freshmen. In addition, mental health practitioners could use this knowledge when developing interventions to enhance college adjustment.

This chapter provides a detailed explanation of the research design as well as the methodology which are used in this study. To accomplish this, a number of design and methodological elements are described. The population sought and the sampling procedures used are discussed, along with how individuals were recruited and how the data were collected. In addition, the instrumentation, research questions, and plan for data analysis are explained. Finally, any threats to validity are explored and ethical procedures to be implemented are described.

### **Research Design and Rationale**

This quantitative study used a survey design to investigate the collective ability of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience (i.e., independent variables) to predict his or her overall adaptation to college (i.e., dependent variable), which encompassed multiple areas of demand: academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984), as well as explored which of these variables was the single best predictor of a freshman student's adaptation to college given these multiple areas of demand. In addition, this study investigated the potential relationship of the independent variables (level of secure parental attachment, capacity to self-regulate, and level of resilience) to the subcomponents of an overall college adaptation (academic, personal/emotional, social, institutional

commitment). Students who engaged in this quantitative study needed to be 18–21-years old and enrolled in college as freshmen. Given the limited time available to complete this study, students from a single college in New Jersey were invited to participate. Once students provided their consent to participate in this research, they were asked to complete several questionnaires in a secure, online, web-based environment: PAQ, SSRQ, CD-RISC-R, SACQ, demographic questionnaire. The average student was estimated to need up to 30 minutes to complete the series of questionnaires.

As the purpose of this study was to investigate the collective ability of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience to predict his or her adaptation to college across the multiple areas of demand: academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984), as well as explore which of these variables is the single best predictor of a freshman student's adaptation to college given these multiple areas of demand; a quantitative approach was determined to be the most appropriate research method. While both a qualitative and a mixed method approach were considered, neither of these methods was selected. A qualitative approach, with its focus on identifying the meaning given to a personal or societal concern by the individuals participating in the research (Creswell, 2009), would not provide a method for investigating the relationship between the variables. Further, a mixed methods approach, with its use of multiple methods for research, would not provide the specific focus sought when investigating the relationship between the

variables (Creswell, 2009). Only a quantitative approach provided a method specifically focused on the correlational relationship between the variables (Creswell, 2009). A number of time and resource constraints associated with this study's quantitative survey design (e.g., limited financial resource, a single researcher, limited time available for data collection, distance from researcher to the sample population) contributed to the use of online surveys for data collection.

In this cross-sectional study, data was collected through the use of self-report questionnaires. This method of data collection is commonly used in social science research, and was chosen for the efficiency through which surveys collect data as well as for how quickly such data is able to be made available for analysis (Creswell, 2009). In order to determine the correlational relationships between the variables, a standard multiple regression analysis was used. Multiple regression is a statistical technique that is able to analyze the relationship between variables when more than one predictor variable is present (Gravetter & Wallnau, 2009). Although other statistical techniques were considered only a standard multiple regression provided the analysis needed for determining the interrelationship between the variables of this study.

## **Methodology**

### **Population**

Students that make up this convenience sample are full-time freshmen, who are 18–21 years of age and enrolled in an undergraduate program. All students are attending a university in New Jersey with an undergraduate student body of over

4,100 full and part-time students. With the freshmen class not entering college until August 2016, the university in New Jersey was only able to provide estimated information regarding the population from which the sample was drawn. As of June 2016, there were 914 full-time freshmen enrolled for the upcoming fall semester. No information was available on the number of part-time students who were attending during the fall semester. In the group of full-time freshmen enrolled, approximately 44% of the students were male and 56% the students were female. Although more exact information on the ethnic background of freshmen class was not available, the ratio was expected to mirror that of the last two years (e.g., 62% White, 12% Black, 12% Hispanic, 5% Asian, 9% Other) In addition, 83% of the freshmen enrolled have indicated that they intended to live on campus.

### **Sampling and Sampling Procedures**

A convenience sample was utilized for this quantitative study (Clark et al., 2014; Creswell, 2009; Emerson, 2015). Given the limits on time and resources available for this study, freshmen students, 18 -21 years of age, were invited to participate from a university within New Jersey. As this study focused on the transition and adjustment to college, students who were sophomores, juniors, and seniors were not eligible for the study.

In an effort to satisfactorily reduce the possibility of Type II error (e.g., failing to reject a null hypothesis, when an effect was present), a power analysis was conducted in order to determine the minimum number of students needed for this study. In order to have sufficient confidence that a significant difference exists in the

groups being compared, Pallant (2010) and Cohen (1992) recommend a power level of at least .80 (i.e., there is an 80% probability that a relationship between the variables will be detected if one exists), which is noted to be the level commonly used in social science research (Cohen, 1992). However, a power level can be impacted by the effect size, alpha level, and sample size (Pallant, 2010). Both Pallant (2010) and Cohen (1992) recommend that the alpha level be set to a minimum of .05 (i.e., a 95% confidence level in the statistical significance of the results). In addition, Cohen (1992) indicates that since 1977 a medium effect size has been considered an average and observable effect to a trained researcher. For a multiple regression analysis, Cohen (1992) notes that a small effect size equates to  $f^2 = .02$  and a medium effect size equates to  $f^2 = .15$ . In order to determine the sample size, the power level and alpha level were set to the levels of convention noted above (e.g., power level = .80, alpha level = .05) for a multiple regression analysis that uses three independent variables, for example, attachment, self-regulation, resilience (Cohen, 1992). In addition, using the convention noted above for effect size (Cohen, 1992), an effect size of approximately  $f^2 = .05$  was chosen for this study, so as to be able detect a small to medium effect by an independent variable. G\*Power (3.1.9.2), a power analysis statistical software, indicated that the minimum sample size for a multiple regression that uses three independent variables (e.g., attachment, self-regulation, resilience) with a power level = .80, an alpha level = .05, and an effect size of  $f^2 = .05$  is 159. As it was anticipated that some students would meet exclusion criteria (e.g., are not 18 -21 years of age, or are not enrolled as



freshmen) and the potential for missing data existed (e.g., surveys not fully completed), more than 159 freshmen were sought to participate in this study.

### **Procedures for Recruitment, Participation, and Data Collection**

**Recruitment.** Full-time freshmen, who were 18-21 years of age, were recruited from a university in New Jersey. The identification of individuals who participated in this study, along with their subsequent recruitment occurred through a representative of the university in New Jersey. In addition, the researcher had no involvement in the recruiting process and the researcher does not have an affiliation with the university in New Jersey where the sample was recruited. A letter (see Appendix A) which invited students to participate in the study and indicated the secure web site link/password (Survey Monkey) to be used for participation was provided to the university representative for distribution to potential participants. The invitation letter also provided potential participants with a brief description of the study, noting the inclusion and exclusion criteria for participation, indicating the anonymous nature of the secure on line data collection (Survey Monkey), as well as indicating that the participants' involvement in the study was voluntary. While the invitation letter was distributed by the university representative, the researcher's contact information was included in the invitation letter, so that any questions which arose regarding the research were able to be answered. If, after 2 weeks, the initial invitation letter had not yielded a sufficient sample of completed participants (e.g., 159), the invitation letter was e-mailed a second time, and then third time after another 2 weeks, if needed.

An informed consent form was provided to potential participants via a secure web based environment (Survey Monkey) prior to individuals participating in the study. The informed consent form provided a brief description of the informed consent process and of the study (i.e., the study's background information, procedures, and sample questions). In addition, the consent form indicated that participant's involvement in the study was voluntary, that withdrawal from the study was able to occur at any time, and that their decision in no way had a bearing on their academic coursework at the university. Further, although there was no physical risks or benefits associated with participation in the study, the Informed Consent form indicated that a minimal risk was present for emotional discomfort or distress. After reviewing the above information, participants indicated their understanding of the information and whether or not they were providing their consent to participate in the study by selecting either yes or no when prompted by Survey Monkey.

**Participation and data collection.** Students participating in the study were provided with a brief description of the study and the procedures while in Survey Monkey a secure web based environment. In addition, any ethical considerations were described and additional questions or concerns were addressed prior to seeking a student's consent on the informed consent form. The five questionnaires (e.g., demographic, CD-RISC-R, SSRQ, PAQ, SACQ) were provided to participants for completion as a uniquely numbered set through Survey Monkey to ensure anonymity. No identifying information was collected and the researcher was the

only person to have access to the questionnaire responses on Survey Monkey. The average student was estimated to need up to 30 minutes to complete the series of questionnaires. Following the completion of the surveys, students were provided with a debriefing description of the study (see Appendix B) in the secure web based environment as no further follow up sessions were planned. In addition, students were asked, as a part of the debriefing description in the secure internet environment, to contact the university counseling center or one of the other local counseling resources/24-hour hotlines listed on the debriefing form should they experience any emotional discomfort or distress following the participation in the study.

### **Instrumentation and Operationalization of Concepts**

**Demographic questionnaire.** The brief demographic questionnaire (see Appendix C) for this study inquired about the student's gender, age, ethnicity, matriculation status (e.g., full or part-time), year in college (e.g., freshmen – senior), and whether the student lives on or off campus.

**Connor Davidson – Resilience Scale – Revised (CD-RISC – R).** This revised questionnaire was developed by Campbell-Sills and Stein (2007). The CD-RISC-R (see Appendix H) is a 10 item instrument that uses a 5 point rating scale to determine item strength (Campbell-Sills & Stein, 2007). Each item is rated on a scale of 1 (*not true at all*) to 5 (*nearly all the time*) with all items combining for a total score (Campbell-Sills & Stein, 2007). Higher total scores are equated with higher levels of resilience (Campbell-Sills & Stein, 2007). The CD-RISC-R provides

statements for which the participant rates agreement to as a measure of the level of resilience, such as, “Able to adapt to change” and “Tend to bounce back after illness or hardship.” (Campbell-Sills & Stein, 2007). The CD-RISC-R was selected as an appropriate instrument for this study based on its psychometric properties and as a measure of resilience. The CD-RISC-R is not a copyrighted questionnaire, and permission has been granted to all researchers who are using the CD-RISC-R in noncommercial research (see Appendix D).

The initial CD-RISC was developed as a 5 factor 25 item measure of resilience (Connor & Davidson, 2003). This initial scale was developed from multiple groups of adults including individuals: living in the community, receiving outpatient primary care, receiving outpatient psychiatric services, diagnosed with general anxiety disorder, or diagnosed with post-traumatic stress disorder (Connor & Davidson, 2003). However, the CD-RISC-R was developed using a large sample of undergraduate students (Campbell-Sills & Stein, 2007). The sample of 1,743 undergraduate students who participated in the development of this revised survey had a mean age of 18.8 years (Campbell-Sills & Stein, 2007). The sample freshmen in the current study were of a similar age range (e.g., ages 18-21) to those sampled by Campbell-Sills and Stein (2007). The CD-RISC demonstrated good full scale score internal consistency (Cronbach’s alpha: .89) and good test-retest reliability, intraclass correlation: .87 (Connor & Davidson, 2003). Further, strong convergent validity was noted when compared to the Kobasa hardiness measure in the sample of psychiatric outpatients, Pearson  $r = .83$ ,  $p.0001$  (Connor & Davidson, 2003).

A later exploratory and confirmatory factor analysis with a large sample of undergraduate students indicated the need for revision and determined that a single factor model with only 10 items had the best fit to the data,  $\chi^2(35) = 176.10$ ,  $p < .001$ , determinacy = .93 (Campbell-Sills & Stein, 2007). This revised version of the CD-RISC was strongly correlated to the original 25 item questionnaire ( $r = .92$ ) as well as had a strong internal consistency, Cronbach's alpha: .85 (Campbell-Sills & Stein, 2007). Analysis of construct validity was performed using a subgroup to explore whether the CD-RISC-R would be a moderator for childhood maltreatment and psychiatric symptoms. Significant main effects were noted,  $R = 0.51$ ,  $R^2 = 0.26$ ,  $F(3,126) = 19.00$ ,  $p < 0.001$  (Campbell-Sills & Stein, 2007).

In addition, further support of the CD-RISC-R psychometric properties was provided through a confirmatory factor analysis completed by Gucciardi, Jackson, Coulter and Mallett (2012). Using a sample of adult and adolescent cricket players, Gucciardi et al. (2011) compared the CD-RISC-R with the original 25 item measure. The results of this study indicated that the CD-RISC-R was the more psychometrically sound instrument (Gucciardi et al., 2011).

**Short Self-Regulation Questionnaire (SSRQ).** This revised questionnaire was developed by Carey et al. (2004). The SSRQ (see Appendix I) is a 31 item instrument that uses a 5 point rating scale to determine item strength (Carey et al., 2004). Each item is rated on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*) with all items combining for a total score (Carey et al., 2004). Higher total scores are equated with a higher capacity to self-regulate. The SSRQ provides statements for which the

participant rates agreement to as a measure of the capacity to self-regulate, such as; “I have a hard time setting goals for myself” and “I easily get distracted from my plans.” (Carey et al., 2004). The SSRQ was selected as an appropriate instrument for this study based on its psychometric properties as well as being an efficient measure of the ability to self-regulate behavior. The SSRQ is not a copyrighted questionnaire, and permission has been granted to all researchers who are using the SSRQ in noncommercial research (see Appendix E).

The initial SRQ was developed as a 7 factor 63 item measure of self-regulation (Brown, Miller, & Lewandrowski, 1999). This initial scale demonstrated good full scale score internal consistency (Cronbach’s alpha: .91) and good test-retest reliability after 2 days,  $r(83) = .94$  (Brown et al., 1999). However, a later factor analysis with a sample of undergraduate students indicated the need for revision, with a single factor model best fitting the data,  $R^2 = .50$ , inc.  $R^2 = .04$ ,  $F(1,373) = 33.60$ ,  $p < .0001$  (Brown et al., 1999).

A large sample of undergraduate students (e.g., 371 students) was used to consider construct validity (Carey et al., 2004). The sample, of which 66% were freshmen, ranged in age from 18-24, with a mean age of 18.7 (Carey et al., 2004). The sample of freshmen in the current study was of a similar age range (e.g., ages 18-21) to those sampled by Carey (2004). A principle factor analysis revealed the need for revision of the SRQ (Carey et al., 2004). As none first of the seven extracted variables provided a solution (Eigen values of 11.4, 3.3, 1.9, 1.7, 1.3 1.2 and 1.0 respectively), and following a review of the scree plot, it was determined that a

single factor model with only 31 items was the best solution (Carey et al., 2004). The 31 items chosen for the SSRQ were noted to have a rotated first factor loading of at least .4 and were found to represent 43% of the variance (Carey et al., 2004). The SSRQ was strongly correlated to the original 63 item questionnaire ( $r = .96$ ) as well as had a strong internal consistency, Cronbach's alpha: .92 (Carey et al., 2004). In addition, SSRQ total scores were found to be consistent across such demographic variables as age, gender, ethnicity, class standing, residence, and involvement in a sorority/fraternity (Carey et al., 2004). Further, the factor structure for the SSRQ was able to be duplicated based on gender and semester of participation in the study (e.g., fall or spring) (Carey et al., 2004). Analysis of construct validity was performed by exploring whether the SSRQ would be a predictor of problems with alcohol use. SSRQ scores were noted to improve the model fit when added to gender and drinks per week as predictors of problems with alcohol use,  $R^2 = .50$  inc,  $R^2 = .04$ ,  $F(1,373) = 33.60$ ,  $p < .001$  (Carey et al., 2004). Similarly, SSRQ scores were noted to improve the model fit when added to social desirability, gender and transformed drinks per week as predictors of problems with alcohol use,  $R^2 = .52$  inc,  $R^2 = .04$ ,  $F(1,189) = 15.45$ ,  $p < .001$  (Carey et al., 2004). Carey et al. (2004) conclude that the results of this study support the reliability and the validity of the SSRQ.

**Parental Attachment Questionnaire (PAQ).** This questionnaire was developed by Kenny (1987). The PAQ (see Appendix J) is a 55 item instrument that uses a 5 point rating scale to determine item strength. Each item is rated on a scale of 1 (*not*

*at all*) to 5 (*very much*), with items divided into subscales of affective quality, promotion of autonomy, and emotional support as well as all items combine for a total score. Higher total scores are equated with higher levels of secure attachment. It is the PAQ total score that was used as a measure of secure parental attachment in this study. The PAQ consists of 55 items such as; “My parents were persons I look forward to seeing” and “My parents were persons who made me angry”. The PAQ was selected as an appropriate instrument for this study based on its psychometric properties as well as its use of elements measuring secure parental attachment that are consistent with Ainsworth’s et al. (1987) seminal work on attachment. The researcher has permission to use the PAQ in noncommercial research (see Appendix F).

The PAQ was developed from a sample of 173 college freshmen and demonstrated good internal consistency using the full scale for both paternal attachment (Cronbach’s alpha: .95) and maternal attachment, Cronbach’s alpha: .94 (Kenny, 1987). The sample in the current study will be similar (e.g., freshmen) to those sampled by Kenny (1987). In addition, a good test-retest reliability (correlation: .92) was reported during a two week period. Further, support for validity of the PAQ has been demonstrated through comparisons with the Moos Family Environment Scale (FES; Kenny & Donaldson, 1991). Through this comparison, significant correlations were noted between subscales of the PAQ and FES as follows: “PAQ Affective Quality of Attachment and FES Cohesion ( $r = .51, p < .001$ ); between PAQ Parental Role in Providing Emotional Support and FES



Cohesion ( $r = .45, p < .001$ ); and between PAQ Parental Fostering of Autonomy and FES Expressiveness ( $r = .33, p < .01$ ), FES Independence ( $r = .33, p < .01$ ), and FES Control ( $r = -.40, p < .01$ )” (Kenny & Donaldson, 1991, p. 481).

**Student Adaptation to College Questionnaire (SACQ).** This questionnaire was developed by Baker and Siryk (1984). The SACQ is a 67 item instrument that uses a 9 point rating scale to determine item strength. Each item is rated on a scale of 1 (*Does not apply to me at all*) to 9 (*Applies to me very closely*), with items divided into subscales of academic, personal/emotional, social and institutional commitment as well as all items combine for a total score. For the current study the SACQ total score was used as the dependent variable. Higher total scores are equated with higher levels of college adjustment. It is the SACQ total score that was used as a measure of college adjustment in this study. The SACQ was selected as an appropriate instrument for this study based on its psychometric properties as well as its use of multiple elements to measure college adjustment. The SACQ is a questionnaire that is available for purchase through Western Psychological Service and permission has been granted to use this questionnaire in an electronic format (see Appendix G).

The SACQ was developed from a sample of 734 college freshmen and demonstrated good internal consistency for the total score across six administrations, Cronbach’s alpha: .92-0.94 (Baker & Siryk, 1984). The sample in the current study was similar (e.g., freshmen) to those sampled by Baker and Siryk (1984). As a measure of validity the SACQ total score was compared to freshmen

college attrition, a common criterion of poor college adjustment, during both semesters over a three consecutive school year period (1977-1978, 1978-1979, 1979-1980). Through this comparison, significant negative correlations of the SACQ total score with freshmen student attrition were noted during both semesters each school year of the study: (a) first semester correlations by school year; 1977-1978,  $-.13, p < .05$ ; 1978-1979,  $-.33, p < .01$ ; 1979-1980  $-.18, p < .01$  (b) second semester correlations by school year; 1977-1978,  $-.23, p < .01$ ; 1978-1979,  $-.34, p < .01$ ; 1979-1980,  $-.36, p < .01$  (Baker & Siryk, 1984). Further, support for validity of the SACQ has been demonstrated through comparisons of the SACQ total score to a college student's GPA, a common criterion of college student success (Gold, Burrell, Haynes, & Nardecchia, 1990). Using a small sample of African American freshmen students, this comparison yielded a significant positive correlation ( $.46, p < .05$ ) between SACQ total score and freshmen students' GPA (Gold et al., 1990).

A number of independent variables (e.g., level of secure parental attachment, capacity for self-regulation, level of resilience) along with the dependent variable of a student's level of college adjustment have been included in this study. Each of these variables were measured through a self-report questionnaire. The level of secure parental attachment was measured through the PAQ. A student's capacity for self-regulation was measured by the SSRQ. A student's level of resilience was determined through the CD-RISC-R. Finally, the student's level of adaptation to college was measured through the SACQ. A further description of the operationalization of these variables can be found in Table 1.

Table 1

*Operationalization of Variables*

Variable (IV/DV)	Questionnaire	Scale used	Items involved	Data type
Level of secure parental attachment (IV)	PAQ	Total score	All items	Continuous
Capacity to self-regulate (IV)	SSRQ	Total score	All items	Continuous
Level of resilience (IV)	CD-RISC--R	Total score	All items	Continuous
Level of adjustment to college (DV)	SACQ	Total score	All items	Continuous

**Data Analysis Plan**

Each of these questionnaires (e.g., CD-RISC-R, Demographic, PAQ, SACQ, and SSRQ) was scored through Survey Monkey for analysis using IBM SPSS 23.0. Once the data was available for analysis in IBM SPSS 23.0, a process of data cleaning and screening was conducted. Initially, data for each variable was reviewed using IBM SPSS 23.0 to determine if any data points were outside of the range provided for that variable (Pallant, 2010). In addition, the data was reviewed to glean whether any missing cases were present, as well as normality was examined (Pallant, 2010).

Once the extent of outliers and missing cases had been determined as well as normality examined, decisions were made on how to handle such errors with regard to the study's analysis.

**Preliminary analyses.** Descriptive statistics was conducted using IBM SPSS 23.0, with frequencies for categorical data generated. In addition, through this analysis the mean and standard deviation for each of the continuous variables was generated. Several assumptions are made when conducting multiple regression analyses (Pallant, 2010). One assumption is that of the independent variables are not highly correlated (e.g., multicollinearity; Pallant, 2010). Using IBM SPSS 23.0, correlations between the independent variables were examined to ensure collinearity issues were not present by confirming that none of the independent variables were highly correlated (e.g.,  $r = 0.9$  or greater) with each other (Pallant, 2010). In addition, collinearity diagnostics were run to ensure the Tolerance and VIF (e.g., Variance Inflation Factor) were within acceptable ranges (Pallant, 2010). Finally, a standard multiple regression makes a number of assumptions regarding the distribution of scores and the relationship between the variables, for example, normality, linearity, homoscedascity, and independence of residuals (Pallant, 2010). IBM SPSS 23.0 was used to generate residual scatter plots to confirm these assumptions (Pallant, 2010). Similarly, several assumptions are made when conducting a bivariate correlation (Pallant, 2010). These assumptions involve the distribution of scores and the relationship between the variables, for example, normality, linearity, and homoscedascity (Pallant, 2010). IBM SPSS 23.0 was used to

generate residual scatter plots to confirm these assumptions (Pallant, 2010). Once all these multiple regression and bivariate correlation assumptions were tested (e.g., sample size, multicollinearity, normality, linearity, homoscedasticity, independence of residuals) and decisions were made regarding how to handle such concerns with assumption testing in regard to the study's analysis, analysis of the data proceeded. Further, Cronbach's Alpha was run with each of the questionnaires in order to confirm their reliability with this sample. Once normality, reliability, missing cases, and outliers were checked and decisions were made on how to handle such concerns with regard to the study's analysis, assumption testing proceeded.

**Main analyses.** As the purpose of this study was to investigate the collective ability of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience to predict his or her adaptation to college across the multiple areas of demand: academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984), as well as explore which of these variables is the single best predictor of a freshman student's adaptation to college; a standard multiple regression analysis was used. This form of statistical analysis makes several assumptions regarding the data which also needed to be confirmed. First, a standard multiple regression assumes the sample size was sufficient for the results to be able to be generalized to other samples (Pallant, 2010). To ensure a sufficient sample size was gathered, a power analysis was conducted in order to determine the minimum number of students needed for this study. In setting the power level,

alpha level, and the effect size to the levels of convention previously discussed (e.g., power level .80, alpha level .05, effect size at  $f^2 = .05$ ) for a multiple regression analysis, which uses three independent variables (e.g., attachment, self-regulation, resilience), G\*Power (3.1.9.2) indicates that a minimum sample of 159 individuals is required.

As this study also sought to investigate whether a relationship between any of the predictor variables (e.g., level of secure parental attachment, capacity for self-regulation, level of resilience) and the sub-components of college adaptation, for example, academic, personal/emotional, social, and institutional commitment (Baker & Siryk, 1984) existed, bivariate correlations were conducted (Pallant, 2010). This form of statistical analysis also makes several assumptions regarding the data which needed to be confirmed (Pallant, 2010). As bivariate correlations assume that all variables are continuous (Pallant, 2010), only continuous variables were included for these analyses. Additionally, a bivariate correlation assumes that the participant has provided a score for each pair of variables in the analysis (Pallant, 2010). To ensure that all variable scores are present, missing cases were examined during data cleaning. Finally, a bivariate correlation assumes that surveys completed by one participant are independent and not influenced by another participant (Pallant, 2010). To address this assumption, participants did not be complete the surveys in a group setting. The surveys were individually provided to each participant in a secure web based environment.

### **Research Questions and Hypotheses**

As the relative contribution of secure parental attachment, capacity for self-regulation, and level of resilience, as a group, has not been studied, particularly in the context of an undergraduate freshmen's overall adjustment to the multiple areas of demand in college, the following research question was investigated: What, if any, statistical relationship exists between the levels of secure parental attachment, self-regulation, and resilience and how is this relationship correlated with an undergraduate freshman student's adjustment to college?

**Research Question 1:**

Which is the best single predictor of an undergraduate freshman's *adjustment to college*: level of *secure parental attachment*, capacity for *self-regulation*, or level of *resilience*?

*H*<sub>10</sub>: *Secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score equally predict an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

*H*<sub>1a</sub>: One of the variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score is the single best predictor of an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

**Research Question 2:**

What are the relative contributions of each of the predictor variables (e.g., *secure parental attachment*, *self-regulation*, and *resilience*) in explaining an undergraduate freshman student's *overall adjustment to college*?

*H2<sub>0</sub>*: None of the variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score contribute to explaining the variance in an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

*H2<sub>a</sub>*: The variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score each make a contribution to the explanation of variance in an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

### **Research Question 3:**

Is there a bivariate relationship between any of the predictor variables (e.g., level of *secure parental attachment*, capacity for *self-regulation*, level of *resilience*) and the sub-components of *college adaptation* (e.g., *academic*, *personal/emotional*, *social*, *institutional commitment*)?

*H3<sub>0</sub>*: No bivariate relationship exists between the variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as



measured by CD-RISC-R total score and the sub-components of *overall college adaptation: academic adaptation* as measured by the SACQ academic score, *personal/emotional adaptation* as measured by the SACQ personal/emotional score, *social adaptation* as measured by the SACQ social score, and *institutional commitment* as measured by the SACQ institutional commitment score.

*H3<sub>a</sub>*: At least one of the predictor variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score has a relationship with at least one of the sub-components of *overall college adaptation: academic adaptation* as measured by the SACQ academic score, *personal/emotional adaptation* as measured by the SACQ personal/emotional score, *social adaptation* as measured by the SACQ social score, and *institutional commitment* as measured by the SACQ institutional commitment score.

In order to determine the answers to the first two research hypotheses regarding the variance that the independent variables explain, both collectively and individually, in college adjustment, a standard multiple regression analysis was used. Multiple regression is a statistical technique that is able to analyze the relationship between variables when more than one predictor variable is present (Gravetter & Wallnau, 2009). Although other statistical techniques were considered only multiple regression provided the analysis needed for determining the

relationship between the variables in this study. By using IBM SPSS 23.0 to complete the standard multiple regression analysis, the  $R^2$  value was calculated to indicate the total variance (Pallant, 2010) of freshmen college adjustment accounted for by the combination of the level secure parental attachment, the capacity for self-regulation, and the level of resilience. In addition, given the size of the sample used, the Adjusted  $R^2$  value was calculated to ensure the  $R^2$  value is not an overestimate of the true value (Pallant, 2010). To understand the contribution of each of the independent variables to the amount variance accounted for (Pallant, 2010) in a freshman student's adjustment to college, the Beta value was calculated. When considering the significance of the results obtained during the standard multiple regression analysis, the accepted probability value that the null hypotheses could be true was set to be no greater than .05 (Pallant, 2010). Finally, in order to determine the unique contribution to the variance explained in the freshman students' adjustment to college, the value of the partial correlation coefficient was calculated for each independent variable.

In order to determine the answer to the third research hypotheses regarding the relationship between the independent variables and subcomponents of college adjustment, a standard a bivariate correlation analysis was used. Correlation is a statistical technique that is able to indicate the presence, direction and strength of the relationship between variables (Pallant, 2010). Although other statistical techniques were considered only bivariate correlation provided the analysis needed for determining the relationship between the variables in this study. By using IBM

SPSS 23.0 to complete a Pearson Correlation, the  $r$  value was calculated to indicate the presence, strength, and direction of the relationship (Pallant, 2010) between each of the independent variables (e.g., the level secure parental attachment, the capacity for self-regulation, and the level of resilience) and the subcomponents of freshmen college adjustment (e.g., academic, personal/emotional, social, institutional commitment). When considering the significance of the results obtained during the bivariate correlation, the accepted probability value that the null hypotheses could be true was set to be no greater than .05 (Pallant, 2010).

### **Threats to Validity**

In conducting this study, a few potential threats to external, internal, construct and statistical conclusion validity were identified and measures were taken to avoid their presence within the study. External validity focuses on the generalizability of the findings (Creswell, 2009; Parker, 1993). How well the results of a study are able to be compared across people, environments, and times is based on the degree of external validity present (Creswell, 2009; Parker, 1993). As this study was a one-time sampling of participants through the use of questionnaires, a number of threats to external validity are minimized by this research design, for example, interactions of treatments with treatment, interactions of testing with treatment, and interaction of history with treatment (Creswell, 2009; Parker, 1993). Although the questionnaires are being administered in a secure web based environment through a computer of the student's own choosing (e.g., in a naturalistic environment), the convenience sample was being drawn from one

college rather than from multiple colleges (Creswell, 2009; Parker, 1993). As such, the possible threat of interaction of setting was increased (Creswell, 2009; Parker, 1993). In addition, as the participants in this study were volunteers, the potential that such individuals had unique characteristics that were not representational of the large population of college freshmen also needed to be considered (Creswell, 2009; Parker, 1993). In order to address the possibility of such threats to external validity, caution was taken when interpreting the results of this study and drawing broad conclusions regarding the population was avoided (Creswell, 2009; Parker, 1993). In addition, further research in this area was encouraged to ensure that any results found were able to be later compared to and potentially supported by such additional research (Creswell, 2009; Parker, 1993).

Internal validity focuses on controlling for other variables that, while considered less essential to the study, could impact the conclusions drawn regarding the findings (Creswell, 2009; Parker, 1993). As this study was a one-time sampling of participants through the use of questionnaires in a secure web based environment (e.g., with no contact to other participants) with no treatments being administered, a number of threats to internal validity were minimized as a result of the research design, for example, history, maturation, regression, mortality, diffusion of treatment, compensatory demoralization, compensatory rivalry, and testing (Creswell, 2009; Parker, 1993). Although participants volunteered for the study, there were no treatments involved in this study, so the threat to internal validity of selection was also avoided (Creswell, 2009; Parker, 1993).

Potential threats to construct validity and statistical conclusion validity for this study were considered as well. Construct validity is based on the clear definition and accurate measurement of the variables involved (Garcia-Perez, 2012). As such, care was taken to operationalize each variable and measure it using reliable and valid instruments (Garcia-Perez, 2012). Statistical conclusion validity is reliant on the use of a statistical methodology that has the potential to indicate the presence of a relationship between the independent and dependent variables (Garcia-Perez, 2012). To reduce the threats to statistical conclusion validity it is important to ensure that the power, significance, and effect size are such that the statistical analysis used is able to reveal the presence of a relationship between the independent and dependent variables (Garcia-Perez, 2012). In using a standard multiple regression to analyze the results of this study, the power level, alpha level, and the effect size were set to the appropriate levels of convention noted by Cohen (1992) (e.g., power level .80, alpha level .05, effect size  $f^2 = .05$ ).

### **Ethical Procedures**

For this investigation, a number of ethical procedures were employed to inform and protect individuals from any potential impacts of this research. First, the researcher adhered to Walden University's Institutional Review Board (IRB) standards and protocols. As conducting this study involved college freshmen, an agreement was obtained from the university in New Jersey where the sample of participants was drawn. In order to insure that this investigation met the necessary ethical standards for research, approvals were sought from both Walden

University's IRB (IRB#: 04-04-17-0225594) as well as the IRB of the university through which participants for this study were obtained.

To protect the voluntary nature of participation in the study, the freshmen were recruited through a letter and no incentives for participation in the study were offered. Further, the letter indicated that the student's decision in no way had a bearing on their academic coursework. To avoid research with a vulnerable population, only freshmen ages 18-21 years were recruited for this study.

Prior to participation in this study informed consent was sought from students. To insure students had the necessary information prior to deciding whether or not to provide their consent, a number of elements were explained on the consent form. A brief description of the study was provided. In order to facilitate the students' understanding of the research, the use of any technical language was avoided. In addition, the researcher was identified by name and as a doctoral student from Walden University. The voluntary and anonymous nature of participating in this research was highlighted, along with the potential risks and benefits of participating in the study. In addition, participants were made aware that voluntary withdrawal from the study was able to occur at any time, even once the participant had begun answering survey questions. When a participant withdrew after having started the surveys, this individual was accounted for in the initial sample but was identified in a count of people who withdrew prior to the completion of the surveys and was not included in the final sample. Contact information for the researcher as well as a representative from the university in

New Jersey was provided in case a student had further questions which need to be answered. Although participation in a study by answering self-report survey questions regarding the level of the secure parental attachment, self-regulation, resilience, and adjustment to college, does not present a physical risk or benefit to the students, there was a minimal risk that students could experience minor psychological distress (e.g. fatigue, stress, or emotional upset). Students were directed to contact the college counseling center should they experience any form of psychological distress. Data was collected from the surveys in a secure web based environment and did not include any information through which the participant could be identified. In addition, the data was stored in an electronic form, on password protected computer and a password protected flash drive. This confidential information will be retained for five years before being destroyed. The data collected will not be provided to anyone outside of the student's supervising faculty/staff or the university representative from the university in New Jersey where the sample was drawn; without either permission from the Walden University IRB or permission from the university in New Jersey's IRB.

### **Summary and Transition**

This chapter provided a detailed explanation of the quantitative cross sectional research design as well as the methodology which was used in this study. Given the purpose of the study and the nature of the variables used, a rationale is provided that supports the use of a quantitative research design. To clarify the sampling procedures used in this study, an overview of the statistical process used

to calculate the sample size was provided. This calculation indicated the minimum size of the sample needed in order to ensure that there could be a sufficient confidence in any significant difference that was detected between the groups. In addition, the process for sample recruitment was also described. To provide clarity the data collection process, the instrumentation for the four surveys was explained. In addition to a description of the surveys, the psychometric properties (e.g., validity, reliability) of each of the surveys was discussed. To support the statistical procedures used in the data analyses, a rationale was provided for these statistical procedures based on the research question that was posed. A detailed discussion on the plan for data analysis was also provided. Further, any threats to validity were identified and steps to minimize such threats were described. Finally, a detailed description of the ethical procedures used in this study were provided.

In Chapter 4, the data collected in the study is summarized and a statistical analysis of this information is provided.



## Chapter 4: Results

### Introduction

The purpose of this study was to investigate the collective ability of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience to predict his or her adaptation to college across the multiple areas of demand: academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984), as well as explore which of these variables is the single best predictor of a freshman student's adaptation to college given these multiple areas of demand. As the relative contribution of secure parental attachment, capacity for self-regulation, and level of resilience, as a group, had not been studied, particularly in the context of an undergraduate freshmen's overall adjustment to the multiple areas of demand in college, the following overarching research question was posed: What, if any, statistical relationship exists between the levels of secure parental attachment, self-regulation, and resilience and how is this relationship correlated with an undergraduate freshman student's adjustment to college? The study explored the following three specific research questions along with the hypotheses they generated.

### Research Questions and Hypotheses

#### Research Question 1:

Which is the best single predictor of an undergraduate freshman's *adjustment to college*: the level of *secure parental attachment*, capacity for *self-regulation*, or the level of *resilience*?

*H1<sub>0</sub>*: *Secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score equally predict an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

*H1<sub>a</sub>*: One of the variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score is the single best predictor of an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

### **Research Question 2:**

What is the relative contribution of each of the predictor variables (e.g., *secure parental attachment*, *self-regulation*, and *resilience*) in explaining an undergraduate freshman student's *overall adjustment to college*?

*H2<sub>0</sub>*: None of the variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score contribute to explaining the variance in an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

*H2<sub>a</sub>*: The variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score each

make a contribution to the explanation of variance in an undergraduate freshman's *overall adaptation to college* as measured by the SACQ total score.

**Research Question 3:**

Is there a bivariate relationship between any of the predictor variables (e.g., level of *secure parental attachment*, capacity for *self-regulation*, level of *resilience*) and the sub-components of *college adaptation* (e.g., *academic*, *personal/emotional*, *social*, *institutional commitment*)?

*H*<sub>0</sub>: No bivariate relationship exists between the variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score and the sub-components of *overall college adaptation*: *academic adaptation* as measured by the SACQ academic score, *personal/emotional adaptation* as measured by the SACQ personal/emotional score, *social adaptation* as measured by the SACQ social score, and *institutional commitment* as measured by the SACQ institutional commitment score.

*H*<sub>a</sub>: At least one of the predictor variables of *secure parental attachment* as measured by the PAQ total score, capacity for *self-regulation* as measured by the SSRQ total score, and level of *resilience* as measured by CD-RISC-R total score has a relationship with at least one of the sub-components of *overall college adaptation*: *academic adaptation* as

measured by the SACQ academic score, *personal/emotional adaptation* as measured by the SACQ personal/emotional score, *social adaptation* as measured by the SACQ social score, and *institutional commitment* as measured by the SACQ institutional commitment score.

This chapter provides a description of the data collection procedures implemented, such as the time frames for data collection as well as participant recruitment and the frequency of participants completing all questionnaires. In addition, any discrepancies from the data collection procedures detailed in Chapter 3 is discussed as well as a description of the sample and its comparability to the larger population of freshmen students at the university. Finally, the results of the data analyses are provided. The descriptive statistics and the statistical assumptions for the data analyses procedures are explored. Further the results from the statistical procedures are provided, along with any post hoc analyses that were conducted.

### **Data Collection**

Data collection occurred across a six-week period, from April 5<sup>th</sup>, 2017 until May 17<sup>th</sup>, 2017 with the last participant responding on May 12<sup>th</sup>, 2017. During this time period 104 respondents opened the web link to Survey Monkey, which housed the five questionnaires for the study. However, only 68 participants fully completed all of the questionnaires (demographic, CD-RISC-R, SSRQ, PAQ, SACQ). One participant, after opening the web link, declined to consent to the study and was exited from the survey. The other 35 individuals, while consenting to the study,

failed to complete all five questionnaires. As such, these individuals were screened out from the sample group. As the sample that was obtained was less than the initial sample sought of 159 participants, it was necessary to confer with the other dissertation committee members to determine the need for additional data collection. In order to obtain a roughly comparable set of participants to the current sample, the completion of the study would need to be delayed one year, so that freshmen completing the questionnaires would have reached the same general level of exposure to the university and college life as those who recently completed the questionnaires. As such, a decision was reached to end data collection. Although no additional data was obtained during this period, the web link was left open until June 22<sup>nd</sup>, 2017, when the decision was reached to end data collection.

Students that made up this convenience sample were full-time freshmen, who were 18 – 21 years of age and enrolled in an undergraduate program. All students were attending a university in New Jersey with an undergraduate student body of over 4,100 full and part-time students. As of June 2016, there were 914 full-time freshmen enrolled for the fall semester. In this group of full-time freshmen enrolled, approximately 44% of the students were male and 56% of the students were female. Although more exact information on the ethnic background of freshmen class was not available, the ratio was expected to mirror that of the previous two years (e.g., 62% White, 12% Black, 12% Hispanic, 5% Asian, 9% Other) In addition, 83% of the freshmen enrolled had indicated that they intended to live on campus.

## Results

### Descriptive statistics

Characteristics of the sample are displayed in Table 2. In the group of 68 full-time freshmen included in the sample, 38% were men ( $n = 26$ ) and 62% were women ( $n = 42$ ). In addition, the ethnic makeup of this sample was also similar to that reported at the university. The sample consisted of 41 students who were White (60%), 6 students who were Black (9%), 5 students who were Asian (7%), and 8 students who were Hispanic/Latino (12%). The other 8 students (12%) did not identify themselves with any of these ethnic groups. Further, 68% of students ( $n = 46$ ) in the sample indicated that they lived on campus. While 28% of the students reported living off campus with their parents, 4% of the students noted living off campus but not with their parents. Although the sample of students ranged in age from 18 -21 years old, the mean age of students in this sample was 18.65 years ( $SD = .66$ ). As such, this sample is representative of the larger population of full-time freshmen.

Table 2

*Characteristics of Sample (N = 68)*

Characteristic	<i>n</i>	%
Gender		
Male	26	38.2
Female	42	61.8
Ethnicity		
White	41	60.3
Black	6	8.8
Asian	5	7.4
Hispanic/Latino	8	11.8
Other	8	11.8
Housing		
On campus	46	67.6
Off campus with parents	19	27.9
Off campus without parents	3	4.4

In addition to the variable of freshmen student age, Table 3 provides the means and standard deviations for the variables used in this study. Baker and Siryk (1999), in standardizing the SACQ, combined data from eight sample groups that consisted of a total of 1,424 freshmen who attended Clark University between the years of 1980 – 1984. The mean of the current sample ( $M = 400.53$ ) was slight below the range of means ( $M = 404.70 - 441.80$ ) obtained by Baker and Siryk (1999), although the standard deviation of the current sample exceeded that of the range in the original norm sample ( $SD = 55.80 - 75.80$ ). In addition, each of the subscale means for the SACQ in the current sample were either within or slightly below that of the original norm group, while the standard deviation for each of the subscales of the SACQ in the current sample exceeded the range of standard

deviations provided by the original norm group (Baker & Siryk, 1999). The current sample academic subscale mean ( $M = 147.09$ ) was within the range of means obtained in the original norm group ( $M = 137.80 - 153.10$ ), while the current sample academic subscale standard deviation ( $SD = 31.18$ ) exceeded the range of standard deviations ( $23.80 - 29.90$ ) obtained in the original norm group (Baker & Siryk, 1999). The current sample social subscale mean ( $M = 118.35$ ) was slightly below the range of means obtained in the original norm group ( $M = 121.30 - 133.80$ ), while the current sample social subscale standard deviation ( $SD = 34.48$ ) exceeded the range of standard deviations ( $20.70 - 26.70$ ) obtained in the original norm group (Baker & Siryk, 1999). The current sample personal/emotional subscale mean ( $M = 79.66$ ) was slightly below the range of means obtained in the original norm group ( $M = 84.90 - 96.00$ ), while the current sample personal/emotional subscale standard deviation ( $SD = 27.71$ ) exceeded the range of standard deviations ( $17.80 - 21.60$ ) obtained in the original norm group (Baker & Siryk, 1999). The current sample institutional subscale mean ( $M = 96.57$ ) was slightly below the range of means obtained in the original norm group ( $M = 98.50 - 108.80$ ), while the current sample institutional subscale standard deviation ( $SD = 27.49$ ) exceeded the range of standard deviations ( $18.10 - 21.90$ ) obtained in the original norm group (Baker & Siryk, 1999).

In revising the CD-RISC to a ten item questionnaire, Campbell-Sills and Stein (2007) used a sample of 1,622 undergraduate students. The current study sample mean for the CD-RISC-R total score ( $M = 35.37$ ) as well as the standard deviation



( $SD = 7.09$ ) were above that obtain in the original study ( $M = 27.21$ ,  $SD = 5.84$ ) by Campbell-Sills and Stein (2007). In developing the revised questionnaire SSRQ, Carey et al. (2004) used two samples of undergraduate students (Fall semester  $N = 208$ , Spring semester  $N = 183$ ). The current study sample mean for the SSRQ total score ( $M = 110.01$ ) is slightly below that of the original study (Fall  $M = 113.70$ , Spring  $M = 119.80$ ), while the standard deviation ( $SD = 17.78$ ) exceeds those obtained in the original study (Fall  $SD = 15.10$ , Spring  $SD = 14.30$ ) by Campbell-Sills and Stein (2007). In conducting a study with the PAQ on attachment, Hannum and Dvorak (2004) used a sample of 95 freshmen students. The current study sample mean for the PAQ total score ( $M = 198.53$ ) is slightly below that of the Hannum and Dvorak (2004) study's means for attachment to mother and father (Mother  $M = 208.55$ , Father  $M = 201.68$ ), while the standard deviation ( $SD = 36.98$ ) exceeds those obtained in the study (Mother  $SD = 31.04$ , Father  $SD = 31.69$ ) by Hannum and Dvorak (2004). Further statistical analyses of the variables will be provide following a preliminary analysis of statistical assumptions.

Table 3

*Means and Standard Deviations of Variables (N = 68)*

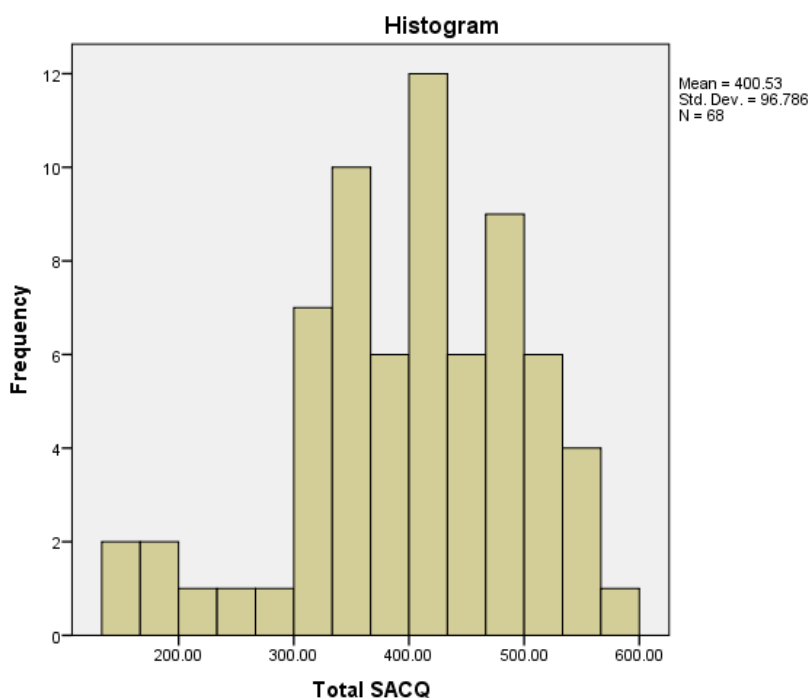
Questionnaire/ Subscale	<i>M</i>	<i>SD</i>
Age	18.65	.66
CD-RISC-R total	35.37	7.09
SSRQ total	110.01	17.78
PAQ total	198.53	36.98
SACQ total	400.53	96.79
SACQ academic total	147.09	31.18
SACQ social total	118.35	34.48
SACQ pers/emot total	79.66	27.71
SACQ institutional total	96.57	27.49

### **Assumptions**

Prior to conducting a multiple regression analysis, a number of statistical assumptions needed to be confirmed. First, a standard multiple regression assumes that the sample size will be sufficient for the results to be able to be generalized to other samples (Pallant, 2010). To ensure a sufficient sample size would be gathered, a power analysis was conducted in order to determine the minimum number of students needed for this study. In setting the power level, alpha level, and the effect size to the levels of convention previously discussed (e.g., power level .80, alpha level .05, effect size of  $f^2 = .05$ ) for a multiple regression analysis, which uses three independent variables (e.g., attachment, self-regulation, resilience), G\*Power 3.1.9.2, a power analysis statistical software, indicates that a minimum sample of 159 individuals is required. However, in acquiring a sample size that was roughly half of the original sample size it was necessary to change the alpha level to .10 when

analyzing predictor effect. In doing so, the effect size of  $f^2 = .05$  continued to be statistically significant.

Additionally, these assumptions included checking for normality, multicollinearity, linearity, homoscedascity, and independence of residuals (Pallant, 2010). The dependent variable (e.g., SACQ total) was assessed to determine if normality was present. A Kolmogorov Smirnov value of .079,  $p = .20$  was obtained, which indicates the presence of a normal distribution of scores (Pallant, 2010). In addition, the general normality of this distribution can also be noted in Figure 1.



*Figure 1.* Frequency distribution of scores for the SACQ total.

In order to check that the independent variables did have some relationship with the dependent variable and that the independent variables did not have a

strong relationship with each other, a series of Pearson correlations were conducted between the independent variables as well as with the dependent variable (Pallant, 2010). Pallant (2010) notes that independent variables that have a strong relationship with each other can become a concern if the correlation is above  $r=.7$ , but it is particularly concerning when the correlation is above  $r=.9$ . As can be seen in Table 4, each of the independent variables had a relationship to the dependent variable that reached the level of .3 or above, which is noted by Pallant (2010) to be the preferable minimum level of correlation between the variables. In assessing for multicollinearity, the correlation between the independent variables, with the exception of the correlation between the CD-RISC-R and the SSRQ ( $r=.709$ ), did not reach a correlation of above .7 (see Table 4). While the correlation between the CD-RISC-R and the SSRQ ( $r=.709$ ) did reach a level that could indicate multicollinearity was present (Pallant, 2010), the Tolerance and VIF values did not meet the criteria noted by Pallant (2010) for the presence of multicollinearity (see Table 5). For multicollinearity to be present the Tolerance value would need to be less than .10 and the VIF value would need to be above 10 (Pallant, 2010).

Table 4

*Pearson Correlation Between the Independent and Dependent Variables*

	SACQ total	CD-RISC-R total	SSRQ total	PAQ total
SACQ total	1.000			
CD-RISC-R total	.655	1.000		
SSRQ total	.717	.709	1.000	
PAQ total	.415	.326	.348	1.000

Table 5

*Collinearity Statistics for Independent Variables*

	Tolerance	VIF
CD-RISC-R total	.490	2.041
SSRQ total	.482	2.076
PAQ total	.866	1.154

Finally, as a standard multiple regression makes a number of assumptions regarding the distribution of scores and the relationship between the variables (e.g., normality, linearity, homoscedasticity, independence of residuals) (Pallant, 2010), an exploration of the plot of regression of the standardized residual (Figure 2) along with the scatterplot for the regression of the standardized residual (Figure 3) were also used to check these assumptions (Pallant, 2010). Figure 2 displays a generally straight-line pattern of residuals that is consistent with the expected pattern of residuals and demonstrates little variance from the expected pattern. Figure 3 displays a pattern of residuals that have the majority of residuals between -1 and 1. In addition, the concentration of residuals are in a roughly rectangular shape around the central point of the graph, with no curvilinear shape or concentration that is focused more highly on one side of the central point or the other. While there are some residual points located outside of this concentration, none of these residual points exceed -3 or 3. These patterns of residuals support the assumptions of normality, linearity, homoscedasticity, independence of residuals (Pallant, 2010). In further exploring the presence of outliers, the Mahalanobis distance was calculated.

In order for outliers to be present, a residual score would need to exceed the critical value of 16.27 (Pallant, 2010). The maximum Mahalanobis distance calculated was 16.04, below the critical value for an outlier.

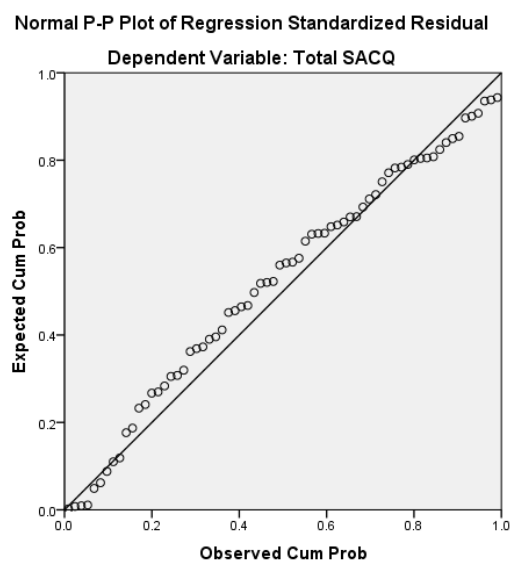


Figure 2. Plot of regression of the standardized residual

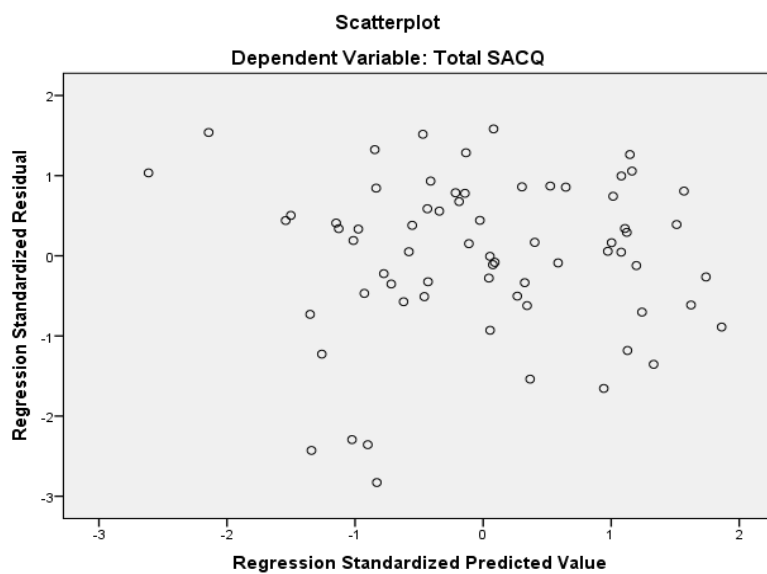


Figure 3. Regression of the standardized residual scatterplot

In order to check the reliability of the questionnaires for this particular sample, a Cronbach's alpha was calculated (see Table 6). Pallant (2010) indicates that reliability for questionnaires should be at .7 or above. All of the questionnaires with this sample generated reliability scores that exceeded this level of reliability.

Table 6

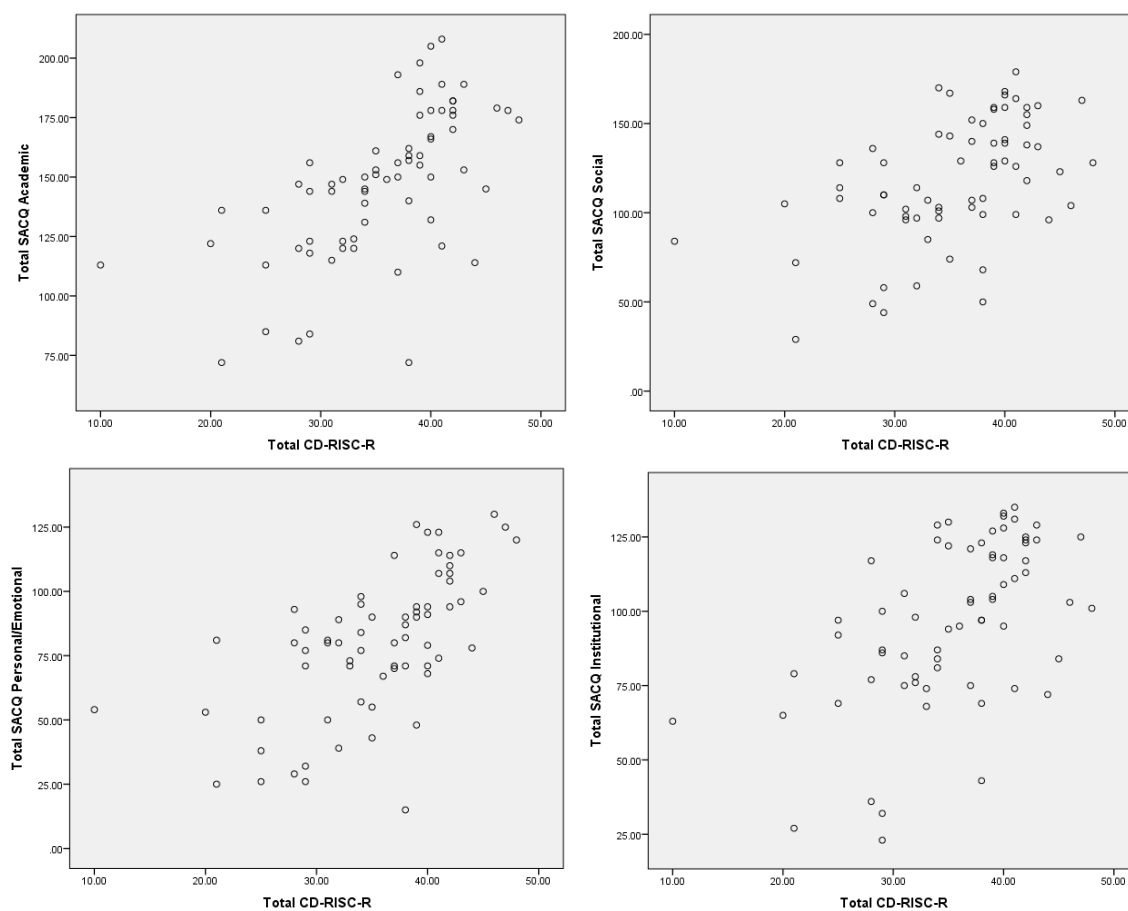
*Reliability of Questionnaires with Sample*

	<i>N</i> of items	Cronbach's alpha
CD-RISC-R total	10	.89
SSRQ total	31	.93
PAQ total	55	.96
SACQ total	67	.97

When conducting a bivariate correlation, the assumptions to explore involve the distribution of scores and the relationship between the variables (e.g., normality, linearity, homoscedascity) (Pallant, 2010). To assess these assumptions, a scatterplot was generated between each independent variables (e.g., CD-RISC-R, SSRQ, PAQ) and the four subscales of the SACQ (e.g. academic, social, personal/emotional, institutional).

The scatterplots in Figure 4 provide a display of the relationship between the total scores on the CD-RISC-R and those of the subscales of the SACQ. The scatterplot patterns for the institutional and social subscales are more diffuse, suggesting a weak relationship between the variables (Pallant, 2010). However, the scatterplot patterns for the personal/emotional and academic scales are more condensed and are roughly in an elongated pattern, suggesting a stronger

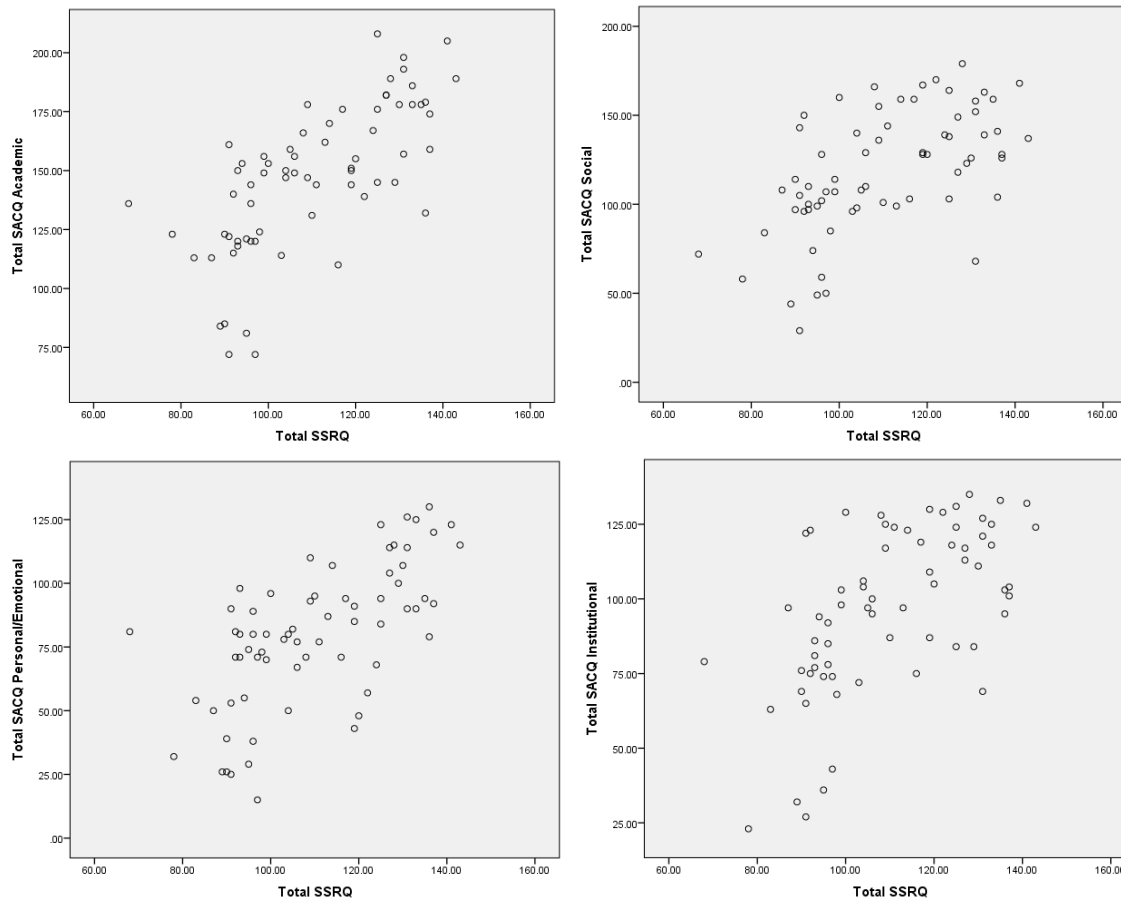
relationship (Pallant, 2010). None of the scatterplot patterns present with a curvilinear pattern and as such do not appear to violate the assumption of linearity (Pallant, 2010). In addition, each of the scatterplots display a pattern that is generally consistent with homoscedasticity. In doing so, none of the scatterplots begin at a narrow point that widens out (Pallant, 2010).



*Figure 4.* Scatterplots between CD-RISC-R and the subscales of the SACQ

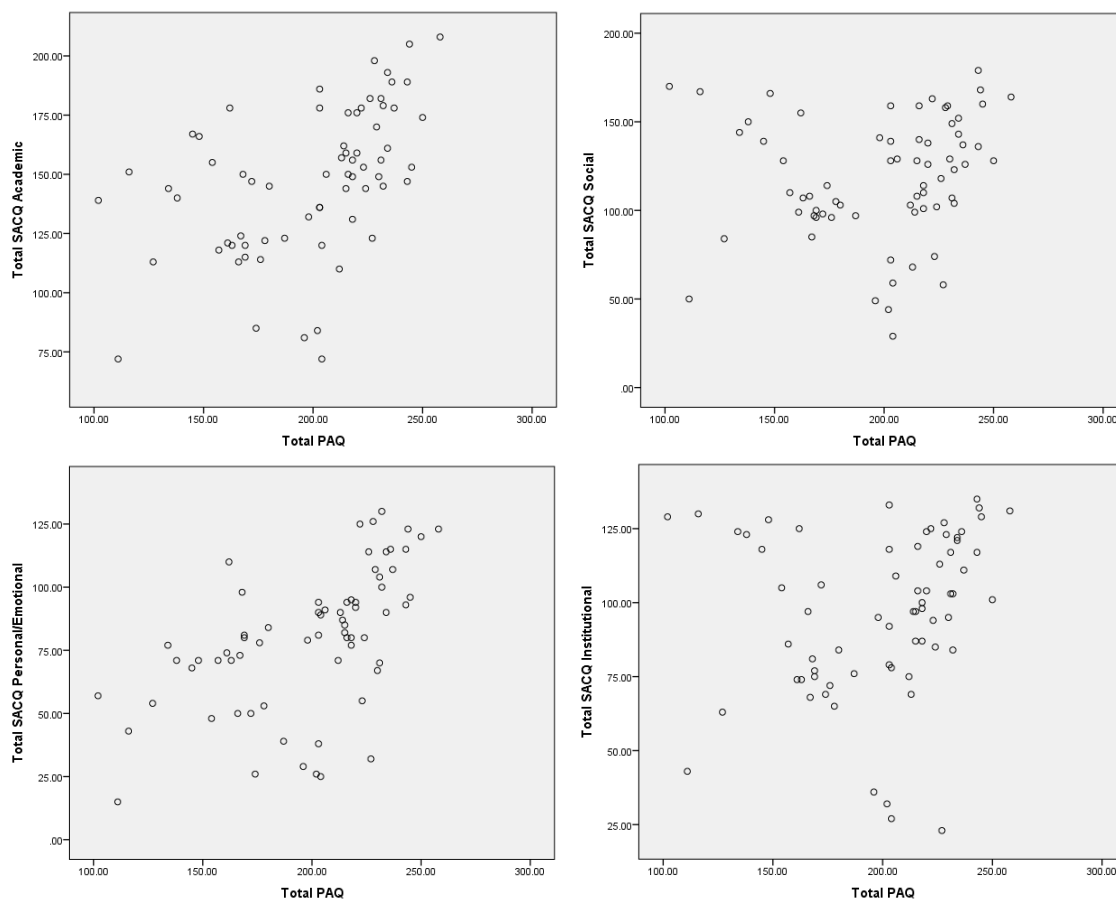


The scatterplots in Figure 5 display the relationship between the total scores on the SSRQ and those of the subscales of the SACQ. The scatterplot patterns for the social and institutional subscales are more diffuse, suggesting a weak relationship between the variables (Pallant, 2010). However, the scatterplot pattern for the academic and personal/emotional subscales is more condensed and in a roughly elongated pattern, suggesting an increased relationship is present (Pallant, 2010). None of the scatterplots present with a curvilinear pattern and as such do not appear to violate the assumption of linearity (Pallant, 2010). Additionally, each of the scatterplots display a pattern that is generally consistent with homoscedasticity. In doing so, none of the scatterplots begin at a narrow point that widens out (Pallant, 2010).



*Figure 5.* Scatterplots between SSRQ and the subscales of the SACQ

The scatterplots in Figure 6 display the relationship between the total scores on the PAQ and those of the subscales of the SACQ. The all of the scatterplot patterns are more diffuse, suggesting a weak relationship between the variables (Pallant, 2010). None of the scatterplots present with a curvilinear pattern and as such do not appear to violate the assumption of linearity (Pallant, 2010). Additionally, each of the scatterplots displays a pattern that is generally consistent with homoscedasticity. In doing so, none of the scatterplots begin at a narrow point that widens out (Pallant, 2010).



*Figure 6.* Scatterplots between PAQ and the subscales of the SACQ

## Main analyses

**Research questions 1 and 2:** In order to investigate which variable (e.g., a freshman student's level of secure parental attachment, capacity to self-regulate, or level of resilience) is the single best predictor of his or her adaptation to college

across the multiple areas of demand: academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984), as well as explore the relative contribution of each of the variables to a freshman student's adaptation to college; a standard multiple regression analysis was conducted. As was indicated in Table 4, each of the independent variables had a positive correlation with each other. The correlation for parental attachment and self-regulation was  $r = .348$  (one-tailed),  $p = .002$ , for parental attachment and resilience was  $r = .326$  (one-tailed),  $p = .003$ , and for self-regulation and resilience was  $r = .709$  (one-tailed),  $p < .001$ . The regression analysis results indicated that the variables of the level of secure parental attachment, capacity to self-regulate, and level of resilience were significantly predictive a freshman student's adaptation to college. The multiple regression analysis results note that approximately 58% of the variance in the adaptation to college is accounted for by the combination of secure parental attachment, self-regulation, and resilience; Model 1  $R = .762$ ,  $R^2 = .581$ ,  $\Delta R^2 = .562$ ,  $F(3,64) = 29.61$ ,  $p < .001$ ,  $SE$  of estimate = 64.083. However, given the smaller sample size, the adjusted  $R$  square value is likely to more accurately represent the degree of variance (e.g., 56%) accounted for by the combination of the variables (Pallant, 2010). In order to determine the relationship between each of the independent variables and the dependent variable, the Beta coefficient was used (Pallant, 2010). While the relationship between the level of secure parental attachment ( $\beta = .164$ ,  $p = .063$ ) and the level of adaptation to college was not significant, both the capacity for self-regulation ( $\beta = .470$ ,  $p < .001$ ) and the level of resilience ( $\beta = .269$ ,  $p = .023$ ) were

noted to have a significant relationship with a freshman student's level of adaptation to college. Both the capacity for self-regulation and the level of resilience had a significant positive relationship with the level of adaptation to college (See Table 7).

Table 7

*Multiple Regression Coefficients Between the Independent and Dependent Variables*

Model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	<i>p</i>
	<i>B</i>	<i>SE</i>	Beta		
CD-RISC-R total	3.666	1.577	.269 *	2.325	.023
SSRQ total	2.556	.634	.470 ***	4.029	.000
PAQ total	.430	.227	.164	1.891	.063

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

**Research question 3:** In order to investigate whether there is a bivariate relationship between any of the predictor variables (e.g., level of secure parental attachment, capacity for self-regulation, level of resilience) and the sub-components of college adaptation (e.g., academic, personal/emotional, social, institutional commitment), a series of Pearson correlations were conducted (Pallant, 2010). These analyses revealed (See Table 8) that resilience had a significant large positive relationship with the subcomponent academic adaptation ( $r = .616, p < .001$ ), social adaptation ( $r = .509, p < .001$ ), personal/emotional adaptation ( $r = .623, p < .001$ ), institutional commitment ( $r = .552, p < .001$ ) (Pallant, 2010). Similarly, self-regulation had a significant large positive relationship (Pallant, 2010) with the subcomponent academic adaptation ( $r = .703, p < .001$ ), social adaptation ( $r = .580, p < .001$ ), personal/emotional adaptation ( $r = .653, p < .001$ ), institutional

commitment ( $r = .596, p < .001$ ). While secure parental attachment was noted to have a significant large positive relationship with personal/emotional adaptation ( $r = .488, p < .001$ ) and a significant medium positive relationship with academic adaptation ( $r = .562, p < .001$ ); no significant relationship was detected for the subcomponents of social adaptation ( $r = .131, p = .287$ ) and institutional commitment ( $r = .189, p = .124$ ).

Table 8

*Pearson Correlation with Predictor Variables and Adaptation Subcomponents (N = 68)*

		Academic total	Social total	Personal/ emotional total	Institutional total
CD-RISC-R total	Pearson $r$	.616***	.509***	.623***	.552***
	$p$ (2-tailed)	.000	.000	.000	.000
SSRQ total	Pearson $r$	.703***	.580***	.653***	.596***
	$p$ (2-tailed)	.000	.000	.000	.000
PAQ total	Pearson $r$	.488***	.131	.562***	.189
	$p$ (2-tailed)	.000	.287	.000	.124

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (2-tailed)

### Summary and Transition

This study consisted of 68 full-time undergraduate freshmen who completed a demographic questionnaire, along with the CD-RISC-R, SSRQ, PAQ, and SACQ. In order to investigate which variable (e.g., a freshman student's level of secure parental attachment, capacity to self-regulate, or level of resilience) was the single best predictor of his or her adaptation to college across the multiple areas of demand: academic, personal/emotional, social and institutional commitment (Baker

& Siryk, 1984), as well as explore the relative contribution of each of the variables to a freshman student's adaptation to college; a standard multiple regression analysis was conducted. A multiple regression model indicated that the combination of secure parental attachment, self-regulation, and resilience significantly predicted adaptation to college. In addition, resilience and self-regulation had a significant positive relationship with overall adaptation to college. Further, to investigate whether there was a relationship between any of the predictor variables and the sub-components of college adaptation (e.g., academic, personal/emotional, social, institutional commitment), a series of Pearson correlations were conducted. These analyses revealed that resilience and self-regulation had a significant large positive relationship with each of the four subcomponents to college adaptation. Further, secure parental attachment was noted to have a significant large positive relationship with personal/emotional adaptation and a significant medium positive relationship with academic adaptation.

In Chapter 5, these results are interpreted through the lens of the theoretical framework. In addition, the findings are compared to the existing research literature and the limitations of this current study are discussed. Finally, the potential impact that these findings could have for positive social change are considered and recommendations for further research are provided.

## Chapter 5: Discussion, Conclusions, and Recommendations

### Introduction

The purpose of this study was to investigate the collective ability of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience to predict his or her overall adaptation to college across multiple areas of demand: academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984). Despite the variety of factors that have been explored, no one factor or set of factors was highly predictive of a freshman student's ability to successfully adapt to the multiple demands confronted in college (Allan et al., 2014; Banyard & Cantor, 2004; Fike & Fike, 2008; Hinderlie & Kenny, 2002; Lapsley & Edgerton, 2002; Mattanah et al., 2004; Mooney et al., 1991; Park et al., 2012; Schmidt & Welsh, 2010; Tao et al., 2000; Vaez & LaFlamme, 2008). However, even with the variety of research into multiple factors associated with college adaptation (Allan et al., 2014; Banyard & Cantor, 2004; Fike & Fike, 2008; Hinderlie & Kenny, 2002; Lapsley & Edgerton, 2002; Mattanah et al., 2004; Mooney et al., 1991; Park et al., 2012; Schmidt & Welsh, 2010; Tao et al., 2000; Vaez & LaFlamme, 2008), approximately 40% of full-time students at 4-year institutions fail to complete their degree within 6 years and roughly 70% of students at 2-year colleges failed to complete their degree within 3 years (Aud et al., 2013). Further, suicide is the second leading cause of death among college students over 19 years of age and the third leading cause of death for those students 19 years old and younger (Heron, 2013). This quantitative study was undertaken because the relative



contribution of secure parental attachment, capacity for self-regulation, and level of resilience, as a group, had not been studied, particularly in the context of an freshmen's overall adjustment to the multiple areas of demand in college, .

In this chapter, the results presented in Chapter 4 are interpreted through the theoretical framework of attachment theory. In addition, the findings are compared to the existing research literature and the limitations of this current study are discussed. Finally, the potential impact of these findings on positive social change are considered and recommendations for further research are provided.

In order to investigate which variable (e.g., a freshman student's level of secure parental attachment, capacity to self-regulate, or level of resilience) was the single best predictor of his or her overall adaptation to college (Research Question 1) across the multiple areas of demand as well as to explore the relative contribution that each of the variables made to a freshman student's adaptation to college (Research Question 2), a standard multiple regression analysis was conducted. The results of the multiple regression analysis note that approximately 58% of the variance in the overall adaptation to college is accounted for by the combination of a freshmen student's secure parental attachment, self-regulation, and resilience. In addition, both the capacity for self-regulation and the level of a freshmen student's resilience were significant predictors of a student's overall adaptation to college. Further, of the group of variables studied, self-regulation was the single best predictor of a freshman student's overall adaptation to college.

In order to investigate whether there was a bivariate relationship (Research Question 3) between any of the predictor variables and the subcomponents of college adaptation, a series of Pearson correlations were conducted (Pallant, 2010). These analyses revealed that both self-regulation and resilience had a significant large positive relationship with each of the subcomponents of college adaptation. While secure parental attachment was noted to have a significant large positive relationship with personal/emotional adaptation and a significant medium positive relationship with academic adaptation.

### **Interpretation of the Findings**

#### **Research Literature**

Although the literature has separately investigated the relationship between each of the variables and various aspects of college adjustment (Allan et al., 2014; DeRosier et al., 2013; Duru et al., 2014; Frey et al., 2006; Hannum & Dvorak, 2004; Hardley, 2011; Hinderlie & Kenny, 2002; Khademi & Aghdam, 2013; Mattanah et al., 2011), the collective ability of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience to predict his or her adaptation to college across the multiple areas of demand: academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984) had not been explored. This study extends such research, as it presents a model which explains approximately 58% of the variance in a freshmen students' overall adaptation to college. Further, this study indicates that both the level of a freshman student's resilience and capacity for self-regulation are significant predictors of

overall college adaptation. Attachment theory and modern attachment theory posit that attachment, self-regulation, and resilience are key factors that promote healthy adjustment (Bowlby, 1969/1982, 1973, 1980, 1988; Schore & Schore, 2008, 2014). The model in this study, which demonstrates the role that these factors have in explaining the variance in the overall adaptation of freshmen students to college, lends support to this theoretical framework.

Although in this study, secure parental attachment was not found to be a significant predictor of overall college adaptation across the multiple areas of demand, the relationship between parental attachment and college adjustment has been previously investigated with varying results, particularly related to moderating variables (e.g., parental gender, ethnicity, nationality, student gender, year in school) (Hannum & Dvorak, 2004; Hardley, 2011; Hinderlie & Kenny, 2002; Yazedjian, 2009). Mattanah et al. (2011) conducted a meta-analysis to clarify the diverse findings in the literature related to the relationship between parental attachment and college adjustment. The sample included 156 studies ( $N = 32,969$ ) from 1987 through 2009 that utilized self-report measures of parental attachment and college adjustment (Mattanah et al., 2011). The results of the meta-analysis indicated that parental attachment was found to only be a moderate predictor ( $ES, r = 0.23$ ) of college adjustment with none of the variables studied moderating this relationship (Mattanah et al., 2011).

However, Mattanah et al. (2011) indicated that 120 different aspects of college adjustment had been studied across the 156 studies used in the meta-

analysis. To address this diversity, these various elements were grouped into 5 mega-domains for the meta-analysis (Mattanah et al., 2011). While this grouping by Mattanah et al. (2011) allowed for the meta-analysis of the relationship between attachment and broad areas of college adjustment (e.g., academic motivation and competence, interpersonal competence, stressful affects and high risk behavior, self-worth and self-efficacy, developmental advances), it did not result in the analysis of the relationship between parental attachment and overall college adaptation across the multiple areas of demand. In light of the results of the meta-analysis, Mattanah et al. (2011) concluded that the moderate relationship noted between parental attachment and college adjustment suggests that other developmental processes, along with parental attachment, are likely to be involved when predicting college adjustment.

Although the current study was not able to support the findings of Mattanah et al. (2011) related to secure parental attachment as a predictor variable of overall college adjustment, this may have been in part due to the difference in focus on college adjustment between the meta-analysis and this study (e.g., broad areas of college adjustment versus overall college adaptation across the multiple areas of demand). While secure parental attachment was noted to contribute to the overall explanation of the variance in college adaptation, it was not found to be a significant predictor of college adaptation. However, a bivariate correlation did indicate that secure parental attachment had a significant positive relationship with two of the subscales for college adaptation (e.g., academic, personal/emotional). The results

for these broad areas of college adjustment are consistent with the meta-analysis conducted by Mattanah et al. (2011).

Both Bowlby (1969/1982, 1973, 1988) and Schore and Schore (2008, 2014) indicate that it is from the early attachment experiences that self-regulation and then eventually resilience emerge. It is from this theoretical perspective regarding secure parental attachment that a possible explanation for the results of this study can be found. While the analyses in this study indicated that secure parental attachment has a significant positive relationship with some of the sub-components of college adaptation (e.g., academic, personal/emotional), it was not found that secure parental attachment ( $\beta = .164, p = .063$ ) was a significant predictor of overall college adaptation. Thus, it is possible that the variance accounted for by self-regulation and resilience, theoretical products of attachment, overlapped with the part of the variance accounted for by secure parental attachment as a predictor variable for overall college adaptation. In further support of this explanation of the results for secure parental attachment, is the level of significance ( $\beta = .164, p = .063$ ) that was obtained. While the results for secure parental attachment were non-significant, the level of significance that was found is only slightly above that required to determine significance (e.g.,  $p = .05$ ). If the variance accounted for by self-regulation or resilience slightly overlapped with the variance accounted for by secure parental attachment, it could have been enough to mask a significant predictive ability of secure parental attachment. Particularly in light of the results by Mattanah et al., (2011), in which a meta-analysis indicated that parental attachment

was found to only be a moderate predictor (ES,  $r=0.23$ ) of college adjustment, the explanation that self-regulation and resilience potentially overlapped with the variance accounted for by secure parental attachment as a predictor variable appears plausible.

Since it has been theorized that from early attachment experiences that self-regulation and then eventually resilience emerge (Bowlby 1969/1982, 1973, 1988; Schore and Schore 2008, 2014), the potential for self-regulation and/or resilience to act as a mediator should also be considered. Baron and Kenny (1986) note three requirements that distinguish the presence of a mediator. First, the independent variable should be able to significantly account for variance in the mediator (Baron & Kenny, 1986). Second, the mediator should be able to significantly account for variance in the dependent variable (Baron & Kenny, 1986). Finally, when these first two conditions have been accounted for the independent variable should no longer be able to significantly account for variance in the dependent variable (Baron & Kenny, 1986).

Findings from this study along with the literature reviewed provide support for further research that explores the potential of self-regulation and/or resilience as a mediator in the relationship between attachment and college adjustment. First, a significant relationship has been identified between secure attachment and self-regulation (Zeinali et al., 2011) as well as with resilience (Banyard & Cantor, 2004; Shibue & Kasai, 2014). In addition, self-regulation has already been identified as a mediator between secure attachment and both self-harm and psychological distress

(Kimball & Diddams, 2007; McCarthy et al., 2006). Further, this current study identified that both self-regulation and resilience significantly accounted for a portion of the variance in adaptation to college. Finally, in a meta-analysis, Mattanah et al. (2011) indicated that attachment was a moderate predictor of college adjustment. Such findings provide an indication that self-regulation and/or resilience meet most of the identified requirements of a mediator (Baron & Kenny, 1986) in the relationship between attachment and the adaptation to college. As such, further research to explore this possibility is strongly recommended.

In this study, the capacity for self-regulation was the best predictor of overall adjustment to college across multiple areas of demand. However, this is an area in which little research has been conducted (Cameron & Nichols, 1998; Duru et al., 2014; Park et al., 2012). Cameron and Nichols (1998) found that freshmen, whether classified as optimists or pessimists, after engaging in a self-regulation writing task were less likely to visit the college wellness clinic than those in the control group. In a study using 162 freshmen students, Park et al. (2012) found that changes in a student's self-regulation skills were predictive of changes in a student's adjustment to college (e.g., changes in levels of anxiety, depression, and stress). Finally, in a study with 383 undergraduate students, Duru et al. (2014) found a positive relationship between self-regulation and academic achievement. The findings of this current study are supportive of the previous research as well as extend this research to more broadly explore the capacity for self-regulation to predict overall adjustment to college across multiple areas of demand. In addition, the bivariate

analyses, in demonstrating a positive relationship between the capacity for self-regulation and each of the multiple areas of demand: academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984), supports the previous research as well as suggests that other broad areas of college adjustment may also be related to self-regulation.

In this study, the level of resilience was also a significant predictor of overall adjustment to college across multiple areas of demand. While the findings of this study support previous research in this area, such studies only focused on various more narrow aspects of college adjustment (Allan et al., 2014; DeRosier et al., 2013; Hartley, 2011; Johnson et al., 2011; Khademi & Aghdam, 2013). The current research also extends those findings to the relationship between resilience and overall adjustment to college across multiple areas of demand. In a study with 1534 freshmen students, Allan et al. (2014) noted a positive relationship between resilience and academic performance at the end of the freshman year. DeRosier et al. (2013) found, using a sample of 644 freshman students, that there was a positive relationship between resilience and a student's ability to cope with the stress of transitioning to college. Hartley (2011), using a sample of 605 undergraduate students, found that intrapersonal resilience was predictive of academic performance even when aptitude and achievement were accounted for. In a sample of 88 undergraduate students, Johnson et al. (2011) noted a negative relationship between resilience and alcohol consumption. Finally, Khademi and Aghdam (2013), using a sample of 470 undergraduate students, found a negative relationship



between resilience and homesickness. While the findings of this current study are consistent with the results of this previous research, the current research also extends such work to more broadly explore the level of resilience to predict overall adjustment to college across multiple areas of demand. In addition, the bivariate analyses, in demonstrating a positive relationship between the level of resilience and each of the multiple areas of demand: academic, personal/emotional, social and institutional commitment (Baker & Siryk, 1984), supports the previous research and suggests that other broad areas of college adjustment may also be related to resilience.

### **Theoretical Framework**

The theoretical tenets of attachment theory and modern attachment theory suggest that the quality of early caregiver interactions impact the later development of the individual. Bowlby postulated that early caregiver interactions are linked to the development of attachment and resilience (Bowlby 1969/1982, 1973, 1988). Although Bowlby posits that both a secure quality of attachment and resilience are on a developmental pathway that leads to healthy adjustment, he does not use the term self-regulation (Bowlby, 1969/1982, 1973, 1988). Rather, he uses language that is descriptive of self-regulation when he envisioned the attachment process as a regulatory system (Bowlby, 1969/1982). Additionally, this can be seen in Bowlby's (1969/1982) description of securely attached individuals as self-controlled and resilient and insecurely attached individuals as having difficulty with self-control and displaying an increased vulnerability to stress.

However, modern attachment theory views all three variables (e.g., attachment, self-regulation, resilience) as emerging from early caregiver interactions and experiences in the environment (Schore, 1994; Schore & Schore, 2008, 2014). Schore (1994) attributes the ease with which the regulatory capacities of the primary caregiver are internalized by the infant to the quality of these early caregiver interactions. As the infant begins to use these internal working models of the primary caregiver to anticipate the caregiver's response, the child begins to develop the capacity to self-regulate, even in the caregiver's absence (Schore, 1994). Through a pattern of mis-attunement and re-establishing attunement as well as when confronted with new situations, a child learns to develop resilience in the face of such stress (Schore, 1994; Schore & Schore, 2008, 2014). Attachment theory and modern attachment theory provide a theoretical context in which the potential relationship between attachment, self-regulation, and resilience and a student's adjustment to college is made clear. Drawing from the tenets of these theories, it was hypothesized that the level of secure parental attachment, the capacity to self-regulate, and the level of resilience would each uniquely support a more successful transition to college and together would provide a greater ability to predict a freshmen student's adjustment to college.

While the results of this study present a model in which all three independent variables (e.g., secure parental attachment, self-regulation, resilience) explain approximately 58% of the variance in a freshmen students' adaptation to college, secure parental attachment was not found to be a significant predictor of a

freshman student's overall adjustment to college across multiple areas of demand. However, a bivariate analysis indicated that a positive relationship did exist between the level of secure parental attachment and some of the multiple areas of demand (e.g., academic, personal/emotional). In addition, attachment was noted to have a positive relationship with both a freshman student's capacity for self-regulation and level of resilience. Although attachment theory and modern attachment theory view secure attachment, self-regulation, and resilience as essential factors for healthy personality development and adjustment (Bowlby, 1969/1982, 1973, 1988; Schore, 1994; Schore & Schore, 2008, 2014), this research did not support a significant predictive role for secure parental attachment in the overall adjustment of freshmen students to college across multiple areas of demand.

However, modern attachment theory posits and attachment theory suggests that it is out of the early attachment experiences that self-regulation develops and both theories suggest that these early experiences later impact the development of resilience (Bowlby, 1969/1982, 1973, 1988; Schore, 1994; Schore & Schore, 2008, 2014). The potential for a relationship between attachment and the factors of self-regulation and resilience is noted in the positive relationship found between the variables in this study as well as in elements of these relationships that have been explored by some of the research literature (Banyard & Cantor, 2004; Kimball & Diddams, 2007; McCarthy et al., 2006; Shibue & Kasai, 2014; Zenali et al., 2011). Given that attachment and modern attachment theory posit a more progressive fashion of development for these factors (e.g., attachment develops then self-

regulation then resilience), it is possible that the variance accounted for by self-regulation and resilience, theoretical products of attachment, overlapped with that of secure parental attachment masking its level of significance as a predictor variable for overall college adaptation (Bowlby, 1969/1982, 1973, 1988; Schore, 1994; Schore & Schore, 2008, 2014). Further, the potential exists for mediator or moderator influences to be present between these factors and should be an area of further exploration.

### **Limitations of the Study**

A number of limitations were noted to be present within this study. The population selected to participate in this study was a convenience sample limited to freshmen students attending a college in New Jersey. As such, this study is a time-limited sampling and presents only a snapshot of the population at a specific time and under specific conditions. As the students engaged in this study during the spring semester of their freshmen year, the results of this study may not reflect the students' experience of adjusting to college during the fall semester when the demands for college adaptation across multiple environments was more novel.

Additionally, as the sample consisted of students who volunteered to participate, the sample may only be reflective of individuals who prefer to complete surveys and is a potential source of self-selection bias. The voluntary nature of the sampling procedure also reduced the likelihood that the sample would be well matched to the ethnic diversity and gender distribution present at the university or within the larger population of freshmen attending college in the United States. Such

a limitation could impact the generalizability of the results across both ethnic and gender groups. To examine this potential limitation the gender and ethnic distribution of participants was compared to that of the distribution present at the university. In doing so, the sample was found to be representative, in terms of gender and ethnicity, of the larger population of full-time freshmen at the university.

The use of surveys in data collection rather than interviews increases the possibility for the presence of missing data in the surveys as well as inadvertent erroneous response selection by the participants. In addition, the participants' ability to voluntarily withdraw from the study at any point also is a potential source of missing data for some surveys. To ensure missing data did not impact the results of the study, survey packets with missing data were identified and excluded from the final sample. While a minimum of 159 students were sought for this study, only 104 students opened the Survey Monkey web link for the study. Of that 104 students, only 68 students completed all of the surveys in their entirety. This smaller than desired sample size required a statistical adjustment to be made in the analyses (e.g., changing the alpha level to .10 when analyzing predictor effect so that the effect size at  $f^2 = .05$  continued to be statistically significant) and as a result is a limitation of this study.

Further, as correlational rather than causal results were obtained, this also limits the inferences that were able to be drawn from the results. Given these limitations, caution was used when interpreting the results. Based on the smaller than desired sample size and its impact on the broad generalizability of these

results, inferences were limited to this sample population as well as those that could be supported through the existing research literature or were plausible considering the theoretical framework. However, suggestions for further areas of study with more representational samples of the population will be made.

### **Recommendations**

This current study has noted that approximately 58% of the variance in the adaptation to college is accounted for by the combination of secure parental attachment, self-regulation, and resilience. In addition, both the capacity for self-regulation and the level of a freshmen student's resilience were significant predictors of a student's overall adaptation to college. Further, of the group of variables studied, self-regulation was found to be the single best predictor of an undergraduate freshman student's overall adaptation to college. Additional analyses revealed that both self-regulation and resilience had a significant large positive relationship with each of the subcomponents of college adaptation. However, secure parental attachment was only noted to have a significant large positive relationship with personal/emotional adaptation and a significant medium positive relationship with academic adaptation.

Given the limitations of this study, including the smaller than desired sample size, it would be important to replicate this study with a larger group of freshmen, potentially from multiple universities. As this study was conducted during the spring semester, exploring student responses during the fall semester when the demands for college adaptation across multiple environments are more novel may

yield valuable results. As both resilience and self-regulation were noted to be significant predictors of freshmen college adaptation in this study, further investigation with undergraduates at all levels of study would be useful in better understanding the range of prediction for college adaptation that self-regulation and resilience provide. Further as resilience and self-regulation were noted to have a positive relationship with each of the subcomponents of college adaptation in this study, an investigation into the role that these factors may play in predicting college adaptation in each of these areas would deepen the understanding of these variables.

As attachment theory and modern attachment theory posit that the independent variables in this study develop in a progressive fashion (e.g., attachment develops then self-regulation then resilience), the potential exists that the variance accounted for by self-regulation and resilience, theoretical products of attachment, over-shadowed the impact of secure parental attachment as a predictor variable for overall college adaptation (Bowlby, 1969/1982, 1973, 1988; Schore, 1994; Schore & Schore, 2008, 2014). As such, this should also be an area of future investigation. Further, the potential exists for mediator influences to be present between these factors and also should be an area of further exploration. Specifically, researchers should consider investigating the variables of self-regulation and/or resilience as a mediator in the relationship between attachment and the adaptation to college. Such potential areas of research provide a number of valuable opportunities for further study.

### **Implications for Social Change**

Through an extensive literature review it was revealed that despite the variety of factors explored, no one factor or set of factors had been identified that were highly predictive of a freshman student's ability to successfully adapt to the multiple areas of demand confronted in college. The results of this current study noted that while approximately 58% of the variance in a freshman's overall adaptation to college is accounted for by the combination of secure parental attachment, self-regulation, and resilience; only the capacity for self-regulation and the level of a freshmen student's resilience were significant predictors of a student's overall adaptation to college.

The results of this study will benefit society as this research has identified factors associated with attachment theory and modern attachment theory that were predictive of a freshman student's overall adaptation to college. In utilizing an attachment theory framework, this study highlights, for future researchers, the value of using such a theoretical lens when exploring the problem of college adaptation. In addition, as this gap in the literature had not previously been studied, the results of this study extend and are generally supportive of literature that has already been conducted in this area.

Self-regulation and resilience were found in this study to be significantly predictive of a freshman student's overall adaptation to college. As such, this information is important for colleges to consider when seeking interventions to achieve smoother transitions for incoming freshmen. While no evidenced based



interventions were found in the literature related to enhancing self-regulation skills in college students, a program to increase resilience in college students has been developed through research at the University of Pennsylvania (Seligman, Schulman, DeRubeis, & Hollon, 1999; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009). The Penn Resiliency Program (PRP), which provides research regarding its effectiveness, consists of education and skill building activities that occur for one hour each week for a period of 8 weeks (Seligman et al., 1999; Seligman et al., 2009). As PRP is a brief program, colleges may wish to consider the value of such a program for incoming freshmen. Although more evidenced based interventions regarding enhancing self-regulation and resilience in college students are needed, this current study provides valuable information regarding factors to focus on as new interventions are developed. Similarly, this information provides mental health practitioners with new knowledge that could be useful when targeting intervention efforts focused on enhancing college adjustment. While additional research is needed, colleges and mental practitioner will be able use this information to consider whether programs that focus on the development of self-regulation skills and resilience would be of value to students who are transitioning to college.

As this study highlights factors thought emerge from early attachment experiences, it suggests a long-term role that these early developmental factors may play in healthy adjustment, which is consistent with the theoretical tenets of attachment theory (Bowlby, 1969/1982, 1973, 1988). For families and individuals, it may be more appropriate for efforts to first focus on developing interventions and

training for parents regarding the importance of these early attachment experiences. As a child's development continues, it would also be beneficial for elementary schools to consider programs that bolster a student's self-regulation skills and resilience. While very few evidenced based interventions were able to be identified related to enhancing self-regulation skills or resilience in elementary students, school districts should explore the value of the existing programs for students. Wyman et al. (2010) conducted a wait listed randomized trial study to explore the impact of strengthening emotional self-regulation skills on school adjustment in elementary school children (e.g., kindergarten to third grade), who had been identified with increased behavioral and social concerns. Following instruction in 14 skill building lessons from the Rochester Resilience Project on emotional self-regulation, students displayed a reduction in the previously reported behavioral and social concerns at school (Wyman et al., 2010). In addition, the PRP program may wish to be considered for enhancing resilience in elementary children, as it has been utilized in multiple research studies with approximate 2000 children ages 8 to 15 (Seligman et al., 2009).

### **Conclusion**

This study investigated the collective ability of a freshman student's level of secure parental attachment, capacity to self-regulate, and level of resilience to predict his or her overall adaptation to college as well as explored which of these variables was the single best predictor of a freshman student's overall adaptation to college. Utilizing anonymous online data collection (Survey Monkey), freshmen

students completed the following surveys: CD-RISC-R (e.g., resilience), SSRQ (e.g., self-regulation), PAQ (e.g., secure parental attachment), and the SACQ (e.g., college adaptation). A regression analysis provided a model in which the independent variables accounted for more than half of the variance in overall college adjustment. However, only self-regulation and resilience were found to be significant predictors of overall college adaptation, with self-regulation noted to be the single best predictor of an undergraduate freshman student's overall adaptation to college. Further, a bivariate analysis revealed that both self-regulation and resilience had a significant large positive relationship with each of the subcomponents of college adaptation. While secure parental attachment was noted to only have a significant large positive relationship with personal/emotional adaptation and a significant medium positive relationship with academic adaptation.

The results of this research provides additional support for some of factors underlying attachment theory and modern attachment theory. Such information can be beneficial to colleges as they seek interventions to assist with smoother transitions for incoming freshmen as well as provide mental health practitioners with new knowledge that is useful in targeting intervention efforts focused on enhancing overall college adjustment. For families and individuals, this information is useful in prompting efforts focused on developing interventions and training for parents regarding the importance of these early attachment experiences. Outcomes from this study also suggest opportunities for further research regarding the

interplay between secure parental attachment, self-regulation, and resilience as freshmen continue to grapple with the transition to college.

The results of this research provide additional support for some of factors underlying attachment theory and modern attachment theory. Such information is beneficial to colleges as they seek to achieve smoother transitions for incoming freshmen as well as provides mental health practitioners with new knowledge that is useful in targeting intervention efforts focused on enhancing college adjustment. For families and individuals, such information is beneficial both as they consider the value of these early attachment experiences as well as when they look for avenues to promote a successful transition to college. Outcomes from this study also suggest opportunities for further research regarding the interplay between secure parental attachment, self-regulation, and resilience as freshmen continue to grapple with the transition to college.

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## Appendix A: Invitation Letter

## INVITATION TO PARTICIPATE IN A STUDY ON THE ADJUSTMENT TO COLLEGE

- Volunteers are currently being sought to participate in a doctoral research study. This study will examine the impact of attachment, self-regulation, and resilience on the adjustment of students to college. Although this study is part of a doctoral dissertation for Walden University, the Institutional Review Board (IRB) of record is University in New Jersey (e.g., overseeing the data collection).
- Interested freshmen, who are 18-21 years of age, are invited to participate in this study. Although college adjustment is being investigated, participation in this research is voluntary and is not related in any way to your current academic coursework. Freshmen who are interested in participating in this study should go to (survey monkey web address/password) to complete the research questionnaires.
- While no identifying information will be collected and your participation in this research will be anonymous, any data collected will be remain strictly confidential. Participation in this study is for research purposes only and will not result in recommendations or referrals following completion.
- Professors at your university do not have specific information to answer questions about the study but more information will be available in the consent form at (survey monkey web address/password).
- Thank you very much for your interest in this research.

Scott Tanner  
Ph.D. Candidate  
Walden University  
scott.tanner@waldenu.edu

## Appendix B: Debriefing

## DEBRIEFING PAGE

Thank you for your involvement in this research.

You have completed the questionnaires involved in this study and no additional action is required. The anonymous information you have provided will remain confidential. Following the completion of this study the overall findings will be provided to your university.

Should you experience any emotional distress following the completion of these surveys, please contact your university's wellness center or other community mental health provider and speak with a licensed mental health professional.

If you have further questions regarding this research, I can be contacted at the email address listed on the informed consent form

Some of the mental health providers in your area include:

Town, NJ

University Counseling Center: phone (xxx) xxx-xxxx

DBT Center of Town: phone (xxx) xxx-xxxx

Town Counseling Services: phone (xxx) xxx-xxxx

Village, NJ

University Counseling Center: phone (xxx) xxx-xxxx ext. xxxx

Village Behavioral Health: phone (xxx) xxx-xxxx

Village Psychological Center for Therapy: phone (xxx) xxx-xxxx

24 Hour Counseling Hotlines

Contact XYZ County; 24 hour suicide hotline:

phone (xxx) xxx-xxxx, (xxx) xxx-xxxx

Village Hospital: phone (xxx) xxx-xxxx

## Appendix C: Demographic Questionnaire

## DEMOGRAPHIC QUESTIONNAIRE

Completion of this survey provides information that is useful in considering a number of factors that may have an influence on the findings of this study. All information obtained will remain confidential. Please mark the appropriate circle to indicate your response in each area.

**Gender** Female Male**Age** 18 20 19 21**Ethnicity** Caucasian African American Asian Hispanic/Latino Other**Matriculation Status** Full Time Part Time**Year in College** Freshman Junior Sophomore Senior**Housing** On Campus Off Campus living with Parent(s) Off Campus not living with Parent(s)

## Appendix D: Permission for use of the CD-RISC-R



### Connor-Davidson Resilience Scale--Revised

**PsycTESTS Citation:**

Gucciardi, D. F., Jackson, B., Coulter, T. J., & Mallett, C. J. (2011). Connor-Davidson Resilience Scale--Revised [Database record]. Retrieved from PsycTESTS. doi: 10.1037/t09624-000

**Test Shown:** Full

**Test Format:**

The revised CD-RISC consists of 10 items and a 5-point Likert-type response scale ranging from 1 (not true at all) to 5 (true nearly all the time).

**Source:**

Gucciardi, Daniel F., Jackson, Ben, Coulter, Tristan J., & Mallett, Clifford J. (2011). The Connor-Davidson Resilience Scale (CD-RISC): Dimensionality and age-related measurement invariance with Australian cricketers. *Psychology of Sport and Exercise*, Vol 12(4), 423-433. doi: 10.1016/j.psychsport.2011.02.005, © 2011 by Elsevier. Reproduced by Permission of Elsevier.

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## Appendix E: Permission for use of the SSRQ

 PsycTESTS<sup>®</sup>

### Short Self-Regulation Questionnaire

**PsycTESTS Citation:**

Carey, K. B., Neal, D. J., & Collins, S. E. (2004). Short Self-Regulation Questionnaire [Database record]. Retrieved from PsycTESTS. doi: 10.1037/100522-000

**Test Shown:** Full

**Test Format:**

Items are scored on a 1–5 scale (strongly disagree– strongly agree) and can be summed to create a total score.

**Source:**

Carey, Kate B., Neal, Dan J., & Collins, Susan E. (2004). A psychometric analysis of the self-regulation questionnaire. *Addictive Behaviors*, Vol 29(2), 253-260. doi: 10.1016/j.addbeh.2003.08.001 © 2004 by Elsevier. Reproduced by Permission of Elsevier.

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## Appendix F: Permission for use of the PAQ

7/10/2016

Permission for Use of PAQ

BOSTON COLLEGE  
CHESTNUT HILL, MASSACHUSETTS 02167  
School of Education

DEPARTMENT OF COUNSELING, DEVELOPMENTAL  
PSYCHOLOGY, AND RESEARCH METHODS  
Campion 307  
(617)552-4030  
Fax (617)552-8419


Dear Colleague:

You have my permission to reproduce and use the Parental Attachment Questionnaire for research purposes. Please send me a copy of your findings to include in the compendium of studies using the PAQ.

Sincerely,

Maureen Kenny, Ph.D.  
Associate Professor  
Department of Counseling, Developmental  
Psychology and Research Methods  
Boston College

## Appendix G: Permission for use of the SACQ



## Rights & Permissions

Certificate of Limited-use License

License #:	Date:
<b>WPS-000500</b>	<b>April 18, 2016</b>
Principal Investigator's name and title:	
<b>Scott Alan Tanner, Clinical Psychology Doctoral Student</b>	
Name of the Assessment:	Permitted number of uses:
<b>Student Adaptation to College Questionnaire (SACQ)</b>	<b>100 uses</b>

Description of the study

**"The Relationship between Attachment, Self-Regulation, and Resilience in Undergraduate Students' Adjustment to College."**

Reference terms dated 11Apr'16.

Method of administration

Administration and scoring via a secure, password-protected online environment.

The required copyright notice that must be affixed in its entirety to each reprint/viewing of the assessment:

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## Appendix H: Connor-Davidson Resilience Scale-Revised

Connor-Davidson Resilience Scale – Revised (CD-RISC-R)

Please rate, on a scale of 1 (Not true at all) to 5 (True nearly all the time), how well the following statements are true for you.

	(Not true at all)		(True nearly all the time)		
	1	2	3	4	5
1. Adapt to change					
2. Can deal with whatever comes					
3. Tries to see the humorous side of problems					
4. Coping with stress can strengthen me					
5. Tend to bounce back after illness or hardship					
6. Can achieve goals despite obstacles					
7. Can stay focused under pressure					
8. Not easily discouraged by failure					
9. Thinks of self as a strong person					
10. Can handle unpleasant feelings					

## Appendix I: Short Self-Regulation Questionnaire

Short Self-Regulation Questionnaire (SSRQ)

Please rate, on a scale of 1 (strongly disagree) to 5 (strongly agree), your agreement with the following statements.

	(strongly disagree)				(strongly agree)
	1	2	3	4	5
1. I have trouble making plans to help me reach goals.					
2. I have a hard time setting goals for myself					
3. Once I have a goal, I can usually plan how to reach it					
4. I give up quickly					
5. I set goals for myself and keep track of my progress					
6. When I'm trying to change something, I pay attention to how I'm doing					
7. I don't notice the effects of my actions until it's too late					
8. I tend to keep doing the same thing, even when it doesn't work					
9. I have personal standards, and I try to live up to them					
10. I get easily distracted from my plans					
11. I have trouble following through with things once I've made up my mind to do something					
12. I have a lot of willpower					
13. I'm able to accomplish goals I set for myself					
14. If I make a resolution to change something, I pay a lot of attention to how I'm doing					
15. I put off making decisions					
16. Most of the time I don't pay attention to what I'm doing					
17. I don't seem to learn from my mistakes					
18. If I want to change, I am confident that I could do it					
19. I usually keep track of my progress toward my goals					
20. I usually think before I act					
21. As soon as I see a problem or challenge, I start looking for possible solutions					
22. When it comes to deciding about a change, I feel overwhelmed by the choices					
23. I learn from my mistakes					
24. I am able to resist temptation					
25. Often I don't notice what I'm doing until someone calls it to my attention					
26. I have trouble making up my mind about things					
27. I know how I want to be					

28. I usually only have to make a mistake one time in order to learn from it					
29. I can stick to a plan that is working well					
30. I can usually find several different possibilities when I want to change something					
31. It's hard for me to notice when I've had enough (alcohol, food, sweets)					

## Appendix J: Parental Attachment Questionnaire

Parental Attachment Questionnaire (PAQ)

The following pages contain statements that describe family relationships and the kinds of feelings and experiences frequently reported by young adults. Please respond to each item by filling in the number on the scale of 1 to 5 that best describes your parents, your relationship with your parents, and your experiences and feelings. Please provide a single rating to describe your parents and your relationship with them. If only one parent is living, or if your parents are divorced, respond with reference to your living parent or the parent with whom you feel closer.

1	2	3	4	5
Not at All (0-10%)	Somewhat (11-35%)	A Moderate Amount (36-65%)	Quite A Bit (66-90%)	Very Much (91-100%)

**In general, my parents .....**

	1	2	3	4	5
1. are persons I can count on to provide emotional support when I feel troubled.					
2. support my goals and interests.					
3. live in a different world.					
4. understand my problems and concerns.					
5. respect my privacy.					
6. restrict my freedom or independence.					
7. are available to give me advice or guidance when I want it.					
8. take my opinions seriously.					
9. encourage me to make my own decisions.					
10. are critical of what I can do.					
11. impose their ideas and values on me.					
12. have given me as much attention as I have wanted.					
13. are persons to whom I can express differences of opinion on important matters.					
14. have no idea what I am feeling or thinking.					
15. have provided me with the freedom to experiment and learn things on my own.					
16. are too busy or otherwise involved to help me.					
17. have trust and confidence in me.					
18. try to control my life.					
19. protect me from danger and difficulty.					
20. ignore what I have to say.					
21. are sensitive to my feelings and needs.					
22. are disappointed in me.					

23. give me advice whether or not I want it.					
24. respect my judgement and decisions, even if different from what they would want.					
25. do things for me, which I could do for myself.					
26. are persons whose expectations I feel obligated to meet.					
27. treat me like a younger child.					

**During recent visits or time spent together, my parents were persons ...**

	1	2	3	4	5
28. I look forward to seeing.					
29. with whom I argued.					
30. with whom I felt relaxed and comfortable.					
31. who made me angry.					
32. I wanted to be with all the time.					
33. towards whom I felt cool and distant.					
34. who got on my nerves.					
35. who aroused feelings of guilt and anxiety.					
36. to whom I enjoyed telling about the things I have done and learned.					
37. for whom I felt a feeling of love.					
38. I tried to ignore.					
39. to whom I confided my most personal thoughts and feelings.					
40. whose company I enjoyed.					
41. I avoided telling about my experiences.					

**Following time spent together, I leave my parents ...**

	1	2	3	4	5
42. with warm and positive feelings.					
43. feeling let down and disappointed by my family.					

**When I have a serious problem or an important decision to make ...**

	1	2	3	4	5
44. I look to my family for support, encouragement and/or guidance.					
45. I seek help from a professional, such as a therapist, college counselor, or clergy.					
46. I think about how my family might respond and what they might say.					
47. I work it out on my own, without help or discussion with others.					
48. I discuss the matter with a friend.					

49. I know that my family will know what to do.					
50. I contact my family if I am not able to resolve the situation after talking it over with my friends.					

**When I go to my parents for help ...**

	1	2	3	4	5
51. I feel more confident in my own ability to handle the problems on my own.					
52. I continue to feel unsure of myself.					
53. I feel that I would have obtained more understanding and comfort from a friend.					
54. I feel confident that things will work out as long as I follow my parent's advice.					
55. I am disappointed with their response.					