ABSTRACT

HOVERING OR SUPPORTING: DO PARENTING BEHAVIORS AFFECT THEIR COLLEGE-OFFSPRING’S PERSEVERANCE?

by Kevin Daniel Shaw

Helicopter parenting is frequently cited as a growing concern in popular culture and among college administrators as limiting student development and perseverance, but developmentally appropriate parental involvement is related to positive student outcomes. Previous research has found associations between helicopter parenting behaviors and negative psychological outcomes, but limited empirical research has examined perseverance- or education-related outcomes for college students. A random sample of undergraduate students was selected and N=332 students from this sample completed measures of helicopter parenting, parental autonomy support, resilience, grit, academic buoyancy, autonomy, competence, academic locus of control, G.P.A., and demographic information. A large negative correlation was found between helicopter parenting and parental autonomy support, providing support for the notion that these concepts have a negative relationship. Students who reported higher levels of helicopter parenting reported lower resilience, grit, and academic buoyancy, whereas parental autonomy support was associated with higher levels on these variables. Helicopter parenting was not associated with G.P.A., but parental autonomy support was weakly related to a higher G.P.A. Results of exploratory mediation analyses were mixed, but lent preliminary support to the overall hypothesis that helicopter parenting behaviors are associated with negative perseverance-related outcomes. Demographic factors were largely unrelated to helicopter parenting, though younger participants reported greater levels of helicopter parenting than older participants.
HOVERING OR SUPPORTING: DO PARENTING BEHAVIORS AFFECT THEIR COLLEGE-OFFSPRING’S PERSEVERANCE?

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Hovering or Supporting: Do Parenting Behaviors Affect Their College-Offspring’s Perseverance?

Definition of Key Terms

**Helicopter Parenting.** Helicopter parenting, a colloquial term for overparenting, is a phenomenon in which parents give excessive and developmentally inappropriate support (in various forms) to their children rather than allowing them to struggle or problem solve on their own (adapted from LeMoyne & Buchanan, 2011).

**Parental Autonomy Support.** Parental Autonomy Support can be defined as how much parents value and encourage problem solving, choice, and participation in decisions when interacting with their children (Grolnick & Ryan, 1989).

**Academic Buoyancy.** Academic buoyancy is a form of “everyday” academic resilience, a student’s ability to successfully overcome challenges in the classroom (adapted from Martin & Marsh, 2008).

**Resilience.** Resilience is a well-studied concept that can be viewed as an ability to cope with adversity, by utilizing a process of persevering that incorporates personal, societal, and environmental circumstances and traits (adapted from Connor & Davidson, 2003 and Luthar & Zelazo, 2003). The present study will focus on the narrower facet of resilient coping qualities that are developed, rather than the presence of contextual protective factors.

**Grit.** Grit can be most simply defined as “perseverance and passion for long term goals,” and involves hard work over time and not giving up despite the presence of obstacles (Duckworth, Peterson, Matthews, & Kelly, 2007, p. 1087).

**Academic Locus of Control.** Academic locus of control can be defined as the extent that a student believes he or she has control over academic events and outcomes (adapted from Rinn, Boazman, Jackson, & Barrio, 2014).

Literature Review

Parenting is arguably one of the most important parts of the advancement of the human species, and there is an extensive body of research that supports the impact of certain parenting approaches on children’s behavioral and emotional well-being (e.g. Baumrind, 1965, 1991). Some studies have even linked different parenting types to differential child academic achievement, for example linking authoritative parenting style and higher academic achievement (Steinberg, Lamborn, Dornbusch, and Darling, 1992). However, some evidence exists that this relationship does not persist into college-aged students, as Joshi, Ferris, Otto, and Regan (2003) found no association between parenting style scores and college G.P.A. Despite the known importance of consistent parent support and involvement (see Desforges & Aboucnaar, 2003, for a review), a growing area of concern is that overparenting of children is doing more harm than good in terms of child outcomes. Examples of this can be seen in popular culture and news articles (e.g. Gibbs, 2009; Lythcott-Haims, Jul. 2015; Wallace, Oct. 2015), academic offices at the university level (e.g. Coburn, 2006), and in recent research studies (e.g. Locke, Campbell, & Kavanaugh, 2012), among other sources. There are many terms for this “overparenting,” including “helicopter parents” (as it will be subsequently named in this paper), “lawnmower parents,” or “tiger moms,” but the general meaning is the same: intensive parents who are overly involved in their children’s lives or affairs, or as LeMoyne and Buchanan (2011) stated, “a collection of tendencies that constitute appropriate parenting characteristics taken to an inappropriate degree” (p. 405; Locke et al., 2012). Research has continued to examine the topic
of helicopter parenting over the past decade, with evidence revealing various impacts on offspring well-being, as described below.

**Helicopter Parenting**

**Description and parent characteristics.** Empirical research on helicopter parenting is a relatively new phenomenon, despite anecdotal information and concerns by academics and popular press for decades (outlined in LeMoyne & Buchanan, 2011). Locke and colleagues (2012) were one of the first research groups to attempt to qualitatively examine what overparenting may look like, asking professionals in the field of psychology, counseling, or working with children and families in Australia about their experiences with parents who “overparent.” In their sample, over 90% of contacted individuals had observed some form of overparenting during their careers, and the authors used thematic analysis in order to separate these experiences into six different categories based on responsiveness (response to child needs), demandingness (expectations for the child), and contextual factors. These six categories are described in Table 1, including an example behavior of each type of overparenting.

Other researchers have attempted to identify characteristics of helicopter parenting and the parents who are associated with these behaviors. Padilla-Walker and Nelson (2012) created their own measure of helicopter parenting and determined that helicopter parenting is a separate but related factor from behavioral and psychological control of parents over their college-age children. Their results indicated that these adult children of helicopter parenting see their relationship as having high levels of guidance, disclosure, involvement, and emotional support, which are all positive elements, but also recognize that they have a lack of autonomy (low parental autonomy granting). Thus, the authors suggest that this type of parenting is inappropriately intrusive, but is done out of concern for their child, and is similar to “oversolicitous” parenting (Padilla-Walker & Nelson, 2012). Similarly, Segrin, Woszidlo, Givertz, Bauer, and Murphy (2012) found evidence that overparenting may have certain characteristics that are similar to other commonly studied parenting styles (authoritarian, permissive, and authoritative), but is “a unique phenomenon at the same time” and thus worthy of further study (p. 249).

### Table 1

**Categories of Overparenting from Locke et al. (2012)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Definition/Discriminating Factors</th>
<th>Example Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Demanding</td>
<td>Low demands of child to become mature, independent, accept consequences, facing challenges</td>
<td>Child not allowed to drive, blaming school for problems, treating child like a baby</td>
</tr>
<tr>
<td>High Responsive</td>
<td>Overinvolvement - constant supervision, child always right, child needs more important than own</td>
<td>“Befriending,” intrusion into social lives, expecting a complete daily report</td>
</tr>
<tr>
<td>High Responsive &amp; Low Demanding</td>
<td>Excessive assistance as a result of high responsiveness.</td>
<td>Rushing to school on whim, doing homework for child, requesting classroom change, not allowing child to struggle</td>
</tr>
<tr>
<td>High Demanding</td>
<td>High parental expectations of academic outcomes and public behavior</td>
<td>Over-instruction, often linked to overly close supervision. High level of responsibility for child outcomes</td>
</tr>
</tbody>
</table>
High and Low Demand (Combo)  
**Parent expects a lot of child but if goals not reached, parent intervenes, child not expected to problem solve.**  
**Demand better grades of child, but threatening withdrawal from school if school does not address**

**Contextual factors**  
High parental anxiety, unwilling to tolerate child distress, SES.  
Wealthy families, anxious

Bradley-Geist and Olson-Buchanan (2014) also examined some of the factors involved in overparenting, specifically demographic predictors of overparenting. Their methods involved creation of a parental involvement scale (e.g. ‘how often do your parents ask you about school’ or ‘give you advice’) and an overparenting scale (e.g. ‘I think my parents are too overly involved in my life’) and their results indicated that these concepts are distinct from one another. The authors found that overparenting was predicted by a student living at home and having fewer siblings, and that Asian parents were more likely to report overparenting than other ethnicities. Rousseau and Scharf’s (2015) study on Jewish-Israeli families found that mothers may more frequently engage in overparenting, though Padilla-Walker and Nelson (2012) found no difference, and also found evidence that fathers’ overparenting is perceived as a negative, whereas a mother’s overparenting is more accepted. A gender effect found was in that mothers’ overparenting was a positive for adult males only (Rousseau & Scharf, 2015), consistent with van Ingen and colleagues’ (2012) finding that an overinvolved father may lead to worse social outcomes than an overbearing mother.

**Outcomes.** In addition to the thematic groupings listed in Table 1, the professionals who participated in Locke and colleagues’ (2012) survey also noted their perceived outcomes of overparenting, hypothesizing that it may lead to poor resilience, entitlement, poor life skills to cope, reduced sense of responsibility, and high anxiety. Locke and colleagues (2012) proposed a model in which overparenting involves high responsiveness and demands of the child’s success, which often results in reduced demands on the child to problem solve or make change, and eventually results in hypothesized negative outcomes.

The outcomes proposed by the professionals in Locke and colleagues’ (2012) work were primarily anecdotal in nature and not empirically supported, but many of their hypotheses have been examined in recent literature. LeMoyne and Buchanan (2011) found that in a sample of over 300 undergraduate students, greater perception of helicopter parenting was negatively related to total well-being. The authors also found that higher levels of perceived helicopter parenting were associated with significantly increased odds of the college student using prescription medication for anxiety or depression and using a pain pill without a prescription (i.e. drug abuse). Schiffrin and colleagues (2014) found similar results in their sample of almost 300 undergraduates, finding helicopter parenting behaviors were related to higher levels of depression and decreased satisfaction with life, but did not find similar results of higher anxiety. These parenting behaviors were associated with lower levels of perceived autonomy, competence, and relatedness, as the authors hypothesized would be the case based on the principles of self-determination theory (Schiffrin et al., 2014). A model of their results shows evidence that helicopter parenting behaviors significantly affect autonomy ($r = -.37$), competence ($r = -.28$), and relatedness ($r = -.17$) and then had significant indirect effect on depression through autonomy ($r = -.17$) and competence ($r = -.39$), and on life satisfaction through competence ($r = .47$) (Schiffrin et al., 2014). This model is similar in scope to the proposed hypotheses in the
Padilla-Walker and Nelson (2012) found that helicopter parenting was not positively or negatively linked to identity achievement, feeling like an adult, or self-worth; thus, helicopter parenting may not be entirely destructive or constructive at all. The authors also found that helicopter parenting was associated with decreased engagement in school and suggested that it may be related to taking less of an invested approach to the important tasks of emergent adulthood (e.g. education and career goals), as assessed using three items rating commitment to education (Padilla-Walker & Nelson, 2012).

Other researchers have made similar conclusions using parent-adult child dyads from across the country. Segrin and colleagues (2013) found that overparenting is associated with the ineffective coping skills of internalizing and distancing in their adult child, which are in turn associated with greater anxiety and stress. They also found a relationship between overparenting and higher levels of child narcissism. In a previous study, Segrin and colleagues (2012) found that overparenting is weakly but significantly related to adult children’s sense of entitlement, but was not related to the adaptive traits of self-efficacy, emotional intelligence, or positive relationships with others. The authors concluded that overparenting does not help or hurt development of adaptive traits, even if it is expected to assist children, and with a large sample (N=538 dyads), they felt confident there is no relationship between overparenting and self-efficacy, emotional intelligence, or positive relationships with others. In a similar dyad study using college students and their parents, Segrin, Givertz, Swaitkowski, and Montgomery (2015) found that emerging adults who reported a higher perception of parental hovering, control, and anxiety reported more problems connecting with parents and others. These emerging adults were also more likely to respond to problems by withdrawing, furthering evidence to the connection between overparenting and maladaptive coping skills. However, this result somewhat conflicts with the results that overparenting does not affect an adult-child’s positive relationships with others (Segrin et al., 2012), though this may be explained by the usage of different measures and may need to be further examined.

Rousseau and Scharf (2015) found that overparenting by both father and mother are associated with lower levels of adjustment, and found that attachment plays a mediating role in overparenting and adjustment. The researchers suggest examining coping skills as a moderator following these models, rather than the common hypothesis that overparenting prevents children from learning how to cope and thus have lower adjustment. Overall, this study makes the argument that parenting qualities interact with children’s personal characteristics and creates an impact on everyday life and functioning, and therefore should be considered by clinicians in psychopathology cases (Rousseau & Scharf, 2015). Odenweller, Booth-Butterfield, and Weber (2014) also examined helicopter parenting and its implications on Millennials’ (N=268) neuroticism, interpersonal dependency, and coping efficacy. The authors found moderate, positive relationships between helicopter parenting and neuroticism, interpersonal dependency (depending on others for support and validation), and conformity orientation (in which there is a distinct hierarchy between parent and child). They also found a moderate, negative relationship between helicopter parenting and coping efficacy, defined as an individual’s ability to cope and adapt their thoughts and behaviors in order to better regulate emotions or problem-solve (Lazarus & Folkman, 1984; as cited in Odenweller et al., 2014, p. 413). The authors hypothesize that the attempt by parents to “save” children from difficult circumstances helps in the short term, but...
leads to these results (decreased coping efficacy, increased neuroticism and interpersonal dependency).

Bradley-Geist and Olson-Buchanan (2014) also examined the relationship between overparenting and young adults’ college experiences, and young adults’ responses to challenging workplace scenarios, in addition to the demographic characteristics described previously. Their results indicated that parental involvement was positively related to social self-efficacy and intentions to attend graduate school, while overparenting was negatively related to both social self-efficacy and general self-efficacy. Neither concept predicted G.P.A. or peer-evaluations on a project, but overparenting was able to predict maladaptive responses to workplace scenarios, mediated by low self-efficacy. These overall results are similar to Givertz and Segrin’s (2014) findings that parental behavior emphasizing control lead to negative outcomes, while authoritative parental involvement in a context of a balanced, cohesive, and adaptable family leads to positive outcomes.

Nelson, Padilla-Walker, and Nielson (2015) found evidence indicating that increased helicopter parenting is associated with negative self-worth and higher levels of risk behaviors when there was also a reported low level of maternal warmth (Nelson et al., 2015). Their results also indicate that higher levels of helicopter parenting was actually associated with lower risk behaviors for those individuals who reported high levels of maternal warmth. Essentially, this study indicates that when helicopter parenting is a result of low warmth, it may lead to significantly worse outcomes in the child, which may help explain the circumstances under which helicopter parenting can lead to either positive or negative child outcomes (Nelson et al., 2015).

Despite the aforementioned negative outcomes associated with helicopter parenting, some evidence exists that helicopter parenting may sometimes lead to positive outcomes for adult children. Fingerman and colleagues (2012) defined intense parental support (i.e. helicopter parenting) as providing several types of support (emotional, practical, socializing, advice, financial, and listening to daily events) multiple times per week on average, and found that this type of support was fairly common, with approximately one fourth of all parents supporting at least one grown child. They found that intense parental support was associated with better well-being for young adults, but parents reported less life satisfaction when they believed their adult children required too much support. Specifically, grown children with intense support showed better sense of goals and general life satisfaction, despite the fact that they viewed parental support as excessive (Fingerman et al., 2012).

**Parental Autonomy Support**

Parental autonomy support can be defined as the degree to which parents value and encourage problem solving, choice, and participation in decisions (Grolnick & Ryan, 1989). Grolnick and Ryan (1989) found evidence that autonomy support was positively related to a child’s levels of achievement along with self-regulation, competence, and adjustment variables, and was inversely related to a child acting out or showing learning problems. Kenney-Benson and Pomerantz (2005) operationalized autonomy support as opposite to parental control and found evidence that this opposite variable (parental control) was associated with the child’s depressive symptoms. The authors suggest that their findings parallel Grolnick and Ryan’s (1989) findings that children of parents with little autonomy support are externally motivated rather than internally (Kenney-Benson & Pomerantz, 2005, p. 39).

A study by Grolnick, Gurland, DeCourcey, & Jacob (2002) found that the children of more controlling mothers tend to perform lower on an experimental task, and that children of
mothers who showed higher autonomy support tended to write a poem more creatively. Other examinations into parental autonomy support have indicated that for students with ADHD, parental autonomy support can help moderate the relationship between ADHD and perseverance on a challenging task (Thomassin & Suveg, 2012), which provide a literature basis to the possibility that parental autonomy support may have a relationship with this study’s related factors to perseverance (i.e., grit, resilience, and academic buoyancy). Thomassin and Suveg (2012) also suggest that allowing opportunities for students to work through challenges may help students build problem-solving skills and frustration tolerance, and recognize the need for more examination into this topic (p. 964).

Parent autonomy support is often considered counter to helicopter parenting behaviors, as rather than controlling and displaying constant oversight, autonomy support behaviors encourage child autonomy. However, Schiffrin and colleagues (2014) found a significant, though small, correlation between autonomy support and helicopter behaviors, indicating that these behaviors may not always be entirely separate. They hypothesized that parents who attempt to promote independence through control may be perceived as nagging, or that in some situations parents may attempt to promote autonomy but may actually ignore their child’s need for guidance (Schiffrin et al., 2014). Further investigation into this finding may be warranted, thus the present study seeks to include a specific and valid perceived parental autonomy support measure in addition to a different measure of helicopter parenting.

**Academic Buoyancy**

Academic buoyancy is a relatively new construct in the field of school psychology, developed and researched primarily by Andrew Martin and Herbert Marsh (2006) as a separate construct from academic resilience. Academic buoyancy is defined by Martin & Marsh (2008a) as, “a student’s ability to successfully deal with academic setbacks and challenges that are typical of the ordinary course of school” (p. 54). Examples of academic buoyancy would be experiences like dealing with a poor grade from a teacher, the stresses of navigating multiple assignments and due dates, exam pressure, or challenging classwork (Martin & Marsh, 2008a). This was developed as a separate construct from traditionally defined academic resilience, which describes positive responses to more ‘major’ events of adversity a student may face, such as dealing with poverty, gang violence, a learning disability, or chronic underachievement (Martin & Marsh, 2008a). As a natural consequence of these definitions, academic buoyancy is a construct that impacts the achievement of a larger percentage of students who may interact with school psychologists. Martin and Marsh (2008a) described academic buoyancy as the “positive psychology version of resilience,” as it affects almost every student and is considered a part of healthy development of students (p. 55). Further elaboration on the distinction between the constructs of resilience and buoyancy centers on differences in degree and kind. Academic resilience may involve chronic achievement or clinical levels of depression/anxiety, whereas buoyancy involves setbacks like an isolated poor grade or low levels of confidence. In terms of their relationship to each other, academic buoyancy can be considered a “necessary but not sufficient” condition for academic resilience (Martin & Marsh, 2008a, p. 55). The authors also propose that academic buoyancy influences students’ ability to cope while solving problems in everyday academic stresses.

In further developing this construct, Martin and Marsh (2008a) attempted to conceptualize academic buoyancy and create a model that explains the predictors and results of academic buoyancy. They found that anxiety is the greatest predictor of academic buoyancy but self-efficacy, academic engagement, and teacher-student relationships were also factors. The
authors suggest that anxiety may lead to other maladaptive behaviors (e.g. self-handicapping, defensive pessimism) and prior literature suggests that individuals high in anxiety perform less well on upcoming assessments (Martin & Marsh, 2008a). Overall, this initial study found evidence for this separate form of everyday resilience, now named academic buoyancy, and showed psychometrically sound analysis in creation of a measure of buoyancy. Martin and Marsh (2008b) also examined academic buoyancy in school and work settings in order to further validate this research. A confirmatory factor analysis supported the structure of the scale and the scale was found to significantly relate to the hypothesized factors and correlates, which gave more credibility to the scale’s usefulness and the construct as a whole (Martin & Marsh, 2008b).

Martin, Colmar, Davey, and Marsh (2010) conducted a longitudinal study of the motivational factors involved in predicting academic buoyancy. These 5 factors are collectively known as the 5 C’s of academic buoyancy: confidence (self-efficacy), coordination (planning), commitment (persistence), composure (low anxiety), and control (low uncertain control) (Martin et al., 2010, p. 474). The authors found that the 5 C’s are still significant predictors of academic buoyancy when considered longitudinally. Martin (2013) continued to assess the difference between academic buoyancy and academic resilience and found evidence indicating a distinction between the two, but also 35% shared variance. Results also indicated that academic buoyancy was better able to directly predict low-level outcomes (anxiety, uncertain control, failure avoidance) while academic resilience was predictive of major negative outcomes (self-handicapping, disengagement) and mediated the relationship between buoyancy and major negative outcomes. These results also indicated that even after controlling for socio-demographic, prior achievement, and adversity factors, academic buoyancy and resilience help predict the aforementioned student outcomes (Martin, 2013). Putwain, Connors, Symes, and Douglas-Osborn (2012) further validated these claims by finding evidence that academic buoyancy is a distinct concept from adaptive coping and is actually unrelated, despite the hypothesis of Martin and Marsh. Their results indicated that buoyancy has a moderate, significant, inverse correlation with test anxiety (more academic buoyancy is associated with less test anxiety), but is unrelated to coping. Regression analyses also indicated that academic buoyancy explained a significant amount of variance in test anxiety that was not explained simply through coping (Putwain et al., 2012).

As a result of these validation and extension studies, recent work has been able to examine some of the implications of academic buoyancy on other areas of student functioning. Putwain and Daly (2013) used a person-centered approach to academic buoyancy and test anxiety and found support for the hypothesis that academic buoyancy protects against test anxiety and potential catastrophic reactions to stressful testing situations. The work of Martin, Ginns, Brackett, Malmberg, and Hall (2013) examined the relationship of academic buoyancy and psychological risks and found that there is a reciprocal relationship, and that effective student interventions can target either factor in promoting positive outcomes.

Martin (2014) found that academic buoyancy was related to better literacy and numeracy outcomes for students with and without ADHD, and that the impact of academic buoyancy was larger for students with ADHD. However, work by Collie, Martin, Malmberg, Hall, and Ginns (2015) found that academic buoyancy and achievement were not directly linked, but were linked by feelings of control. These results found that feelings of control were very highly linked to achievement, and this could be one way that helicopter parenting links to academic buoyancy in the present study.
Putwain, Daly, Chamberlain, and Sadreddini (2015) further examined the effects of academic buoyancy on test anxiety and high-stakes test performance and found increased evidence supporting the construct’s relevance to students in schools. Their results indicated that academic buoyancy predicts a higher mean score on a high stakes examination, and that composure continues to act as a strong component of academic buoyancy.

**Resilience**

Some debate has emerged regarding the ability to adequately measure resilience and therefore its actual implications on practice, as the construct is difficult to define (Windle, 2010). Windle (2010) defined resilience as, “the process of effectively negotiating, adapting to, or managing significant sources of stress or trauma. Assets and resources within the individual, their life, and environment facilitate this capacity for adaptation and ‘bouncing back’ in the face of adversity. Across the life course, the experience of resilience will vary” (p. 12). For the purpose of this paper, the definition of resilience will focus on the internal coping qualities that develop as a result of these setbacks and outside circumstances, rather than attempting to quantify the presence of protective factors that create these abilities.

Regardless of the challenges of measuring and defining resilience, the concept has a number of important implications in terms of psychological, educational, and general life outcomes. Therefore, it is important to examine its proposed relationship to helicopter parenting. Much of the literature on resilience focuses on adverse life situations, such as poverty, family conflict, abuse, neglect, etc. (see Zolkoski & Bullock, 2012, for a thorough review). However, some recent research indicates that in the stressful college environment of modern university, intrapersonal aspects of resilience may be able to explain why some students are better able to succeed than others (Hartley, 2011). Hartley (2011) found evidence that some of the factors in the 25-item Connor-Davidson Resilience Scale had a significant relationship with cumulative Grade Point Average (G.P.A.), though it only explained a small amount of the variance. One interesting observation from this study is that individuals who rated themselves high on ability to tolerate stress had lower cumulative G.P.A.s. The author hypothesized that stress tolerance may only be a protective factor if the individual has experienced adversity, and “it is possible that for students who have not experienced significant adversity, tolerating stress, such as receiving poor grades, may be associated with less motivation for academics” but concluded that more research into this theory is needed to investigate this claim (Hartley, 2011, p. 601). This hypothesis is consistent with the goals of the current study, as helicopter parenting behaviors may theoretically shield their children from adversity and children may thus have less motivation and perseverance.

Other research on college students’ resilience indicates that lower levels of resilience relate to increased levels of neuroticism and that resilience was a moderator between childhood emotional neglect and psychiatric symptoms (Campbell-Sills, Cohan & Stein, 2006). Further, research on college students suggests that there is a relationship between resilience and negative patterns of alcohol use (Johnson, Dinsmore, & Hof, 2011) and that resilience may play a role in limiting college student distress when these students believe that others have very high expectations for their behavior, known as socially-prescribed perfectionism (Klibert et al., 2012). Specifically, Klibert and colleagues found that students with higher levels of socially-prescribed perfectionism showed significantly lower levels of resilience and higher anxiety. These findings specifically may relate to an examination of helicopter parenting and resilience, as those parents displaying helicopter parenting behavior may often have high expectations for their child’s success (e.g. Locke et al., 2012).
Petrowski, Brahler, and Zenger (2014) attempted to examine parenting behaviors and resilience development in a large, representative sample of German individuals. They hypothesized that parental behaviors would be associated with development of resilience, which in turn would impact the child’s levels of anxiety and depression. Their results indicate that recalled parental rearing behavior had a significant relationship with resilience and these psychological outcomes, confirming the assumption that resilience has a mediating role between the two. However, Petrowski and colleagues (2014) did not find that the parenting styles of overprotection and control, most theoretically similar to helicopter parenting, were significantly related to resilience. The lack of a relationship implied by these findings is noteworthy in relation to the current proposed study, but it is important to note that the measure of parenting behavior used in Petrowski and colleagues’ (2014) work only included a total of 12 items, six for each mother and father. Thus, only two questions (measured for each parent) measured overparenting and control, and further examination of this conclusion is justified to replicate their results.

Rejection and punishment (negative behavior) were negatively associated with resilience and emotional warmth (positive rearing behavior) was positively associated with resilience (Petrowski et al., 2014). This is consistent with previous German research indicating that positive parental rearing is associated with high resilience and a lower risk for manifestation of a psychological disorder (Richter-Kornweitz, 2011; Werner, E, 2007; as cited in Petrowski et al., 2014). This is also consistent with the Kauai longitudinal resilience study, which found that positive parental interactions with an infant/toddler were associated with higher competence and autonomy at age 2 and greater scholastic competence at age 10, which was linked to self-efficacy, internal locus of control, and self-esteem (Werner, 1992).

Dawson and Pooley (2013) also examined factors that predict resilience in first year college students, specifically focusing on parental autonomy support, optimism, and perceived social support (PSS). Parental autonomy support in this study was comprised of promotion of independent functioning (PIF) and promotion of volitional functioning (PVF). PIF is defined as parents encouraging their children to rely on themselves and make their own decisions and PVF involves encouragement of children to explore, find, and make decisions based on their interests, values, and goals (Dawson & Pooley, 2013, p.39). The results of this examination were mixed; in stage one of the study, PIF and PVF significantly predicted resilience, but in stage two they did not, and they found that optimism and perceived social support were more important in predicting resilience. The authors hypothesize that PIF and PVF may have been subsumed by the measure of PSS, or may have an indirect impact on resilience rather than direct, indicating that further examination into this hypothesized relationship is warranted (Dawson & Pooley, 2013), as will be examined in the present study.

Grit

Grit is defined as, “perseverance and passion for long term goals” and involves the process of working hard over time and not giving up even when encountering obstacles on the road to success (Duckworth, Peterson, Matthews, & Kelly, 2007, p.1087). Angela Duckworth`s recent conceptualization of grit has been found to have an important relationship to success that cannot be explained through talent, personality, or other cognitive factors alone (Duckworth et al., 2007). Duckworth and colleagues (2007) created and validated a Grit Scale to measure this construct and found an association between grit and educational attainment (degree held) which exists even after controlling for personality traits. They also found that greater grit is associated with higher G.P.A. in college, even when controlled for SAT scores, and even found evidence suggesting that students with higher SAT scores have less grit. In terms of non-academic related
outcomes, it was also found that grit predicted completion of a difficult summer military program better than any other personality factor, and that in spelling bee candidates, grit predicted amount of study time which led to higher achievement (Duckworth et al., 2007).

Grit is often compared to self-control, but evidence from research on these concepts suggests that they are related but separate concepts (Duckworth & Gross, 2014). Specifically, self-control is more predictive of day-to-day success and related to short-term goals, while grit is predictive of long-term outcomes and high-level goals despite setbacks. Levy and Steele (2011) hypothesized that attachment and parenting styles may have a relationship with the eventual development of grit and used the Parental Bonding Instrument (PBI) to investigate this claim, which measures perceived parental quality in terms of “care” and “protection.” The results of this investigation found evidence that high grit scores were significantly linked to high care from mother and father, and that high anxiety is related to lower grit (Levy & Steele, 2011). Levy and Steele (2011) also found that father overprotection led to reduced female grit and male ambition, and thus theoretically may be a predictor of low grit due to reduced self-reliance, autonomy, and experience. The present study will further this work by examining whether parenting behaviors (e.g. helicopter or autonomy supportive) have an impact on grit through autonomy or competence.

The belief that helicopter parenting has negative implications for student achievement and perseverance is often mentioned by educational professionals and has been suggested in relation to grit (Locke et al., 2012). For example, a National Association of Elementary School Principals (NAESP) webinar conducted by Jim Grant (2014) suggested that society and parents have created a world in which gritty characteristics are no longer valued and have weakened children’s ability to persevere toward success. This claim has also been made in popular press, including a recent article by Kelly Wallace. Wallace (2015) interviewed authors Robin Koval and Linda Kaplan Thaler, who stated that “helicopter parenting, coupled with the belief that we should never let our children fail, have [sic] given rise to kids who are ill-prepared to cope with life’s challenges” (p. 1). The present study will further investigate these claims by examining whether there is a relationship between helicopter parenting behaviors and grit.

**Academic Locus of Control**

Locus of control is a well-studied construct that can be defined as the extent to which an individual believes he or she has control over the events in their life (Rinn, Boazman, Jackson, & Barrio, 2014). This construct is further broken down into beliefs of external locus of control and internal locus of control. External locus of control is a cognitive style in which an individual believes that the outcomes of his or her behavior are controlled by external factors, such as other individuals, chance, or are simply unpredictable; this stands in contrast to an internal locus, in which the person believes the outcome results directly from his or her own behavior and effort (Spokas & Heimberg, 2008; Curtis & Trice, 2013). A generalized external locus of control is generally associated with negative outcomes, including greater depression (Benassi, Sweeney, & Dufour, 1988). Previous research on locus of control indicates that more internal beliefs are associated with greater academic achievement, with a small-to-medium effect size, and this effect size tended to be larger in adolescents than in younger children (Findley & Cooper, 1983). Similarly, previous research also indicates that perceived control has a significant effect on a student’s motivation, attention, and persistence in the face of difficulty, and that a student’s level of autonomy can also further predict a student’s motivation (Patrick, Skinner, & Connell, 1993).

In addition to an individual’s general tendency of control beliefs, locus of control can also be measured in specific contexts, including academics. Some studies indicated that students
with more internal academic locus of control are rated as more positive, display fewer problem behaviors, and are more persistent on tasks (Buck & Austin, 1971; James, 1965, as cited in Akin, 2010). Trice and Hackburt (1989) found a significant relationship between the academic locus of control scale and non-illness related absenteeism for both women and men (i.e. a higher external locus of control was related to more non-illness absences). A separate study found that female university students with an internal academic locus of control and high self-esteem reported better overall adjustment to college than those with either an external locus or low esteem (Mooney, Sherman, & Lo Presto, 1991).

Curtis and Trice (2013) found significant relationships of academic locus of control with grade point average, absences, academic entitlement, procrastination, anxiety, and depression, showing that a revised measure of ALC still has academic implications for modern college students (Curtis & Trice, 2013). Other recent research indicates that academic locus of control may be predicted by perceived social support, as internal academic locus is related to more positive perceived social support, both by family and peers, which is also consistent with most prior literature on the topic (Satici, Uysal, & Akin, 2013).

To my knowledge, no studies have been conducted examining the effects of helicopter parenting on locus of control, whether through academic or generalized measures, and previous studies of the effect on academic achievement are inconclusive. The results of Schiffrin and colleagues (2014) provide a general context in which it is possible to begin examining the impact of helicopter parenting on a child’s view of his or her own self and academic abilities. It would not be possible to fully measure every area in which these parenting behaviors may impact children; however, academic locus of control is one area worthy of examination due to its suggested impact on student performance in the classroom at university and will be measured as a potential link between helicopter parenting and perseverance-outcomes. The use of perceived control (i.e. Academic Locus of Control) and autonomy also have been implicated as important factors in children’s motivation (Patrick et al., 1992), and the present study will seek to expand on these findings by determining if there is an association between these student factors and the academic perseverance-related qualities of resilience, grit, and academic buoyancy.

Present Study
The primary purpose of the present study is to examine potential connections between helicopter parenting and students’ academic perseverance-related variables that have been hypothesized in literature, but have not been extensively studied. The hypothesis is that helicopter parenting will negatively affect student scores on these measures (resilience, academic buoyancy, and grit) through helicopter parents’ impact on student locus of control, autonomy, and competence.

Previous studies on overprotective parenting, which is related to this study’s definition of helicopter parenting but shown to be separate (LeMoyne & Buchanan, 2011; Schiffrin et al., 2014), have indicated that students who report overprotecting and low warmth (i.e. affection) parents have an increased external locus of control (Spokas & Heimberg, 2008). External locus of control is a cognitive style in which an individual believes that the outcomes of their behavior are controlled by external factors such as other individuals, chance, or unpredictable, in contrast to internal locus, in which the person believes the outcome results directly from their own behavior (Spokas & Heimberg, 2008).

Examinations into parental autonomy support as compared to controlling behaviors have provided evidence that autonomy support predicts child self-regulation, competence, and adjustment, and is inversely related to acting out and learning problems (Grolnick & Ryan,
Schiffrin and colleagues (2014), consistent with others (e.g. Kenney-Benson & Pomerantz, 2005), theorized that parental autonomy supportive behaviors were opposite to helicopter parenting behaviors, yet found a significant correlation (r = .20) between the two. This correlation is worthy of further replication and examination of whether this relationship exists when using different measures of these variables, as the present study does not hypothesize that there will be a relationship.

Previous studies also indicate that helicopter parenting can lead to a plethora of negative psychological outcomes, such as higher anxiety (e.g. LeMoyne & Buchanan, 2011), neuroticism, interpersonal dependency, and coping efficacy (e.g. Odenweller et al., 2014), lower self-efficacy, social self-efficacy, and maladaptive workplace outcomes (Bradley-Geist & Olson-Buchanan, 2014). However, examinations into academic-related outcomes have been less prevalent, with only modest conclusions. For example, Padilla-Walker and Nelson (2012) found an association with lower engagement in school, but Bradley-Geist and Olson-Buchanan (2014) found no effect on G.P.A.; thus, further examination into related concepts is warranted. Locke and colleagues (2012) hypothesized that increased helicopter parenting would be associated with lower levels of student resiliency, based on the perspectives and comments by the parenting professionals (psychologists and school guidance counselors) surveyed in their work. In a similar vein, it has been suggested by Grant (2014) that helicopter parenting behaviors have a negative impact on student grit. However, neither of these views have been empirically examined to date.

The relationship between academic buoyancy and helicopter parenting has also not been examined; however, examinations into control, defined as a student’s ability to control their future academic outcomes, indicated that feelings of control link academic buoyancy to academic achievement (Collie et al., 2015). These findings suggest that control may link past experiences to future achievement, and thus indicate the importance of examining whether helicopter parenting has an influence on students’ ratings of academic locus of control. Overall, the present study hypothesizes that helicopter parenting will lead to reduced levels of students’ self-appraisals of their ability to succeed (their academic locus of control, autonomy, and competence), and thus have a negative impact on their perseverance in the classroom (as measured by grit, resilience, and academic buoyancy).

**Hypotheses and Research Questions**

In sum, the present study explored the following hypotheses and research questions:

**Is there a relationship between helicopter parenting behaviors and parental autonomy support behaviors?**

H1) Perceived parental autonomy support will be negatively related to helicopter parenting.

**Are the outcome variables of the present study (grit, resilience, and academic buoyancy) significantly related to one another?**

H2) Grit, Resilience, and Academic Buoyancy will be significantly correlated as differential measures of conceptually related but difficult to define concepts.

**Are parenting behaviors related to student perseverance outcomes?**

H3) Helicopter parenting will be related to negative ratings of student outcomes in grit, resilience, and academic buoyancy.

H4) Perceived parental autonomy support will be related to positive ratings of student outcomes in grit, resilience, and academic buoyancy.

**What factors influence the hypothesized relationship between parenting behaviors and outcomes?**
H5) Academic locus of control, autonomy, and competence will explain the relationship between helicopter parenting and the aforementioned outcome variables through an indirect path.

H6) Academic locus of control, autonomy, and competence will explain the relationship between perceived parental autonomy support and the aforementioned outcome variables through an indirect path.

**Do parenting behaviors or perseverance outcome measures have a relationship with academic outcomes (i.e. G.P.A.)?**

H7) Helicopter parenting will be related to a lower student G.P.A., whereas parental autonomy supportive behaviors will be related to higher student grade point average.

H8) Resilience, grit, and academic buoyancy will have positive correlations with G.P.A.

**Do demographic factors relate to parenting behaviors or the outcome measures of the study?**

H9) Demographic factors, such as race, gender, age, number of siblings, parent education, and socioeconomic status will not be related to parenting behaviors or outcome measures.

**Research Design**

**Participants**

The survey was electronically distributed to a randomly selected sample of 2500 undergraduate students at a public mid-sized university in the Midwest. Sample selection and survey distribution occurred following the university’s Institution Review Board approval under exempt status. Surveys with an item completion rate less than 25% were excluded from analysis. Following distribution and reminders procedures, 332 valid participant responses were obtained. Participants included 74.4% females (N=247) and 25.3% males (N=84), and 91.8% of participants (N=304) were between the ages of 18 and 24 (M = 21.1, SD =4.78). The majority of participants identified themselves as White (87.3%, N=290), followed by Multiple Races (5.1%, N=17), Asian or Asian American (3.9%, N=13), Black or African American (1.8%, N=6), and an additional 1.8% (N=6) who identified themselves as other or did not respond. Additionally, 2.7% of participants (N=9) indicated that they were Hispanic or Latino and 97.0% indicated that they were not (N=322). Demographic data from the university indicates that these percentages are similar to the undergraduate population as a whole, as reported by an institutional enrollment report developed by the university. Respondents varied across self-reported academic year, with 33.7% (N=112) indicating status as freshman, 22.3% (N=74) as sophomores, 21.1% (N=70) as juniors, 19.6% (N=65) as seniors, and 3.3% (N=11) fifth-year or greater. Respondents also varied across self-reported family socioeconomic status, with 4.5% (N=15) between $0-24,999, 8.4% (N=28) between 25,000-49,999, 13.0% (N=43) between 50,000-74,999, 25.9% (N=86) between $75,000-99,999, 14.2% (N=47) between $100,000-124,999, 13.9% (N=46) between 125,000-149,999, and 17.8% (N=59) over $150,000, with 2.4% (N=8) nonresponses.

**Materials**

The final Qualtrics survey included the following measures in order of appearance. All items were optional other than participant consent to participate. All measures were used with permission from their creators (if applicable).

**Research consent information.** This page included information regarding the purpose, benefits, and description of the research for participants, including completion time, potential risks and benefits involved with voluntary participation, an assurance of confidentiality, and contact information for the researcher. A copy of this page is included in Appendix A.
Helicopter parenting. Although multiple measures were considered to examine the construct of helicopter parenting, the Helicopter Parenting Instrument (HPI; Odenweller, Booth-Butterfield, & Weber, 2014) was selected after careful consideration of the study’s purposes and available validity information. Participants were asked to rate the 15 items on this instrument about their parent(s)/guardian(s) from 1 (Very Strongly Disagree) to 7 (Very Strongly Agree). Participants were also directed that if they do not have contact with one of their parents, to answer questions about another adult in their house. A high score on the HPI indicates a higher number of helicopter parenting behaviors displayed by parents of participants.

The HPI was developed based on other empirical research and popular press to “ensure the HPI captures Millennials’ perceptions of their parents’ current developmentally inappropriate, helicopter parenting behaviors” (Odenweller et al., 2014, p. 416). The HPI showed a positive but not isomorphic relationship with LeMoyne and Buchanan’s (2011) helicopter parenting scale, showing that it was distinct but valid (Odenweller et al., 2014). The scale was revised from 20 items based on an exploratory factor analysis and also showed strong construct validity, based on positive relationships with theoretically related variables and no relationship with a divergent variable, and its reliability was close to ideal (ideal being .80, actual was .78) (Odenweller et al., 2014). In the present study, the Cronbach’s alpha was .837.

Resilience. The 10-item Connor-Davidson Resilience Scale was selected to measure participant resilience as a practical and relevant measure for the present study with adequate psychometrics (Campbell-Sills & Stein, 2007). Participants were asked to mark the response to each item that they most agree applies to themselves over the past month. Statements were rated from not true at all (0) to true nearly all the time (4). Higher scores indicate greater resilience, measuring “…the ability to tolerate experiences such as change, personal problems, illness, pressure, failure, and painful feelings” (Campbell-Sills & Stein, p. 1026), a general ability to bounce back from life’s challenges. Thus, higher scores on this measure would be considered a beneficial characteristic.

There are a variety of criticisms and challenges regarding the measurement of resilience, but Windle and colleagues’ (2011) and Smith-Osborne and Bolton’s (2013) reviews were used in selecting a measure. Reviews found a lack of a “gold standard” in terms of criterion validity (Windle et al., 2011, p. 6) but the CD-RISC displays adequate psychometrics compared to other measures. Campbell-Sills and Stein (2007) created the short version using a factor analysis and reported good reliability (Cronbach’s alpha = .85), support for construct validity based on relationships with related measures, and high stability and correlation with the original 25-item measure (r=.92). Cronbach’s alpha was .876 for the CD-RISC 10 in the present study.

Academic buoyancy. Martin and Marsh’s (2008a) 4-item Academic Buoyancy Scale (ABS) was used to assess participant levels of academic buoyancy. The ABS scale assesses, “…students’ ability to effectively deal with setback, challenge, stress, and pressure that occur in the ordinary course of school life (i.e., an everyday academic resilience)” (Martin & Marsh, 2008a, p. 63). Participants were asked to rate each of the 4-items from 1 (Strongly Disagree) to 7 (Strongly Agree). Higher ratings on the ABS would be considered a positive characteristic and theoretically beneficial for the student’s success in school.

The scale was slightly modified to add clarifying details to ensure that question wording was understandable to participants, as the scale was originally normed in a different country and it was unsure if participants would fully understand the phrases “get on top of me” or “bad mark.” Prior research using the Academic Buoyancy Scale indicated adequate test-retest reliability, reliable internal consistency, a sound factor structure, a reliable and normal
distribution, and a significant predictive ability of academic outcomes among high school students (Martin & Marsh, 2006; Martin & Marsh, 2008a). In the present study, Cronbach’s alpha was measured at $\alpha = .829$ for the Academic Buoyancy Scale.

**Grit.** Grit was measured using Duckworth and colleagues’ (2007) 12-item grit scale, a self-report questionnaire intended to measure individual differences in grit. Participants were asked to rate themselves on each of the 12 items as compared to most people in the world following the scale’s published introductory statement. Participant ratings ranged from “Not like me at all” to “Very much like me.” This scale was developed and validated through an extensive process (Duckworth et al., 2007), resulting in high internal overall consistency ($\alpha = .85$) and factor consistency ($\alpha = .84$ and .78 for consistency of interests and perseverance of effort, respectively), and also showed internal reliability in a subsequent study in the same publication ($\alpha = .79$) (Duckworth et al., 2007). Higher participant ratings on the Grit scale would be considered a positive trait indicating higher perseverance. Cronbach’s alpha was .832 for the 12-item Grit scale in the present study.

**Parental autonomy support.** Parental autonomy support was measured using 9 items from the Parental Autonomy Support subscale of the Perceptions of Parents Scales: The College Student Scale (POPS-C; Robbins, 1994). Participants were asked to rate items about their parents from Not at all True (1) to Very True (7). If participants did not have contact with one of their parents, they were directed to answer questions about another adult who lives in their house (if applicable). A high score on the parental autonomy support subscale of the POPS-C indicates a high level of autonomy supportive behaviors by parents of participants, an indicator of beneficial parenting strategies when interacting with the participant.

The work of Niemiec and colleagues (2006) provides evidence for the reliability of this scale and also precedence for changing the wording of items from separate “mother” and “father” items as in the original 42-item scale to a singular “parents” item, as was used in the present study. This longitudinal work also found that the alpha reliability was .80 for autonomy support. Robbins’ (1994) initial dissertation devising this measure also provided evidence of the scale’s reliability and validity (Deci & Ryan, n.d.), but could not be accessed. In the present study, Cronbach’s alpha was .886 for the items of the Parental Autonomy Support scale.

**Autonomy and competence.** These concepts were measured using items from the Basic Need Satisfaction in General Scale (BNSG-S; Deci & Ryan, n.d.), consistent with the prior work on the topic of helicopter parenting by Schiffrin and colleagues (2014) and with the study’s goals. Participants were asked to rate statements on the 13-items from the Autonomy and Competence subscales from Not at all True (1) to Very True (7). Thus, higher scores on these measures indicate higher participant rating of themselves related to their autonomy and competence, which would be considered a positive characteristic.

Validation of this scale by Johnston and Finney (2010) indicates that this scale has somewhat acceptable internal consistencies (Autonomy $\alpha = .61 - .81$; Competence $\alpha = .60 - .86$) but may need further study of generalization (i.e. it should not be generalized to other context-specific areas). In the sample of Schiffrin and colleagues (2014), Cronbach’s alphas were .70 for Autonomy and .65 for Competence. Johnston and Finney (2010) concluded that “… the current study [of the scale] makes a theoretical contribution by providing further evidence that the three needs factors are distinct and are, in general, related to external variables in theoretical and meaningful ways” (p. 294). For Autonomy, Cronbach’s alpha was .735 in the present study, and was .749 for Competence.
**Academic locus of control.** Participants were asked to answer the 21-item Revised Academic Locus of Control Scale for College Students (ALC-R; Curtis & Trice, 2013). The ALC-R is a revised version of Trice’s (1985) Academic Locus of Control Scale for College Students used in many of the previously referenced work on academic locus of control. This scale is a 21-item true/false scale that loads on four factors: hopelessness, distractibility, poor student attitude, and impaired planning. A high score on the ALC indicates that a participant has a more external locus of control, meaning that a participant believes that their academics are more out of their control, often considered a potentially detrimental characteristic.

This revised form removed 7 items, many of which referred to somewhat dated fears in academic (e.g. professor grudges and athlete special treatment) that did not relate to these factors. Curtis and Trice (2013) concluded that this scale continues to be a useful measure of this construct in college students, though it has a limitation of a narrow sample. Internal consistency reliability data using Cronbach’s alpha were relatively low (α = .68), but an alternative measure, McDonald’s ω, indicated higher estimates for each factor and results (ω = .86) were similar to the initial Academic Locus of Control measure (Curtis & Trice, 2013). In the present study, Cronbach’s alpha was .732 for the 21 items of the Revised Academic Locus of Control scale.

**Demographic information.** Demographic information was also collected from participants at the end of the survey. Items included age, gender, time spent in the United States, race, ethnicity, year in school, high school G.P.A., cumulative college G.P.A., number of siblings, parent education level, and estimated socioeconomic status. Race and ethnicity demographic questions were adapted using recommendations developed by the National Center for Education Statistics (n.d.), using the two-question format and race categories identified in these standards.

**Procedures**

This sample was selected by the university’s Office of Institutional Research following the researcher’s request for a sample of degree-seeking undergraduate students attending the university’s main and regional campuses. Participants were sent an email invitation asking them to participate in the survey. In the invitation, participants were offered the chance to win a lottery-based incentive of a $50 Amazon Gift Card in order to improve response rates and survey completion in the web-based survey (Laguilles, Williams, & Saunders, 2011). Consistent with Nulty (2008), several methods were used in an attempt to maximize the response rate. The survey URL was clearly accessed and presented using Qualtrics, a survey tool that supports authoring and completion of online surveys via the web (Qualtrics Research Suite, 2016). Qualtrics is the university’s primary tool used when administering surveys to students and thus provides a format that is familiar to participants and can be accessed via computer or mobile devices at a time that is convenient for the participant. Participants were assured that their responses were confidential and important to advancing literature on the topic. In the invitation, participants were also provided the ability to opt-out of any future emails related to this survey, which removed the participant from the distribution list for any future reminders. The survey also began with a page describing participant research consent information, which explained participant rights and the opportunity to provide informed consent to participate in the survey. The survey was available for three weeks and several reminders were sent at varying intervals in order to increase response rates.

Participants were administered this survey using Qualtrics email distributor following a pilot administration to several graduate students. This pilot administration was intended to verify
that the Qualtrics distributor worked as intended and whether all survey items appeared as intended without typos.

**Data Analysis and Results**

Following completion of data collection, analyses were conducted using *IBM SPSS Statistics*. The first step of data analysis was to calculate the score for each variable according to the measure’s manual and/or reported scoring system, accounting for any item reversals and negatively coded items.

Following this process, measures of central tendency and variability were computed in order to summarize the dataset and compare the results to previous norms (when reported). This process was conducted as one method of verifying the face validity of the computation of this sample’s variables, as well as a comparison as to whether the resulting data appears consistent with previous studies of this nature. Results are presented in full in Table 2. Overall, the resulting means and standard deviations appeared to be close to the means reported in previous literature for each variable, suggesting that this sample is not a significant outlier and that there were no apparent calculation errors when calculating each variable using SPSS.

<table>
<thead>
<tr>
<th>Measure</th>
<th>M (SD)</th>
<th>Possible Range</th>
<th>Actual Range</th>
<th>Norm M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helicopter Parenting</td>
<td>3.22 (.91)</td>
<td>1.00 - 7.00</td>
<td>1.00 - 6.20</td>
<td>3.42 (.81)1</td>
</tr>
<tr>
<td>Parental Autonomy Support</td>
<td>5.26 (1.15)</td>
<td>1.00 - 7.00</td>
<td>1.89 - 7.00</td>
<td></td>
</tr>
<tr>
<td>Resilience</td>
<td>28.88 (6.277)</td>
<td>0.00 - 40.00</td>
<td>8.00 - 40.00</td>
<td>32.1 (5.8)2</td>
</tr>
<tr>
<td>Academic Buoyancy</td>
<td>4.51 (1.27)</td>
<td>1.00 - 7.00</td>
<td>1.00 - 7.00</td>
<td></td>
</tr>
<tr>
<td>Grit</td>
<td>3.39 (.60)</td>
<td>1.00 - 5.00</td>
<td>1.50 - 4.75</td>
<td>3.46 (.61)3</td>
</tr>
<tr>
<td>Autonomy</td>
<td>5.03 (.90)</td>
<td>1.00 - 7.00</td>
<td>2.43 - 7.00</td>
<td>5.09 (.89)4</td>
</tr>
<tr>
<td>Competence</td>
<td>5.26 (1.14)</td>
<td>1.00 - 7.00</td>
<td>2.67 - 7.00</td>
<td>5.07 (.98)4</td>
</tr>
<tr>
<td>Academic Locus of Control</td>
<td>7.89 (3.755)</td>
<td>0.00 - 24.00</td>
<td>0.00 - 18.00</td>
<td>7.81 (3.40)5</td>
</tr>
</tbody>
</table>

1 Odenweller et al. (2014) sample data from scale development
2 Davidson (2003) National random digit dial sample
3 Duckworth et al. (2007) Ivy League Undergraduates sample
4 Schiffrin et al. (2014) results using these measures
5 Curtis & Trice (2013) sample data from scale development

The next step of data analysis was to examine the normality of each variable before running further analyses. A Shapiro-Wilk test was run for each variable to examine whether the variable was significantly different from normal. Results indicated that the null hypothesis, that the variables are normally distributed within the sample, was supported for both Helicopter Parenting ($p = .084$) and Grit ($p = .135$). However, for the remaining variables (Resilience, Academic Buoyancy, Parental Autonomy Support, Autonomy, and Competence), the null hypothesis was rejected ($p < .05$) and thus normality could not be assumed. As normality cannot be assumed, nonparametric analyses were most appropriate for this dataset.
Spearman’s rank-order correlations were run to examine the relationships between variables, with cases excluded pairwise for missing variables, first examining relationships between measured variables and Helicopter Parenting. Results are presented in Table 3.

Table 3
Correlation matrix for measured variables

<table>
<thead>
<tr>
<th>Measure</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Helicopter Parenting</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Autonomy Support</td>
<td>-.530*</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Resilience</td>
<td>-.334*</td>
<td>.241*</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Academic Buoyancy</td>
<td>-.236*</td>
<td>.182*</td>
<td>.560*</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Grit</td>
<td>-.243*</td>
<td>.211*</td>
<td>.411*</td>
<td>.288*</td>
<td>----</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Autonomy</td>
<td>-.435*</td>
<td>.557*</td>
<td>.492*</td>
<td>.392*</td>
<td>.360*</td>
<td>----</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Competence</td>
<td>-.336*</td>
<td>.431*</td>
<td>.539*</td>
<td>.393*</td>
<td>.523*</td>
<td>.712*</td>
<td>----</td>
<td></td>
</tr>
<tr>
<td>8. Academic Locus</td>
<td>.238*</td>
<td>-.332*</td>
<td>-.428*</td>
<td>-.360*</td>
<td>0.600*</td>
<td>-.449*</td>
<td>-.543*</td>
<td>----</td>
</tr>
</tbody>
</table>

* indicates statistical significance at the .01 level (2-tailed)

There was a moderate, statistically significant negative correlation between Helicopter Parenting and Parental Autonomy Support $r_s(320) = -.530, p < .001$. This result indicates higher levels of helicopter parenting behaviors are related to lower levels of parenting behaviors that support autonomy. Hypothesis one of the study asked whether perceived parental autonomy support is related to helicopter parenting, and results indicate that these concepts are negatively correlated. Literature suggests that these concepts may be theoretical opposites, though parenting behaviors are complex and these concepts had an observed overlap in the present study (approximately 25% related variance).

Hypothesis two was that the three outcome variables of resilience, academic buoyancy, and grit would be significantly and strongly related, as the three measures were selected as indicators of different aspects of underlying academic perseverance in individuals. Resilience was significant yet moderately related with both Academic Buoyancy ($r_s(326) = .560, p < .001$) and Grit ($r_s(317) = .411, p < .001$). Academic Buoyancy was significantly but only weakly related with Grit ($r_s(320) = .288, p < .001$). These results indicate that the original hypothesis was only somewhat supported by the data, as these relationships were also weaker than expected if they are truly measuring an underlying principle related to academic perseverance.

There were also statistically significant correlations with the perseverance-related outcomes hypothesized in the study’s third hypothesis. Helicopter Parenting had statistically significant negative, weak relationships with Resilience, $r_s(321) = -.334, p < .001$, Academic Buoyancy, $r_s(324) = -.236, p < .001$, Grit, $r_s(314) = -.243, p < .001$, and Competence, $r_s(319) = -.336, p < .001$. Helicopter Parenting also had a statistically significant negative, moderate relationship with Autonomy, $r_s(322) = -.435$ and a statistically significant positive, weak correlation with Academic Locus of Control, $r_s(315) = .238, p < .001$.

Parental Autonomy Support also had statistically significant correlations with these outcome measures as hypothesized in the fourth hypothesis. This support was positively related with Resilience, $r_s(322) = .241, p < .001$, Academic Buoyancy, $r_s(326) = .182, p < .002$, and Grit,
$rs(326) = .211, p < .001$, though these correlations were weak in nature. PAS was moderately associated with Autonomy, $rs(325) = .557, p < .001$, and Competence, $rs(323) = .431, p < .001$, and negatively associated with Academic Locus of Control, $rs(318) = - .332, p < .001$. Overall, though these relationships were not as strong as theoretically expected, all correlations were in the hypothesized directions and significant.

In order to initially examine the relationships between Helicopter Parenting and outcome variables (Resilience, Grit, and Academic Buoyancy) as discussed in the study’s fifth hypothesis, simple linear regressions were conducted. Helicopter Parenting was found to significantly predict Resilience, $F(1,319) = 44.947, p < .01, R^2 = .351$. Helicopter Parenting also significantly predicted Grit, $F(1, 312) = 17.732, p < .01, R^2 = .054$ and Academic Buoyancy, $F(1, 322) = 21.411, p < .01, R^2 = .062$.

Following these analyses, the hypothesized mediator variables (Autonomy, Competence, and Academic Locus of Control) were added to the regression analyses. These variables significantly predicted Resilience ($F(4,302) = 44.998, p < .01$), finding a total effect of $R^2 = .373$. They also significantly predicted Grit, ($F(4, 295) = 63.825, p < .01$), total effect of $R^2 = .464$. Finally, the regression was significant when predicting Academic Buoyancy, ($F(4, 303) = 21.929, p < .01$), total effect of $R = .474$ ($R^2 = .224$).

In order to further analyze potential indirect (i.e. mediated) relationships between helicopter parenting and the hypothesized dependent variables related to perseverance, additional analysis was conducted consistent with hypothesis five. There are a variety of ways to examine multiple mediation systems using statistical analyses. Bootstrapping is one such method that has fewer assumptions when compared to other methods of analyses (e.g. the Sobel test). The basic premise of bootstrapping is that it allows for an existing sample to be re-sampled many times (generally greater than 1,000 times) to essentially create a larger sample size. Bootstrapping does not assume normality or symmetry of data, which allows for its use in nonparametric analyses.

Bootstrap analyses were conducted using a macro developed by Preacher and Hayes (2004). This macro is called PROCESS and is an addition to the SPSS program. This macro calculates bootstrap confidence intervals for indirect effects. If the confidence interval does not include zero, these indirect effects are considered to be significant (MacKinnon & Williams, 2008). Bias-corrected bootstrap is considered especially effective for smaller sample sizes.

Previous studies have found that the bias-corrected bootstrap has greater power than single-sample or other resampling methods, though occasionally is prone to type I error (MacKinnon & Williams, 2008). One drawback of the bootstrapping analysis using PROCESS is that it does not provide indices of fit, as independent variables are analyzed to mediators and mediators are analyzed to dependent variables.

Fritz and MacKinnon (2010) found that in order to obtain adequate levels of statistical power, sample size varies based on the size of effects examined. This work also found that bias-corrected bootstrap allows for the use of smallest sample sizes to reach this level of power when compared to other methods, and can achieve .8 power from between 34 and 462 participants, depending on the size of the alpha and beta paths (Fritz & MacKinnon (2010). Thus, the current study attempted to obtain up to 500 participants, though recognized the logistical limitations to obtaining such a sample, and any conclusions are prone to error due to lack of statistical power.

One assumption of mediators in this type of analysis is that they should be minimally correlated as to ensure that these indirect effects are accurate and not due to overlap in the variable measurement. Results indicate that this assumption was not met, and thus should be interpreted with caution. As reported previously in the correlation matrix, Autonomy had a
strong, positive correlation with Competence, \( r_s(325) = .712, p < .001 \) and a moderate, negative correlation with Academic Locus of Control, \( r_s(320) = -.449, p < .001 \). Competence had a moderate, negative relationship with Academic Locus of Control, \( r_s(317) = -.543, p < .001 \).

When using the PROCESS macro for SPSS, Model 4 was selected as it accurately depicts the mediator model hypothesized in the present study and allows for up to 10 mediators operating in parallel (Hayes & The Guilford Press, 2013). This model template is represented below, where \( X \) is the hypothesized independent variable (Helicopter Parenting or Parental Autonomy Support), \( M_1, M_2, \) and \( M_3 \) are the mediators (Autonomy, Competence, and Academic Locus of Control) in each analysis, and \( Y \) is the hypothesized dependent variable (Resilience, Academic Buoyancy, or Grit). The direct effect is from \( X \) to \( Y \), while the partial effects are the product \((ab)\) of the line from \( X \) to \( M_n \) (a) multiplied by \( M_n \) to \( Y \) (b). The total indirect effect is the sum of the three partial mediator effects.

\[ X \rightarrow M_1 \rightarrow M_2 \rightarrow M_3 \rightarrow Y \]

**Figure 1.** Hypothesized model using the PROCESS macro.

Analyses were conducted using the PROCESS macro to examine the mediator relationship from Helicopter Parenting to outcome measures (Resilience, Grit, and Academic Buoyancy), with Autonomy, Competence, and Academic Locus of Control serving as mediators. Results are summarized in Figure 2 and Table 4.

**Figure 2.** Mediation relationships from Helicopter Parenting to outcome measures, \( p < .05 \).
Table 4
Indirect effects for Helicopter Parenting mediation including confidence intervals

<table>
<thead>
<tr>
<th>DV</th>
<th>ab</th>
<th>SE</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience (Total)*</td>
<td>-1.375</td>
<td>.260</td>
<td>-1.8879</td>
<td>-.8737</td>
</tr>
<tr>
<td>Autonomy*</td>
<td>-.418</td>
<td>.205</td>
<td>-.826</td>
<td>-.025</td>
</tr>
<tr>
<td>Competence*</td>
<td>-.717</td>
<td>.203</td>
<td>-1.180</td>
<td>-.375</td>
</tr>
<tr>
<td>ALC*</td>
<td>-.241</td>
<td>.1178</td>
<td>-.541</td>
<td>-.063</td>
</tr>
<tr>
<td>Grit (Total)*</td>
<td>-.1131</td>
<td>.032</td>
<td>-.177</td>
<td>-.054</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.039</td>
<td>.022</td>
<td>-.0004</td>
<td>.084</td>
</tr>
<tr>
<td>Competence*</td>
<td>-.069</td>
<td>.0211</td>
<td>-.119</td>
<td>-.035</td>
</tr>
<tr>
<td>ALC*</td>
<td>-.083</td>
<td>.022</td>
<td>-.131</td>
<td>-.045</td>
</tr>
<tr>
<td>Academic Buoyancy (Total)*</td>
<td>-.221</td>
<td>.049</td>
<td>-.321</td>
<td>-.132</td>
</tr>
<tr>
<td>Autonomy</td>
<td>-.068</td>
<td>.054</td>
<td>-.181</td>
<td>.037</td>
</tr>
<tr>
<td>Competence*</td>
<td>-.090</td>
<td>.040</td>
<td>-.182</td>
<td>-.023</td>
</tr>
<tr>
<td>ALC*</td>
<td>-.064</td>
<td>.027</td>
<td>-.128</td>
<td>-.021</td>
</tr>
</tbody>
</table>

* indicates that indirect effect is statistically significant at the 95% confidence interval (LLCI and ULCI do not include zero) and therefore that mediation occurred

Overall, these results indicate that Helicopter Parenting significantly predicted Autonomy, Competence, and Academic Locus of Control, and each variable also significantly predicted resilience. Autonomy, Competence, and Academic Locus of Control also mediated the relationship between Helicopter Parenting and Resilience, explaining almost 60% of the total effect, $P_M = .58$. All three variables also significantly predicted Grit. The mediation effects of Competence and Academic Locus of Control were significant but small, and the mediation effect of Autonomy was not significant. The direct effect of Helicopter Parenting on Grit was not significant and the total effect was significant, but small. Autonomy did not significantly predict Academic Buoyancy or significantly mediate the relationship, but Competence and Academic Locus of Control had statistically significant effects. Mediation effects of Academic Buoyancy and Competence were also statistically significant. The direct effect of Helicopter Parenting on Academic Buoyancy was insignificant, and the total effect was significant. These variables again explained approximately 60% of the total effect, $P_M = .61$. These results are somewhat consistent with hypothesis five, which suggested that academic locus of control, autonomy, and competence will explain the relationship between helicopter parenting and outcome variables.

In the same method of starting with simple regressions and progressing forward, relationships were also examined between parental autonomy support and outcome variables in order to examine hypothesis six. Parental Autonomy Support was found to significantly predict Resilience, $F(1,320) = 16.323, p < .01, R = .220$ ($R^2 = .049$). Parental Autonomy Support also significantly predicted Grit, $F(1, 316) = 11.478, p < .01, R = .187$ ($R^2 = .035$) and Academic Buoyancy, $F(1, 324) = 11.241, p < .01, R = .183$, ($R^2 = .034$). As in hypothesis five, next the hypothesized mediator variables (Autonomy, Competence, and Academic Locus of Control) were added to the regression analyses. These variables significantly predicted Resilience ($F(4,305) = 42.058, p < .01$), finding a total effect of $R = .596$ ($R^2 = .355$). They also significantly predicted Grit, $F(4, 300) = 59.580, p < .01$, total effect of $R = .665$ ($R^2 = .443$). Finally, the regression was significant when predicting Academic Buoyancy, $F(4, 307) = 21.572, p < .01$, total effect of $R = .468$ ($R^2 = .219$).
In order to further examine hypothesis six, similar analyses were run using Parental Autonomy Support to outcome variables using the PROCESS macro and the same mediators. Results are presented below in Figure 3 and in Table 5.

Figure 3. Mediation relationships from Parental Autonomy Support to outcome measures, \( p < .05 \)

Table 5

<table>
<thead>
<tr>
<th>DV</th>
<th>ab</th>
<th>SE</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience (Total)*</td>
<td>1.679</td>
<td>.266</td>
<td>1.193</td>
<td>2.236</td>
</tr>
<tr>
<td>Autonomy*</td>
<td>.758</td>
<td>.219</td>
<td>.347</td>
<td>1.202</td>
</tr>
<tr>
<td>Competence*</td>
<td>.650</td>
<td>.183</td>
<td>.328</td>
<td>1.053</td>
</tr>
<tr>
<td>ALC*</td>
<td>.272</td>
<td>.109</td>
<td>.094</td>
<td>.532</td>
</tr>
<tr>
<td>Grit (Total)*</td>
<td>.119</td>
<td>.027</td>
<td>.070</td>
<td>.175</td>
</tr>
<tr>
<td>Autonomy</td>
<td>-.024</td>
<td>.022</td>
<td>-.070</td>
<td>.017</td>
</tr>
<tr>
<td>Competence*</td>
<td>.065</td>
<td>.018</td>
<td>.034</td>
<td>.106</td>
</tr>
<tr>
<td>ALC*</td>
<td>.078</td>
<td>.018</td>
<td>.045</td>
<td>.117</td>
</tr>
<tr>
<td>Academic Buoyancy (Total)*</td>
<td>.264</td>
<td>.055</td>
<td>.162</td>
<td>.375</td>
</tr>
<tr>
<td>Autonomy*</td>
<td>.116</td>
<td>.055</td>
<td>.005</td>
<td>.224</td>
</tr>
<tr>
<td>Competence*</td>
<td>.078</td>
<td>.037</td>
<td>.014</td>
<td>.161</td>
</tr>
<tr>
<td>ALC*</td>
<td>.070</td>
<td>.023</td>
<td>.031</td>
<td>.123</td>
</tr>
</tbody>
</table>

* indicates that indirect effect is statistically significant at the 95% confidence interval (LLCI and ULCI do not include zero) and therefore that mediation occurred

Results suggested that Parental Autonomy Support was a significant predictor of Autonomy, Competence, and Academic Locus of Control. Autonomy, Competence, and
Academic Locus of Control all significantly predicted Resilience in turn, and all indirect effects were statistically significant. The total indirect effect was statistically significant and large, and the direct effect was negative and statistically significant. Thus, inconsistent mediation was observed ($P_M = 1.564$) because the direct effect was opposite in sign from the indirect effect (Kenny, 2016).

When examining Grit as the outcome measure, Competence and Academic Locus of Control both predicted Grit, and indirect effects for the two mediators were significant but small. Autonomy did not significantly predict Grit ($p > .05$) and was not a significant mediated effect. The direct effect of Parental Autonomy Support on Grit was not significant ($p > .05$). Total indirect effects were significant but small (.1186), and the overall total effect was also significant but small (.102). Academic Buoyancy was significantly predicted by all three mediator variables ($p < .02$) and indirect effects were significant but small. The direct effect of Parental Autonomy Support on Academic buoyancy was not significant. The total indirect effect was significant (.264) and the total effect was significant but small (.188). According to Kenny (2014), percent mediation ($P_M$) should only be reported if the total effect is statistically significant and moderate in size and thus is not reported for Grit or Academic Buoyancy.

In order to examine hypothesis number seven, which suggested that parenting behaviors will have a relationship with academic outcomes, correlations between parenting behaviors and University Grade Point Average (G.P.A.) were examined. University G.P.A. was also weakly correlated with Parental Autonomy Support ($r_r(327)=.112$) but was not significantly correlated with Helicopter Parenting. Results indicated that G.P.A. was weakly correlated with the outcome measures of Resilience ($r_r(327) = .132$), Grit ($r_r(321)=.235$), and Academic Buoyancy, ($r_r(331)=.142$), all $p < .05$. G.P.A. was also negatively correlated with Academic Locus of Control ($r_r(322) = -.290, p < .001$), indicating that students with a more external locus of control perform worse in school (i.e. low G.P.A.).

To examine hypothesis nine, data were also analyzed in order to examine whether ratings on each variable were significantly different based on demographic information collected as part of this study. It was originally hypothesized that demographic factors would not be related to parenting behaviors or the outcome measures used in the study. Independent samples t-tests were conducted to examine whether gender had a significant impact on participant ratings of variables. The tests revealed that there was not a statistically significant ($p > .05$) gender difference for Helicopter Parenting ($t = -.360, df = 322$), Parental Autonomy Support ($t = -.012, df = 189.272$), Academic Buoyancy ($t = 1.588, df = 181.471$) or Resilience ($t = -1.388, df = 324$).

However, this test did reveal statistically significant gender effects for Grit ($t = -2.954, df = 318, p = .003$), Autonomy ($t = -2.990, df = 162.130, p = .003$), Competence ($t = -2.848, df = 323, p = .005$), and Academic Locus of Control ($t = 2.389, df = 319, p = .017$). Male participants reported significantly lower levels of Grit ($M = 3.23, SD = .59$) than female participants ($M = 3.46, SD = .58$). Males in the sample also reported significantly lower levels of Autonomy ($M = 4.80, SD = .79$) than females ($M = 5.11, SD = .92$). For Competence, males reported significantly lower levels ($M = 4.86, SD = .92$) than females ($M = 5.22, SD = 1.02$). Lastly, males reported significantly higher scores on the Academic Locus of Control measure ($M = 8.73, SD = 3.95$) than females ($M = 5.22, SD = 1.03$), indicating that males may display a greater belief that academics are out of their control (i.e. external locus) than females in this sample.

A one-way ANOVA was also conducted to examine whether there were statistically significant differences among ratings of variables based on race of the participant. Due to the fact that only one participant response was available for Native Hawaiian or Pacific Islander,
comparison of means including that demographic was not appropriate and the case was removed from further post-hoc analyses. A test of homogeneity of variances indicated that for all variables, the equal variances assumption was met \( (p > .05) \). Among all variables, the results revealed statistically significant differences among races only for the variable of Resilience, \( F(3, 322) = 3.531, p = .015 \). Post-hoc Tukey tests revealed statistically significant differences between participants who self-identified as Other \( (M = 34.43, SD = 5.13) \) and those as Asian or Asian-American \( (M = 25.08, SD = 8.91) \). Participants in the Other category reported significantly higher Resilience than those in the Asian or Asian-American category. Though the overall ANOVA was not statistically significant for Competence, \( F(3, 320) = 2.369, p = .071 \), there was also a statistically significant difference between participants in the Asian or Asian-American category \( (M = 4.38, SD = .95) \) and in the White or Caucasian category \( (M = 5.15, SD = 1.02) \). Participants identifying as White or Caucasian reported significantly higher Competence than those who identified as Asian or Asian-American. There were no other statistically significant differences between other groups.

One-way ANOVAs were also conducted to examine whether there were statistically significant differences among participant ratings of Helicopter Parenting based on the other demographic information gathered in the study, consistent with the final hypothesis. A one-way ANOVA was first conducted for participant age. A test of homogeneity of variances indicated that for Helicopter Parenting, the equal variances assumption was met \( (p > .05) \). The results of this ANOVA revealed statistically significant differences among several groups, \( F(7, 316) = 4.473, p < .001 \). 18-year olds \( (n = 51, M = 3.55, SD = .81) \) reported statistically higher levels of Helicopter Parenting than 21 year olds \( (n = 58, M = 2.99, SD = .84) \), 22 year olds \( (n = 34, M = 2.95, SD = .80) \), and participants identifying as older than 24 \( (n = 25, M = 2.58, SD = .80) \). 19-year-old \( (n = 82, M = 3.36, SD = .85) \) and 20-year old \( (n = 65, M = 3.33, SD = 1.04) \) participants also reported significantly higher levels of Helicopter Parenting than participants older than 24. No other significant differences were found. In sum, younger participants (18, 19, and 20-year olds) tended to report significantly greater levels of Helicopter Parenting than older participants.

Another one-way ANOVA was also conducted to examine whether there were statistically significant differences among participant ratings of Helicopter Parenting based on the number of siblings a participant reported, but no significant differences were found, \( F(5, 318) = 1.151, p = .333 \). There were also not statistically significant differences based on either parent’s highest level of education completed, \( F(7, 317) = .969, p = .454; F(8, 315) = .589, p = .787 \). Approximate socioeconomic status when growing up also did not lead to statistically significant differences among groups, \( F(6, 311) = 1.193, p = .310 \).

**Discussion**

This study sought to examine the relationship between parenting characteristics and student perseverance factors, and whether there are factors that significantly influence these relationships. The first research question simply asked whether there is a relationship between helicopter parenting behaviors and parental autonomy support behaviors, as these behaviors were hypothesized to be conceptually distinct and may in fact be theoretical opposites. The present study found support for the hypothesis, with a large, negative correlation found between the two constructs. This finding is consistent with Kenney-Benson and Pomerantz (2005), who conceptualized autonomy support as opposite to parental control, a similar concept to helicopter parenting that is also associated with negative outcomes. The present findings are also inconsistent with Schiffrin and colleagues’ (2014) finding of a small, significant correlation.
between autonomy support and helicopter behaviors, which raises questions that may need explored in future research.

The second research question asked whether these outcome variables in the present study (grit, resilience, and academic buoyancy) are significantly related to one another. These outcomes were selected for the study as they were hypothesized to be differential measures of conceptually-related concepts that are often difficult to define and quantify. Results indicated that these concepts were significantly correlated, in partial support of hypothesis two, but these relationships were not as strong as hypothesized. The correlation between resilience and academic buoyancy was large but was smaller with grit, and grit’s relationship with academic buoyancy was even smaller. This is somewhat consistent with previous work attempting to distinguish academic buoyancy from related concepts, which generally has found that academic buoyancy is a different concept from academic resilience or adaptive coping (e.g. Martin & Marsh, 2008a, 2008b; Martin et al. 2010; Martin, 2013; Putwain et al., 2012).

The third research question asked whether helicopter parenting or autonomy supportive behaviors would have a relationship with the perseverance-related factors of resilience, grit, and academic buoyancy. It was hypothesized that helicopter parenting would be related to negative ratings of student outcomes in grit, resilience, and academic buoyancy. This hypothesis was supported by the data, with negative correlations found with all three outcomes as hypothesized. It was also hypothesized in hypothesis number four that perceived parental autonomy support would be positively related to positive ratings of grit, resilience, and academic buoyancy. This was also supported by the data, with positive correlations emerging. As this research question directly tied into the next research question, all connections between measured variables and previous research will be included after that section, as the specific relationships examined in this study have not been previously studied together.

The fourth research question asked whether there were specific factors that may influence the relationship between parenting behaviors and student outcomes, if these relationships were found as hypothesized. Hypothesis five suggested that academic locus of control, autonomy, and competence would explain the relationship between helicopter parenting and the aforementioned outcome variables through an indirect path (i.e. mediation). This hypothesis was partially supported by the data, with mediation analysis indicating that over half of the relationship between helicopter parenting and resilience was explained through mediation by these three variables, and an overall large total negative effect on resilience. This result is consistent with the untested hypotheses suggested by participants in Locke and colleagues’ (2012) survey, who thought that ‘overparenting’ (as named in the study) may lead to poor resilience. Using a different measure of helicopter parenting, Schiffrin and colleagues (2014) found that helicopter parenting behaviors were associated with lower autonomy, competence, and relatedness, which is consistent with the findings of the present study that helicopter parenting has a negative effect on autonomy and competence.

Padilla-Walker and Nelson (2012) suggested that helicopter parenting may be associated with less investment in education and career goals for students as measured through items rating student commitment to education. The present study provides additional support for this finding using a different measure, as helicopter parenting was found to be related to higher (i.e. more external) levels of academic locus of control, meaning that students increasingly believe that academic outcomes are out of their control. Klibert and colleagues (2012) found that college students who think others have high expectations of their behavior (i.e. socially-prescribed perfectionism) have lower resilience, which is consistent with the present study’s findings that
helicopter parenting is also related to significantly lower resilience. The present study’s findings are also in contrast to Petrowski and colleagues (2014) who did not find overprotection and control, conceptually similar to helicopter parenting, to relate to resilience, and suggests that their measures may have been inadequate measures of helicopter parenting.

However, the total effect of helicopter parenting on grit was small. Though the direct effect was not significant and the indirect effects explained most of the effect, percent mediation is not appropriate for the small total effect size and autonomy’s effect was not statistically significant. The present results that helicopter parenting has only a small negative effect on grit indicates that some of the concerns about helicopter parenting raised in the media (e.g. Grant, 2014; Wallace, 2015) may be overstated, though it is associated with negative outcomes.

The total effect of helicopter parenting on academic buoyancy was medium and the mediators helped explain the majority of this relationship, but the indirect effect of autonomy was again not statistically significant. Collie and colleagues (2015) found that feelings of control play a role in the impact of academic buoyancy on academic achievement. Their work was suggested as a literature basis for how helicopter parenting may influence academic buoyancy (i.e. through feelings of control) prior to this study, and though this indirect effect was found to be statistically significant, it was small in nature, as was the direct path from academic locus of control to academic buoyancy.

Parental autonomy support was a significant predictor of all mediator variables and the total effect on resilience was positive and significantly mediated with a high total indirect effect through the three mediators. However, the direct effect of parental autonomy support on resilience was negative, contrary to expectations, and this led to inconsistent mediation. This finding is consistent with most prior research that positive parental rearing behavior is associated with high resilience (Petrowski et al., 2014). Findings are also consistent with longitudinal findings of the Kauai resilience study that supportive parental behavior at a young age can lead to higher competence, autonomy, and internal locus of control (Werner, 1992). The finding that parental autonomy support is associated with higher resilience also helps clarify Dawson and Pooley’s (2013) inconclusive findings about the role of parental autonomy support and resilience. Grolnick and Ryan (1989) also found that autonomy support was related to a child’s competence, which is consistent with the present study’s findings.

The direct effects of parental autonomy support on grit were not significant. Total indirect effects through the mediators to grit were significant but small, leading to a small total effect. These results are only able to somewhat corroborate the results of Levy and Steele (2012) who found that higher care from parents led to higher grit, and that overprotection led to reduced female grit and male ambition. Levy and Steele hypothesized that reduced autonomy may be a factor in this reduced grit (2011, p. 38), but autonomy did not significantly predict grit in the present study and thus this suggestion could not be supported.

Parental autonomy support also did not have a significant direct effect on academic buoyancy. Total indirect effects to academic buoyancy were also significant and the total effect was also significant but small. Overall, these results show minor support for the original hypothesis that these mediators help explain the relationship between parental autonomy support and outcome variables. Thus, Thompson and Suveg’s (2012) findings that parental autonomy support can lead to increased perseverance on a challenging task were only somewhat supported by these results, though the present study examined a sample of all college students and not just students with ADHD. Grolnick and Ryan (1989) and Kenney-Benson and Pomerantz (2005) each found parallel results that children of parents with lower autonomy support are externally
motivated, which is consistent with the present findings that higher parental autonomy support led to a more internal locus of control.

The fifth research question asked whether parenting behaviors or perseverance-outcome measures appear to have any relationship with academic outcomes as measured by grade point average. The seventh hypothesis suggested that helicopter parenting will be related to a lower G.P.A. but parental autonomy supportive behaviors would be related to a higher G.P.A. Previous studies on parenting styles and college G.P.A. has shown mixed results, with Steinberg and colleagues (1992) finding that an authoritative parenting style is linked to higher academic achievement, but Joshi and colleagues (2003) finding no association with parenting styles and G.P.A. No correlations between helicopter parenting and G.P.A. were found in the present study, which is consistent with Bradley-Geist and Olson-Buchanan’s (2014) results that did not find a relationship between overparenting and G.P.A. However, Grolnick and Ryan’s (1989) findings that autonomy support is positively related to a child’s achievement was supported in the present study’s finding that Parental Autonomy Support was positively related to G.P.A., though this relationship was weak in the present study.

In examining hypothesis number eight, which suggested that resilience, grit, and academic buoyancy would have positive correlations with G.P.A., several findings were consistent with previous literature. Academic buoyancy was also correlated with G.P.A. in the present study, consistent with some prior work that it has an impact on student achievement (Martin, 2014), though Collie and colleagues (2015) found that they are not associated. The finding of a small correlation between resilience and university grade point average is also consistent with Hartley’s (2011) work with the full version of the Connor-Davidson Resilience Scale. The finding that Grit is correlated with grade point average is consistent with the original findings of Duckworth and colleagues (2007). In addition, the present finding that G.P.A. was significantly correlated to both academic buoyancy and Academic Locus of Control, but more strongly related to Academic Locus of Control provides some support to the work of Collie and colleagues (2015) and is also consistent with the findings reviewed in Curtis & Trice (2013) that an internal locus of control is associated with higher course grades and a higher overall grade point average.

Lastly, the present study examined whether demographic characteristics were related to helicopter parenting, consistent with the final research question and the null hypothesis that demographic factors are not related to parenting behaviors or outcome measures. Results indicated that there was not a statistically significant gender difference between males and females in perceptions of helicopter parenting or parental autonomy support. Odenweller and colleagues (2014) did not report scores disaggregated by gender or any significant differences, nor did Nimiec et al. (2006), so it is unclear whether these gender differences are normal, though prior research indicates that females tend to receive more support than males (as described in Fingerman et al., 2015). The findings that males displayed lower levels of grit, autonomy, and competence, and a more external locus of control, were somewhat surprising and may be a reflection of the disproportionate sample or a potential limitation of the generalizability of the study. This unique finding demonstrates the need for further research into potential gender effects of these concepts. Duckworth and colleagues (2007) did not report any gender differences in their initial work with the Grit Scale, nor did Johnston and Finney (2010) in their validation of the Basic Needs Satisfaction in General Scale. Curtis and Trice (2013) did find that men reported higher mean scores on the Revised Academic Locus of Control scale and thus these results may be consistent, though whether these differences were statistically significant was not reported.
The finding that in general, younger participants (18, 19, and 20-year-olds) reported higher levels of helicopter parenting than older participants is consistent with previous research finding that younger grown children receive more frequent support from their parents (as summarized in Fingerman et al., 2015). It is possible that students who are transitioning into the college years may be perceived as requiring more assistance from their parents. This finding is also consistent with the study’s conceptualization of helicopter parenting as provision of developmentally inappropriate support, as these levels of support should naturally decline as a child advances through the college years. It is also possible that the prevalence of helicopter parenting behaviors is increasing over time, as hypothesized in recent popular literature, and may be another area in need of additional research.

There were no statistically different ratings of helicopter parenting based on number of siblings reported. This finding is not consistent with the 2014 findings of Bradley-Geist and Olsen-Buchanan who found that overparenting was predicted by a fewer number of siblings. There were also not significant differences among racial groups in helicopter parenting, which is also inconsistent with their findings that Asian parents were more likely to display helicopter parenting behaviors. It is possible that these findings could be due to different methods of analysis or the nature of the sample and measurement tools, and additional study into this topic may be warranted. There were also not statistically different differences in helicopter parenting based on highest level of parent education completed or reported family socioeconomic status. No known research has examined these constructs and may be an additional avenue for further examination and study in the future.

Limitations

The primary limitations of this study relate to the study’s sample, its design, and the inherent limitations of using self-reported questionnaire data collected at a single point in time. The study’s sample was predominantly female (almost 75%) and white (87%) and only from one particular university. The study’s use of an undergraduate population also may inherently exclude participants who may be experiencing helicopter parenting behaviors yet did not attend college. It is also a limitation in that students were given the option whether or not they wished to participate in the study, which may reflect a self-selection bias and thus creates the possibility that participants may reflect an inherent bias in their characteristics (e.g. the participants in this study may display more academic perseverance than the average undergraduate student). This study also continues limitations of use of participants from Western, educated, industrialized, rich and democratic (WEIRD) societies, which may be outliers on many measures and are significantly overrepresented in research studies (Azar, 2010). However, in response to these sample limitations, it is also relevant that helicopter parenting is commonly conceptualized as occurring in these societies and is a common concern of individuals involved in higher education, and thus may be a valid and appropriate use of this population.

Given the correlational nature of the study, there are inherent limitations to conclusions that can be made and it is impossible to determine causality. Longitudinal study of the variables examined in this study may allow for increased validity and generalization of results. Research could also be conducted experimentally, for example by using tools such as the Academic Diligence Task (Galla, Plummer, White, Meketon, D’Mello, and Duckworth, 2014) in addition to self-report data. As Duckworth and colleagues (2007) outline in their work, the Grit scale and other tools used in the present study may be fairly transparent in their goals and impacted by social desirability bias, even though results were confidential in nature. Participants may have rated themselves or their relationships with their parents in a more desirable way than reality.
would indicate. Future researchers may want to improve upon this limitation by verifying self-report data. Participant reports of G.P.A. were also self-reported and not verified in any way, and did not consider factors such as student age, student major, or the many other factors that may influence G.P.A. In addition, as described in the Materials section, reliability and validity data for each scale is variable and is an attempt to quantify complex concepts, and thus may create some level of potential for measurement error.

Implications for Research

Although causality cannot be determined with certainty, the results of this study indicate that there may be some basis for the claim that helicopter parenting behaviors may impact perseverance-related outcomes in college students. Academic perseverance appears to be a difficult concept to measure and the measures used in the present study may not truly grasp the components of overall perseverance in school. Future research into this concept may be necessary, and future researchers could also use experimental tools such as the aforementioned Academic Diligence Task in addition to self-report measures. Parenting behaviors as a whole, particularly the distinction between helicopter parenting and supportive parenting, can also be difficult to measure and discern, and relationships with outcomes are complex in nature. The present study provides preliminary evidence that helicopter parenting is associated with less desirable outcomes, particularly lower levels of college student resilience, and that these results may occur as a result of the influence of helicopter parenting behaviors on students’ feelings of autonomy, competence, and locus of control.

Implications for Practice

Though school psychologists typically practice in the preschool through secondary school age ranges, this study has relevance for practicing school psychologists in its applications to earlier displays of helicopter parenting behaviors. There is a growing body of research (e.g. Locke et al., 2012), that shows that these helicopter parenting behaviors manifest themselves throughout a child’s development and are concerning to professionals in the school setting across ages prior to university. School psychologists play a role in using research to shape practice, and can use these results in collaborations with parents and school professionals (e.g. intervention specialists, special education aides) in showing the importance of using developmentally appropriate supports for our students and allowing them to build their own autonomy and confidence in interacting with the world beyond school. The majority of research on this topic suggests that although parenting is a complex and nuanced topic, and that parental support is an important predictor of student success, it is possible to go beyond supporting a student and into enabling them. School psychologists can encourage parents and staff to incorporate natural consequences, problem solving strategies, and autonomy-supportive behaviors, rather than helicopter parenting behaviors, into daily life. No one wants to allow students to experience catastrophic difficulties or failures, but occasional opportunities to learn how to react to challenging scenarios or problem-solve their own solutions are important to healthy social-emotional development and outcomes for students. Subtle distinctions in behaviors can be the shift from autonomy-supportive to helicopter parenting behaviors. For example, encouraging study habits or reviewing a college essay can be considered autonomy-supportive behaviors, but blaming the school or teacher for a failing grade, or calling the university to ask for an extension are no longer developmentally appropriate behaviors. It is important for parents and educational professionals to provide ample opportunities for students to develop problem-solving skills in a supportive environment, but not to be afraid to allow a student to learn on their own, be creative, and occasionally fail too.
References


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