How Relationships Foster Thriving: Associations among Compassionate Goals in Relationships, Growth Seeking Orientation, and Academic Self-Regulation

THESIS

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Abstract

Striving for personal growth is an inherent human tendency, but this tendency can be derailed by various life challenges. People high in growth seeking pursue learning and growth even in the face of challenges. The current studies examined the precursors and sequelae of growth seeking in interpersonal relationships. Study 1 showed that general compassionate goals are associated with growth seeking. Study 2 replicated this association in specific relationships and showed that perceived mutual support statistically mediated the association. Study 3 replicated the mediation model in a 10-week longitudinal study and showed that growth seeking fostered by compassionate goals predicted increased academic growth goals, which in turn predicted increased academic self-regulation. These findings suggest that people with benevolent intentions toward others establish mutually supportive relationships with others, which provides the basis for them to strive for growth in the face of challenges and thrive through them.
Dedicated to my grandfather, Shicheng Jiang, and my grandmother, Yifen Xu
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Chapter 1: Introduction

He [A person] rises by lifting others.

–Robert G. Ingersoll, The works of Robert G. Ingersoll, Volume 11, 1902

Humanistic theories suggest that people have an innate desire to expand their capacities, grow as a person, and fulfill their potential (e.g., Deci & Ryan, 2000; Maslow, 1987). This view of human nature is not always realized, however. Not everyone strives for personal growth, especially in the face of challenges, difficulties, and setbacks. Indeed, when challenged, people tend to protect their self-worth, becoming defensive and withdrawing effort (Campbell & Sedikides, 1999; Crocker, Brook, Niiya, & Villacorta, 2007; Dweck & Leggett, 1988; Dykman, 1998; Major, Spencer, Schmader, Wolfe, & Crocker, 1998; Steele 1988). For example, when facing difficulties that matter for self-worth, people tend to lose their intrinsic motivations and self-handicap to protect their self-worth from failure (Crocker et al., 2007). Also, with the onset of failure, people tend to express negative affect and engage in maladaptive problem-solving strategies (Dweck & Leggett, 1988).

However, even facing challenging situations, some people still pursue growth and thrive through challenges (Dweck & Leggett, 1988; Dykman, 1998). Growth seeking orientation (shortened here as growth seeking) refers to a particular aspect of one’s desire to grow—the general tendency to approach challenges, difficulties, and setbacks, not as
something to avoid or protect oneself from, but as opportunities to learn and grow (Dykman, 1998). People high in growth seeking respond more constructively to life challenges and experience greater psychological well-being than people who lack this orientation (El-Alayli & Gabriel, 2007; Dykman, 1998; Flett, Besser, & Hewitt, 2014; Rusk, Tamir, & Rothbaum, 2011).

Yet, despite its benefits, little research has examined how growth seeking develops. In the current research, we explore how processes in interpersonal relationships can foster increased growth seeking. Specifically, we examine whether people with benevolent intentions toward others (i.e., people with compassionate goals) have high growth seeking and develop higher levels of growth seeking over time through their perception of mutual support in their relationships. Moreover, we explore the implications of growth seeking for academic self-regulation, by testing whether growth seeking that originates from compassionate goals in relationships predicts increased academic self-regulation by fostering academic growth goals.

**Goal Orientations and Growth Seeking**

Goal orientations refer to how people construe and approach life situations, and they influence people’s cognition, affect, and behavior in response to situations involving challenges, difficulties, or setbacks (Ames & Archer, 1988; Dykman, 1998; Dweck & Leggett, 1988). Research on goal orientations has mostly focused on achievement-related situations and has examined the antecedents and consequences of learning goals, which refer to the goals to acquire new knowledge or skills in achievement settings (Elliott & Dweck, 1988; Grant & Dweck, 2003; see Kaplan & Maehr, 2007; Payne, Youngcourt, &
Beaubien, 2007, for reviews). For example, Dweck and colleagues have demonstrated that implicit theories influence learning goals, which in turn influence academic engagement and performance (Dweck, 1999; Dweck & Leggett, 1988). When people have an “incremental” theory about an attribute, such as intelligence, they believe that it can be developed over time. Accordingly, students with stronger incremental theories about intelligence focus more on growth and learning when studying, which improves academic performance.

People also strive for growth in areas other than achievement settings. Indeed, Dykman (1998) proposed that some people (i.e., people high in growth seeking) have a general tendency to pursue learning and growth in the face of challenges and setbacks in various life domains. Moreover, these individuals tend to adopt effective strategies in response to various life challenges and are less vulnerable to anxiety and depression (Dykman, 1998). Consistent with these ideas, growth seekers feel less anxious in anticipation of a stressful event, and they adopt more beneficial (e.g., planning) and less detrimental (e.g., problem disengagement) coping strategies and experience less depressed mood in response to stressors (Dykman, 1998). In a similar vein, growth seekers tend to regulate their emotion by using more cognitive reappraisal and less thought suppression and they have less depressive symptoms (Rusk et al., 2011). Although theories and empirical evidence have suggested that learning goals in achievement settings result from one’s cognitions or motivations (Payne et al., 2007), learning environments (Meece, Anderman, & Anderman, 2006), or close relationships (Elliot & Reis, 2003), growth seeking is assumed to be a stable dispositional trait shaped
by parenting styles earlier in life (Dykman, 1998). Little research has explored the more proximal antecedents of growth seeking and how it changes over time.

We suggest that growth seeking can develop through interpersonal relationship processes. We propose that growth seeking is associated with and shaped by the goals people have in their interpersonal relationships. Specifically, when people have benevolent intentions toward others (i.e., when they have compassionate goals), they seek to grow. We also propose that perceived mutual support in their relationships is a mechanism through which people with compassionate goals develop higher levels of growth seeking. Moreover, we suggest that growth seeking that originates from compassionate goals in relationships can have benefits for other life domains. Specifically, we propose that growth seeking prompted by the goals to support relationship partners promotes academic self-regulation because it fosters growth goals in academic settings.

**Compassionate Goals, Mutual Supportiveness, and Growth Seeking**

According to the egosystem-ecosystem theory of social motivation, motivational systems in interpersonal relationships shape people’s goals toward their partners, as well as their cognitions, emotions, and behaviors both within and outside of relationship contexts (Canevello & Crocker, 2015, 2017; Crocker & Canevello, 2012, 2015). This theory uses the biological concept of an ecosystem as a metaphor for an interpersonal motivational system in which people view themselves as part of a larger system where the well-being of one person depends on the well-being of others (Crocker & Canevello, 2008; 2015; Crocker, Olivier, & Nuer, 2009). In the interpersonal ecosystem, people care
about others as well as themselves and view themselves as the starting point of constructive relationship processes (Crocker & Canevello, 2015). Moreover, in this ecosystem, people are open to personal growth and strive to expand their capacities because this motivational system fosters the type of mutually supportive relationships that encourages growth (Crocker, 2008; Crocker & Canevello, 2012).

In the interpersonal ecosystem, people tend to have compassionate goals, which “focus on supporting others, not to obtain something for the self, but out of consideration for the well-being of others” (Crocker & Canevello, 2008, p. 557). Compassionate goals shape how people interact with their relationship partners. For example, people with compassionate goals become more supportive and responsive toward others and perceive others as being more supportive and responsive toward themselves over time (Canevello & Crocker, 2010; Crocker & Canevello, 2008; see Crocker & Canevello, 2016, for a review). Moreover, compassionate goals foster change in people’s beliefs over time as a result of this mutual support and responsiveness. For example, compassionate goals predict increased belief that the relationship works in nonzero-sum ways through mutual responsiveness in relationships (Crocker, Canevello, & Lewis, 2017). Thus, compassionate goals create mutually supportive and responsive relationships, which in turn shape people’s beliefs about relationships.

In the current research, we suggest that compassionate goals also foster growth seeking. Specifically, we suggest that because people with compassionate goals are supportive of others and perceive others as supportive of them (i.e., they perceive mutual supportiveness in their relationships), they are more likely to develop the tendency to
approach challenges as opportunities to learn and grow. These ideas are consistent with research on social support, which suggests that responsive support can change people’s construals of challenging situations and increase their approach motivations in these situations (see Feeney & Collins, 2015, for a review). For example, partners’ support predicts greater perceptions that exploratory activities are enjoyable (Feeney & Thrush, 2010), as well as a greater willingness to explore (Feeney, 2007). Thus, in the current research, we test the hypotheses that people with compassionate goals have high levels of growth seeking, and develop higher levels of growth seeking over time. Moreover, we propose that perceived mutual support in relationships statistically mediates the association between compassionate goals and growth seeking.

**Compassionate Goals, Growth Seeking, and Academic Self-Regulation**

Studying in school can be both intellectually and personally challenging. Successful academic performance requires self-regulation, “the self-directive process through which learners transform their mental abilities into task-related academic skills” (Zimmerman, 1998 p.2). Although most research on academic self-regulation has focused on the intrapsychic processes of self-regulation (e.g., Schunk & Zimmerman, 2008), research has started to pay increasing attention to how interpersonal relationships influence self-regulation (e.g., Hofmann, Finkel, & Fitzsimons, 2015; Fitzsimons, Finkel, & vanDellen, 2015). In the current research, we suggest that growth seeking fostered by compassionate goals in relationships promotes academic self-regulation because it encourages growth goals in academic settings. When people have a general tendency to learn and grow in the face of various life challenges, they are more likely to have growth
goals in academic pursuits, and consequently self-regulate better in academics. Consistent with these ideas, learning goals in academic settings predict greater intrinsic motivation, self-efficacy, and effort, and more adaptive goal setting (e.g., Elliott & Dweck, 1988; VandeWalle, Cron, & Slocum, 2001).

Therefore, the current research investigates how compassionate goals toward relationship partners influence academic self-regulation. We suggest that compassionate goals foster a general tendency toward growth seeking through perceived mutual supportiveness in relationships, and growth seeking fostered by compassionate goals in relationships predicts increased academic self-regulation through increased academic growth goals.

These ideas are consistent with the thriving through relationships model (Feeney & Collins, 2015), which suggests that supportive relationships promote goal pursuit. Extending that model, the current research proposes not only that growth seeking is a potential mechanism through which interpersonal relationships can influence other aspects of life, but also that people with compassionate goals create mutually supportive relationships, which in turn lead to a general tendency toward growth seeking and more specific academic growth goals and self-regulation.

**Alternative Explanations**

In the current studies, we also test a number of potential alternative explanations for the association between compassionate goals and growth seeking. Specifically, we test whether the association can hold after controlling for relationship attachment, self-image goals, need satisfaction, mood, self-esteem, social desirability, and gender.
**Relationship attachment.** Relationship security fosters personal growth and thriving (Bowlby, 1988; Feeney & Collins, 2015; Feeney, 2004, 2007). According to attachment theory, securely attached people believe that their significant others would be available and helpful when they encounter challenges or difficulties (Bowlby, 1988). Accordingly, securely attached people are more likely to explore the environment and take on challenges and thrive through them (Bowlby, 1988; Collins & Feeney, 2000; Elliot & Reis, 2003; Feeney, 2004; Feeney & Collins, 2004). Moreover, a relationship partner’s secure attachment may also foster one’s own growth seeking because a secure partner provides more secure base support (availability, noninterference, and encouragement) and fosters exploration (Feeney & Thrush, 2010).

Although secure attachment is one potential mechanism through which people develop growth seeking, we suggest that it is not the only way. According to the egosystem-ecosystem theory of social motivation, people’s interpersonal goals toward relationship partners shape relationship experiences and how those relationships unfold over time (Crocker & Canavello, 2008; Crocker & Canavello, 2015, 2016). Because people with compassionate goals care about the well-being of their partners, they provide support and receive support from their partners independent of whether they feel secure in their relationships or whether their partners feel secure and provide support to them. Therefore, in the current research, we hypothesize that compassionate goals predict growth seeking after controlling for relationship security.

**Self-image goals.** According to the egosystem-ecosystem theory of social motivation, when people have self-image goals, they want to manage the impressions
their partners have of them by displaying their desirable qualities and concealing their undesirable qualities from others (Crocker & Canevello, 2008). Even though both self-image and compassionate goals are interpersonal goals and sometimes are positively correlated with each other, people with compassionate goals focus on what they can do for others, whereas people with self-image goals focus on what they can get from others. Indeed, empirical evidence has shown that people with self-image goals are less supportive of their partners, and perceive partners as less supportive in return (Crocker & Canevello, 2008; see Crocker & Canevello, 2016, for a review). Therefore, we suggest that compassionate goals foster perceived mutual support and growth seeking because people with compassionate goals want to be supportive and constructive toward their partners, as opposed to impressing them. In the current research, we hypothesize that compassionate goals predict growth seeking after controlling for self-image goals.

**Need satisfaction and mood.** Self-determination theory suggests that when people have their basic needs for autonomy, relatedness, and competence met, they are more likely to strive for growth (Deci & Ryan, 2000). Because compassionate goals are associated with satisfaction of these needs (Canevello & Crocker, 2011a), need satisfaction could account for the association between compassionate goals and growth seeking. Moreover, mood may also be associated the tendency to strive for personal growth (Ryff, 1989). Compassionate goals are associated with positive other-directed mood (Canevello & Crocker, 2017), so mood could also account for the association. Because we propose that compassionate goals predict growth seeking through perceived
mutual support in relationships, we hypothesize that compassionate goals predict growth seeking after controlling for need satisfaction and mood.

**Incremental theory and self-esteem.** Research has demonstrated that incremental theory and self-esteem influence learning goals in achievement settings (Payne et al., 2007), and they might also be associated with growth seeking. Because incremental theories and self-esteem are empirically associated with compassionate goals (Canevello & Crocker, 2011a; Canevello & Crocker, 2011b), they might account for the link between compassionate goals and growth seeking. Therefore, we test whether the association between compassionate goals and growth seeking is explained by incremental theory or self-esteem.

**Social desirability and gender.** Because both compassionate goals and growth seeking are desirable traits for people to have, we also test whether social desirability (Crowne & Marlowe, 1964) accounts for the link between them. Furthermore, because women tend to be higher in compassionate goals than men (Crocker & Canevello, 2008), and gender may be associated with perceived mutual support and growth seeking, we also test whether the association between compassionate goals and growth seeking is explained by gender.

**Overview**

In the current research, we hypothesized that people with compassionate goals tend to seek growth and develop higher levels of growth seeking over time through perceived mutual support in relationships. Moreover, we hypothesized that increased general growth seeking predicts increased academic self-regulation through academic
growth goals. In Study 1, we examined the association between general compassionate goals toward others and growth seeking. In Study 2, we examined whether people’s compassionate goals for relationship partners are associated with their growth seeking, and whether perceived mutual support statistically mediates the association. In Study 3, we tested the temporal direction of these associations over 10 weeks in a sample of first-semester college student roommates. We also examined whether increased growth seeking predicts increased academic growth goals and self-regulation over 10 weeks. In addition, to rule out alternative explanations, we tested whether these associations still hold after controlling for relationship attachment (Studies 2-3), self-image goals (Studies 1-3), need satisfaction (Study 1), positive and negative affect (Study 1), incremental theory of personality (Study 1), self-esteem (Study 1), social desirability (Studies 1-2), and gender (Studies 1-3).
Chapter 2: Study 1

Study 1 examined the association between compassionate goals and growth seeking. We hypothesized that compassionate goals are positively associated with growth seeking. We also tested whether this association holds after controlling for self-image goals, need satisfaction, positive and negative affect, incremental theory, self-esteem, social desirability, and gender.

Method

Participants. Five hundred thirty-eight Introductory Psychology students at a large Midwestern university participated in partial fulfillment of a course requirement. Two participants were excluded because they did not complete the majority of the survey, so the final sample consisted of 536 participants. According to G*Power 3.1, this sample size provides sufficient power (.95) to detect small effects ($f^2 = .024$) at $p = .05$. The sample was 58% female and ranged in age from 18 to 34 ($M = 18.83$ years, $SD = 1.31$). The sample was 81% White/Caucasian, 11% Asian, 5% African American/Black, 2% American Indian/Alaska Native, less than 1% Native Hawaiian or Pacific Islander, and 4% “Other.” In addition, six percent of participants were Hispanic/Latino(a).

Measures and procedure. Participants completed measures of general compassionate and self-image goals, growth seeking, need satisfaction, positive and negative affect, implicit theories of personality, self-esteem, and social desirability, and
provided demographic information. Measures were administered through an online Qualtrics survey. Additional measures not germane to the present investigation were also included. Table 1 shows the descriptive statistics and Cronbach’s alphas for all measures.

**Compassionate and self-image goals** were assessed with a modified measure from Crocker and Canevello (2008). The items began with the phrase “In general, in your relationships with others, how much do you want to or try to.” Eight items assessed compassionate goals, including “be constructive in your comments to others,” “avoid doing anything that would be harmful to others,” “avoid being selfish or self-centered,” “have compassion for others’ mistakes and weaknesses,” “understand how your actions affect others,” “be supportive of others,” “make a positive difference in someone else’s life,” and “avoid neglecting your relationship with others.” Eight items assessed self-image goals, including “avoid being wrong,” “convince others that you are right,” “get others to recognize or acknowledge your intelligence,” “avoid showing your weaknesses,” “avoid being criticized by others,” “do things that you knew you could succeed at,” “get others to notice your positive qualities,” and “give the appearance of being on top of things.” The items were rated on a 5-point Likert-type scale (1 = “Not at all”, 5 = “extremely”).

**Growth seeking** was assessed with an abbreviated version of the Goal Orientation Inventory (Dykman, 1998). The five highest loading items were used, including “I look upon potential disappointments in life as opportunities to improve and grow as a person,” “The attitude I take toward possible setbacks and disappointments is that they’ll end up being good learning experiences,” “I approach stressful situations knowing that the
important thing is for me to learn and grow from these experiences,” “I approach difficult situations knowing that I can accept failure or rejection as long as I learn and grow from the experience,” and “When I approach new or difficult situations, I’m less concerned with the possibility of failure than with how I can grow from these experiences.” The items were rated on a 5-point Likert-type scale (1 = “Strongly disagree,” 5 = “Strongly agree”).

Need satisfaction was assessed with a modified measure from La Guardia, Ryan, Couchman, and Deci (2000). Participants rated 9 items assessing perceived satisfaction of the needs for autonomy, relatedness, and competence (e.g., “I feel free to be who I am.”) from 1 (“Not at all true”) to 5 (“Very true”).

Positive and negative affect were assessed with the measure developed by Watson, Clark, and Tellegen (1988). The items began with the phrase “Please indicate to what extent you have felt each feeling or emotion during the past few weeks,” and included 10 items for positive affect (e.g., “Excited”) and 10 items for negative affect (e.g., “Upset”) on a 5-point Likert-type scale (1 = “Very slightly or not at all”, 5 = “Extremely”).

Incremental theory of personality was assessed with the scale developed by Dweck, Chiu, and Hong (1995). Participants rated 3 items (e.g., “Everyone is a certain kind of person and there is not much that can be done to really change that.”) from 1 (“Strongly disagree”) to 5 (“Strongly agree”). All the items were reverse coded, so that higher scores indicated higher levels of incremental theory.
Self-esteem was assessed with the Rosenberg Self-Esteem scale (Rosenberg, 1965). Participants rated 10 items (e.g., “I feel that I have a number of good qualities.”) from 1 (“Not true at all”) to 5 (“Very true”).

Social desirability was assessed with the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964). Participants rated 33 items about personal attitudes and traits (e.g., “I never hesitate to go out of my way to help someone in trouble.”) on a true or false scale.

Results and Discussion

Table 1 shows the correlations for all Study 1 variables. As predicted, compassionate goals were positively correlated with growth seeking ($r = .30, p < .001$). We also tested whether this association remained when controlling for self-image goals, need satisfaction, positive or negative affect, incremental theory, self-esteem, social desirability, or gender. When we regressed growth seeking on compassionate goals in eight separate analyses, each controlling for a separate covariate, the association between compassionate goals and growth seeking remained significant in all analyses ($0.20 \leq \beta s \leq 0.33$, all $ps < .001$). Moreover, the association between compassionate goals and growth seeking also remained significant when we entered all eight covariates simultaneously as predictors with compassionate goals ($\beta = .19, t = 3.64, B = .22, 95\% CI = [.10, .33], p < .001$).

Thus, Study 1 showed the expected positive association between compassionate goals and growth seeking. This association was not accounted for by self-image goals,
need satisfaction, positive or negative affect, incremental theory of personality, self-esteem, social desirability, or gender.
Chapter 3: Study 2

Although the results of Study 1 are consistent with the hypothesis that people with compassionate goals have high levels of growth seeking, that study did not examine the mechanism underlying the association or whether it still holds after taking into account the role of relationship security. Moreover, that study did not test the association in specific relationships, where the effects of compassionate goals may be more evident (see Crocker & Canevello, 2012, for a review).

In Study 2, we examined the link between growth seeking and compassionate goals in specific relationships, and tested whether perceived mutual support statistically mediates the association between compassionate goals and growth seeking and whether the mediation model still holds when controlling for relationship security.

Method

Participants. Four hundred seventeen Introductory Psychology students at a large Midwestern university participated in partial fulfillment of a course requirement. Twenty-one participants were excluded because they failed to correctly complete all three attention check questions (e.g., “If you are reading this question, please select disagree.”), leaving 396 participants remaining. This sample size exceeds the minimum sample needed for power of .80 to detect effect sizes of \( f^2 = .02 \) at \( p = .05 \). The sample was 51% female, and ranged in age from 18 to 31 (\( M = 19.02 \) years, \( SD = 1.47 \)). The sample was
78% White/Caucasian, 17% Asian, 5% African American/Black, 2% American Indian/Alaska Native, less than 1% Native Hawaiian or Pacific Islander, and 3% “Other.” In addition, five percent of participants were Hispanic/Latino(a).

**Measures and procedure.** At the beginning of the survey, participants were asked to think of one important relationship in their life right now and input the person’s initials. Of the participants, 37.1% thought of their romantic partner, 27.3% their friend, 27.5% their family member, 6.6% their roommate, and 1.5% other relationships. Then, they completed measures of compassionate and self-image goals toward the person they thought of and growth seeking orientation. They also completed measures of perceived mutual support and attachment anxiety and avoidance in the relationship, and social desirability, and provided demographic information. Measures were administered through an online Qualtrics survey. Additional measures not germane to the present investigation were also included. Table 2 shows the descriptive statistics and Cronbach’s alphas for all the measures.

*Compassionate and self-image goals for relationship partners* were assessed with a modified measure from Crocker and Canevello (2008). Items began with the phrase “In general, in my relationship with [INITIALS], I want/try to.” Eight items assessed compassionate goals, and all items were identical to those described in Study 1, but were targeted toward their specific relationship partner instead of general others (except one item changed from “understand how your actions affect others” to “be aware of the impact my behavior might have on [INITIALS]’s feelings”). Nine items assessed self-image goals, including “Demonstrate my positive qualities,” “Get [INITIALS] to
respect or admire me,” “Demonstrate my intelligence,” “Get [INITIALS] to acknowledge my positive qualities,” “Avoid coming across as unintelligent or incompetent,” “Avoid showing my weaknesses,” “Avoid being blamed or criticized by [INITIALS],” “Avoid revealing my shortcomings or vulnerabilities,” “Avoid appearing unattractive, unlovable, or undesirable.” The items were rated on a 7-point Likert-type scale (1 = “Not at all”, 7 = “Extremely”).

**Growth seeking** was assessed with the same scale used in Study 1. All items were identical to those described in Study 1, but were rated on a 7-point Likert-type scale (1 = “Strongly disagree”, 7 = “Strongly agree”).

**Perceived mutual support in relationships** was assessed with a modified measure from Zimet, Dahlem, Zimet & Farley, 1988. All items began with the phrase, “In general, in my relationship with [INITIALS],” and included 6 items (i.e., [INITIALS] can count on me when things go wrong; [INITIALS] can talk about his/her problems with me; [INITIALS] can share his/her joys and sorrows with me; I can count on [INITIALS] when things go wrong; I can talk about my problems with [INITIALS]; I can share my joys and sorrows with [INITIALS]). The items were rated on a 7-point Likert-type scale (1 = “Strongly disagree”, 7 = “Strongly agree”).

**Attachment anxiety and avoidance in relationships** were assessed with an abbreviated version of the scale developed by Brennan, Clark, and Shaver (1998). All items began with the phrase, “Reflecting on your relationship with [INITIALS] in general, how much do you agree with each of following statement?” Five items assessed attachment avoidance (e.g., “I get uncomfortable when [INITIALS] wants to be very
close.”), and five items assessed attachment anxiety (e.g., “I worry a lot about my relationship with [INITIALS].”). The items were rated on a 7-point Likert-type scale (1 = “Strongly disagree”, 7 = “Strongly agree”).

Social desirability was assessed with the same scale used in Study 1.

Results and Discussion

Table 2 shows the correlations for all Study 2 variables. As predicted, compassionate goals toward relationship partners were positively correlated with growth seeking ($r = .21, p < .001$). We tested whether perceived mutual support in relationships statistically mediates the association between compassionate goals and growth seeking using Model 4 in PROCESS (Hayes, 2013), with 5,000 bias-corrected bootstrapped samples. We standardized all variables before entering them into PROCESS. The results showed a direct effect of compassionate goals on growth seeking (effect = .13, 95% CI [.02, .24], $p = .022$) and an indirect effect through perceived mutual support (effect = .08, 95% CI [.03, .14], see Figure 1). We also tested the mediation model after controlling for attachment anxiety and avoidance, self-image goals, social desirability, and gender.

When we tested the mediation model in five separate analyses, each controlling for a separate covariate, the indirect effect of compassionate goals on growth seeking through perceived mutual support still held in all analyses ($0.07 \leq \text{effect} \leq 0.09$, none of the 95% CIs contains 0). The indirect effect also held after controlling for all the covariates simultaneously (effect = .09, 95% CI [.04, .16]).

We also tested the reversed model in which growth seeking statistically mediates the association between compassionate goals and perceived mutual support in
relationships. The results from Model 4 in PROCESS showed a direct effect of compassionate goals on perceived mutual support (effect = .46, 95% CI [.37, .55], \( p < .001 \)) and an indirect effect through growth seeking (effect = .03, 95% CI [.01, .05]). Although growth seeking also statistically mediated the relationship between compassionate goals and perceived mutual support, the size of this indirect effect is smaller than that in the original model and the size of the direct effect is larger than that in original model, consistent with the hypotheses that compassionate goals foster growth seeking through perceived mutual support in relationships.

Therefore, these findings showed a positive association between compassionate goals toward relationship partners and growth seeking. Moreover, as predicted, perceived mutual support in relationships statistically mediated the association between compassionate goals and growth seeking, and the mediation model cannot be accounted for by relationship attachment, self-image goals, social desirability, or gender.
Chapter 4: Study 3

Studies 1 and 2 showed a positive association between compassionate goals and growth seeking that was not explained by incremental theory of personality, need satisfaction, self-esteem, positive or negative affect, self-image goals, social desirability, or gender. Moreover, perceived mutual support in relationships statistically mediated the association between compassionate goals and growth seeking, and this mediation model still held after controlling for relationship attachment, self-image goals, social desirability, and gender. These findings are consistent with the hypothesis that people with compassionate goals have more supportive relationships, which fosters their growth seeking.

However, due to the cross-sectional nature of Studies 1 and 2, we cannot determine whether compassionate goals predict increased growth seeking over time. Thus, in Study 3 we tested the association between compassionate goals and growth seeking over time in the context of first-semester college roommate relationships, and we examined whether perceived mutual support statistically mediates the association between compassionate goals and increased growth seeking after controlling for relationship attachment, self-image goals, and gender. Moreover, because Study 2 only involved one person in a dyadic relationship, we cannot determine whether the associations between compassionate goals and growth seeking are due to partners’
security in the relationship. Thus, in Study 3, we recruited both members of roommate pairs, and tested the mediation model after controlling for the effect of partners’ relationship attachment.

Furthermore, we examined whether growth seeking fostered by compassionate goals toward roommates predicts academic growth goals and self-regulation, and we tested the entire model in which compassionate goals predict academic self-regulation through perceived mutual support, growth seeking, and academic growth goals. The transition to college from high school can be difficult and stressful because of the challenges students encounter when they live in a new climate. First-semester roommate relationships are important because supportive roommate relationships can play a crucial role in helping students adjust to college. Thus, it is important to examine whether compassionate goals toward roommates can create mutually supportive roommate relationships, where students can develop the tendency to pursue learning and growth in face of challenges and consequently improve their academic self-regulation.

**Method**

**Participants.** One hundred fifteen first-semester same-sex roommate dyads at a large Midwestern university participated in this study. According to APIMPowerR (Ackerman & Kenny, 2016), this sample size exceeds the minimum sample needed for power of .80 to detect effect sizes of $pr = .20$ at $p = .05$ for indistinguishable dyads. The sample was 75% female and ranged in age from 18 years to 21 years ($M = 18.1$, $SD = .36$). For detailed information about the sample and procedure, see Canevello and Crocker (2010; Study 1).
Measures and procedure. Participants first completed pretest measures during an introductory lab session, and then completed weekly measures for 10 weeks and posttest measures at the end of the 10 weeks online. During the pretest sessions, participants completed measures of compassionate and self-image goals for roommates, growth seeking, attachment anxiety and avoidance, and academic growth goals and self-regulation, and provided demographic information. At posttest, they completed measures of compassionate goals for roommates, growth seeking, and academic growth goals and self-regulation. Participants completed weekly measures of perceived mutual support, each of which was averaged across the 10 weeks to create chronic measures. Measures not germane to the present investigation were also included.

Compassionate goals for roommates were measured at pretest and posttest with a modified 8-item measure from Crocker and Canavello (2008). Items began with the phrase “In my relationship with my roommate, I want/try to.” All items were identical to those described in Study 2, but were targeted toward the roommate instead of [INITIALS]. The items were rated on a 5-point Likert-type scale (1 = “Not at all”, 5 = “Extremely”). The scale had good internal consistency (pretest: $\alpha = .77$, posttest: $\alpha = .95$).

Growth seeking was assessed at pretest and posttest with the same scale described in Studies 1-2. The items were rated on a 5-point Likert-type scale (1 = “Strongly disagree”, 5 = “Strongly agree”). The scale had good internal consistency (pretest: $\alpha = .83$, posttest: $\alpha = .88$).

Perceived mutual support in roommate relationships was assessed each week with a modified measure from Zimet et al. (1988). All items began with the phrase, “In
the past week,” and the items were identical to those described in Study 2, but were targeted toward the roommate instead of [INITIALS] and were worded in the past tense. The items were rated on a 5-point Likert-type scale (1 = “Strongly disagree”, 5 = “Strongly agree”). The scale had good internal consistency across 10 weeks (.90 ≤ α ≤ .96; Mα = .95). We created measures of chronic perceived mutual support by averaging the weekly measures across 10 weeks.

*Attachment anxiety and avoidance in roommate relationships* were assessed at pretest with an abbreviated version of the scale developed by Brennan et al. (1998). All items began with the phrase, “This past week, in my relationship with my roommate.” Five items assessed attachment avoidance (e.g., “I preferred not to show my roommate my true feelings,”) and five items assessed attachment anxiety (e.g., “I worried that my roommate will move out because of me.”). The items were rated on a 5-point Likert-type scale (1 = “Strongly disagree”, 5 = “Strongly agree”). Both the anxiety and avoidance subscales had good internal consistency (anxiety: α = .75; avoidance: α = .81).

*Self-image goals for roommates* were assessed at pretest with a modified 6-item measure from Crocker and Canevello (2008). Items began with the phrase “In my relationship with my roommate, I want/try to,” and an example item is “avoid showing my weaknesses.” The items were rated on a scale ranging from 1 (not at all) to 5 (extremely). The scale had good internal consistency (α = .79).

*Academic growth goals* were assessed at pretest and posttest with a measure from Mischkowski, Crocker, Niiya, Canevello, and Moeller (2016). All items began with the phrase, “In general, in the area of academics, how much do you want to or try to,” and
included five items: “expand your capacities,” “stretch yourself by doing things you are not very good at,” “seek feedback about your strengths and weaknesses,” “learn more about other people’s experiences and perspectives,” and “avoid staying stuck in your usual way of thinking.” The items were rated on a 5-point Likert-type scale (1 = “Not at all”, 5 = “Extremely”). The scale had good internal consistency (pretest: $\alpha = .78$, posttest: $\alpha = .91$).

**Academic self-regulation** was assessed at pretest and posttest with a measure from Mischkowski et al. (2016). All items began with the phrase, “In general, how often do you,” and included 7 items: “fall behind in your academic work,” (reversed), “procrastinate on your school work,” (reversed), “focus on your most important academic goals,” “feel very productive,” “resist distractions and focus on your studies,” “give your best effort to your academics,” and “get all your homework, studying, and projects done on time.” The items were rated on a 5-point Likert-type scale (1 = “Never”, 5 = “Always”). The scale had good internal consistency (pretest: $\alpha = .83$, posttest: $\alpha = .86$).

**Results and Discussion**

**Overview of analyses.** We conducted Study 3 analyses in three phases. In Phase 1, we tested whether compassionate goals predict increased growth seeking and whether growth seeking predicts increased compassionate goals. Although correlational, support for one temporal direction but not the other rules out the alternative explanation and could suggest the plausibility of a causal link between compassionate goals and growth seeking. Moreover, we tested whether perceived mutual support statistically mediates the association between compassionate goals and increased growth seeking and whether this
mediation model still holds after controlling for actors’ and partners’ relationship attachment, actors’ self-image goals, and gender. In Phase 2, we tested whether growth seeking predicts increased academic growth goals and self-regulation. In Phase 3, we tested the full model, in which compassionate goals predict perceived mutual support, which in turn predicts increased growth seeking, which then predicts increased academic growth goals and self-regulation. We also tested whether the full model still holds after controlling for relationship attachment, self-image goals, and gender. Table 3 shows the means, standard deviations, and intraclass correlations for all the variables in Study 3. We computed correlations by using the method described by Griffin & Gonzalez (1995) for indistinguishable dyads.

**Do compassionate goals predict increased growth seeking and does perceived mutual support statistically mediate the association?** In these data, individuals were nested within dyads. We structured the data so that each dyad was represented by two lines of data, allowing each participant within a dyad to represent both an actor and a partner. To test the associations between compassionate goals and growth seeking, we used a multilevel analytic strategy and accounted for the nonindependence of individuals within dyads using the MIXED command in SPSS (Kenny, Kashy, & Cook, 2006). As a measure of effect size, we report partial correlations for all associations, which were calculated using the method described by Rosenthal and Rosnow (1991).

First, we tested whether pretest compassionate goals predict change in growth seeking from pretest to posttest. When we regressed participants’ posttest growth seeking on their pretest compassionate goals, controlling for pretest growth seeking, pretest
compassionate goals predicted increased growth seeking (estimate = .26, 95% CI = [.07, .44], \( pr = .18, p = .007 \)). When we tested the reverse association, regressing participants’ posttest compassionate goals on their pretest growth seeking, controlling for pretest compassionate goals, pretest growth seeking did not predict increased compassionate goals from pretest to posttest (estimate = -.04, 95% CI = [-.17, .09], \( pr = .04, p > .250 \)). Thus, these results supported one temporal direction but not the other, consistent with the hypothesis that compassionate goals foster growth seeking.

To test whether chronic perceived mutual support statistically mediates the association between pretest compassionate goals and increased growth seeking, we used structural equation modeling and followed the procedures for assessment of mediation in indistinguishable dyads described in Ledermann, Macho, and Kenny (2011). We created a model for both members in a roommate pair (actor and partner) and imposed equality constraints on the model parameters for actors and partners. Thus, the path coefficients are the same for actors and partners. Based on the recommendation by Ledermann et al., 2011, we used 5,000 bootstrapped samples and reported the bias-corrected bootstrap 95% CI for the unstandardized effects. The results showed a non-significant direct effect of pretest compassionate goals on increased growth seeking (effect = .06, 95% CI [-.16, .30], \( p > .250 \)), and a significant indirect effect through chronic perceived mutual support (effect = .19, 95% CI [.07, .34], see Figure 2). As shown in Figure 2, partners’ compassionate goals did not predict actors’ chronic perceived mutual support and increased growth seeking when both actors’ and partners’ compassionate goals were included in the model. This result suggests that it is actors’ compassionate goals, rather
than partners’ compassionate goals, that lead to actors’ chronic perceived mutual support and then increased growth seeking. We also tested the mediation model after controlling for actors’ and partners’ attachment anxiety and avoidance, and actors’ self-image goals, and gender. When we tested the mediation model in six separate analyses, each controlling for a separate covariate, indirect effect of pretest compassionate goals on increased growth seeking through chronic perceived mutual support still held in all analyses (.11 ≤ effect ≤ .18, none of the 95% CIs contains 0). The indirect effect also held after controlling for all the covariates simultaneously (effect = .09, 95% CI [.03, .20]).

**Does growth seeking predict increased academic growth goals and self-regulation?** To test whether pretest growth seeking predicts increased academic growth goals and self-regulation from pretest to posttest, we used the multilevel analytic strategy and MIXED command in SPSS as described previously. When we regressed participants’ posttest academic growth goals and self-regulation on their pretest growth seeking in two separate analyses, controlling for pretest academic growth goals or pretest academic self-regulation in the corresponding analysis, pretest growth seeking predicted increased academic growth goals (estimate = .28, 95% CI = [.15, .41], $pr = .29, p < .001$) and increased academic self-regulation (estimate = .10, 95% CI = [.01, .18], $pr = .15, p = .030$). We also tested the reverse associations: Pretest academic growth goals did not predict increased growth seeking from pretest to posttest (estimate = .11, 95% CI = [.04, .27], $pr = .10, p = .145$), consistent with the hypothesis that growth seeking leads to increased academic growth goals but not the reverse. Pretest academic self-regulation did predict increased growth seeking from pretest to posttest (estimate = .20, 95% CI = [.04, .30], $pr = .20, p = .020$).
suggesting that the relationship between growth seeking and academic self-regulation may be bi-directional.

**Testing the full mediation model.** To test the full sequential mediation model in which compassionate goals predict increased academic self-regulation through perceived mutual support, increased growth seeking, and increased academic growth goals, we used structural equation modeling as described previously. The results showed a non-significant direct effect of pretest compassionate goals on increased academic self-regulation (effect = -0.05, 95% CI [-0.15, 0.06], p > 0.250), and a significant indirect effect through chronic perceived mutual support, increased growth seeking and increased academic growth goals from pretest to posttest (effect = 0.005, 95% CI [0.001, 0.016], see Figure 3). In addition to this hypothesized indirect effect, two other indirect effects of pretest compassionate goals on increased academic self-regulation were significant. Compassionate goals predicted increased academic self-regulation through increased chronic perceived mutual support (effect = 0.11, 95% CI [0.05, 0.20]) and, separately, through increased academic growth goals (effect = 0.04, 95% CI [0.01, 0.09]).

Moreover, when we included actors and partners’ attachment anxiety and avoidance, and actors’ self-image goals, and gender as covariates, the indirect effect of pretest compassionate goals on increased academic self-regulation from pretest to posttest through chronic perceived mutual support, increased growth seeking, and increased academic growth goals still held after controlling for all the covariates simultaneously (effect = 0.003, 95% CI [0.001, 0.012]).
In sum, Study 3 showed that pretest compassionate goals predicted increased growth seeking over 10 weeks but not the reverse, consistent with the idea that compassionate goals foster increased growth seeking. Moreover, perceived mutual support statistically mediated the association between pretest compassionate goals and increase growth seeking, even after controlling for actors’ and partners’ attachment anxiety and avoidance, actors’ self-image goals, and gender. Furthermore, pretest growth seeking predicted increased academic growth goals, which in turn predicted increased academic self-regulation from pretest to posttest, consistent with the ideas that growth seeking fosters academic growth goals and academic self-regulation. The results of the full mediation showed that pretest compassionate goals predicted increased academic self-regulation from pretest to posttest through perceive mutual support, increased growth seeking, and increased academic growth goals, suggesting that compassionate goals create mutually supportive relationships with partners, which in turn promote people’s growth seeking, which then leads to greater academic growth goals and academic self-regulation.
Chapter 5: General Discussion

Growth seeking orientation refers to the tendency to pursue growth and learning even when faced with various life challenges, difficulties, and setbacks. The current research examined the precursors and sequelae of growth seeking in current interpersonal relationships. These are the first studies to examine how growth seeking develops as a result of processes in interpersonal relationships. They are also the first studies to demonstrate how growth seeking fostered by close relationships can lead to thriving in another life domains, specifically in academics. Overall, the results supported our hypotheses, demonstrating that people with compassionate goals tend to be growth seekers and develop higher levels of growth seeking over time through their perception of mutual support in their relationships. Moreover, growth seeking fostered by compassionate goals in relationships predicts increased academic self-regulation through increased academic growth goals.

Across three studies, growth seeking was associated with compassionate goals, both generally and in a variety of relationship contexts. Moreover, the findings of Study 3 showed that compassionate goals predict increased growth seeking over 10 weeks but not the reverse, suggesting that compassionate goals foster increased growth seeking. Importantly, perceived mutual support in relationships statistically mediated the association between compassionate goals and general growth seeking (Study 2) and
increased growth seeking over time (Study 3), suggesting that perceived mutual support is a mechanism through which compassionate goals foster growth seeking. Furthermore, Study 3 demonstrated that compassionate goals predict increased academic self-regulation over time through chronic perceive mutual support, increased growth seeking, and increased academic growth goals. These results suggest that people who want to be supportive of others establish mutually supportive relationships with their partners, in which they develop the tendency to approach difficulties and setbacks as opportunities for growth. This then leads to greater academic growth goals and better academic self-regulation.

When we tested potential alternative explanations for these results, including relationship attachment, self-image goals, need satisfaction, positive and negative affect, incremental theory of personality, self-esteem, social desirability, and gender, none could account for the findings. Specifically, the association between compassionate goals and growth seeking remained after controlling for self-image goals, need satisfaction, positive and negative affect, incremental theory of personality, self-esteem, social desirability, and gender (Study 1). Moreover, the indirect effects of compassionate goals on growth seeking through perceived mutual support remained after controlling for actors’ relationship security (Studies 2 and 3), self-image goals (Studies 2 and 3), and social desirability (Study 2), and partners’ relationship security and compassionate goals (Study 3), and gender (Studies 2 and 3). In addition, the indirect effect of compassionate goals on increased academic self-regulation through chronic perceive mutual support, increased growth seeking, and increased academic growth goals remained after controlling for
actors’ and partners’ attachment security, actors’ self-image goals, and gender (Study 3). These findings suggest that the processes through which compassionate goals predict growth seeking and academic self-regulation are not due to any of these alternative explanations.

Implications

This research has several theoretical implications. First, the current research provides theoretical insight into how people develop a general tendency to grow in the face of challenges, difficulties, and setbacks (i.e., growth seeking). Humanistic theories suggest that people strive to expand their capacities and grow as a person (Deci & Ryan, 2000; Maslow, 1987), but the potential for growth can be derailed when people are faced with setbacks and challenges (Dweck & Leggett, 1988; Dykman, 1998). Yet, those high in growth seeking pursue learning and growth even facing various life challenges, and they respond constructively to these life situations (Dykman, 1998; Rusk et al., 2011). Existing research and theory view growth seeking as a stable disposition resulting from parent-child interaction patterns in earlier life experiences (Dykman, 1998). In this view, growth seeking is assumed to be stable in adulthood. However, the current studies indicate that people can develop growth seeking through processes in their current relationships. Specifically, when people have compassionate goals, they create mutually supportive relationships with others, which fosters their growth seeking. Thus, the current research extends understanding of where growth seeking comes from and provides more theoretical and empirical support for the idea that people become more growth oriented when they are in supportive relationships (e.g., Feeney & Collins, 2015).
Second, the current studies suggest growth seeking is potentially a key mechanism through which supportive relationships can facilitate thriving in other aspects of life. A great deal of research has demonstrated that supportive relationships play a crucial role in human striving (see Feeney & Collins, 2015, for a review). For example, supportive relationships facilitate goal pursuit (Hofmann et al., 2015; Feeney & Thrush, 2010), psychological well-being (Cohen & Wills, 1985), and physical health (Holt-Lunstad & Smith, 2012; Uchino, 2009). However, the mechanisms linking supportive relationships to these positive outcomes are not well understood (cf. Feeney & Collins, 2015). The current studies suggest that growth seeking may be a key mechanism through which they can occur. As shown in the current studies, growth seeking that develops as a result of compassionate goals and mutual support in relationships predicts increased growth goals in academics, which in turn predicts increased academic self-regulation over time. Moreover, growth seekers respond to life challenges with adaptive strategies and experience better psychological well-being (Dykman, 1998; Rusk et al., 2011). Furthermore, it is possible that growth seeking plays a role in the link between relationships and health outcomes because growth seekers may feel less stress in response to challenges, which may lead to better physical health (see Cohen & Williamson, 1991). Therefore, growth seeking fostered by supportive relationships may facilitate goal pursuit, psychological well-being, and physical health, and help people thrive in their lives. More research is needed to examine the central role of growth seeking in the effects of supportive relationships on human thriving.
Third, the current findings not only are consistent with the idea that supportive relationships foster personal growth and thriving (Feeney & Collins, 2015), they also provide new insights into how this might occur. That is, in the interpersonal ecosystem, people can create mutually supportive relationships that provide the basis for growth and thriving. According to attachment theory and the thriving through relationships model (Bowlby, 1988; Feeney & Collins, 2015; Feeney, 2004, 2007), secure attachment is one potential mechanism through which people can strive for growth and thrive through relationships because people with relationship security perceive more support from their partners and give more support to their partners. However, the current research demonstrates that compassionate goals predict growth seeking through perceived mutual support, after controlling for actors’ and partners’ relationship security. Also, compassionate goals predict increased academic self-regulation after controlling for actors’ and partners’ relationship security. These findings suggest that people can create mutually supportive relationships as a result of their own goals. This mutual support also helps people strive for growth in the face of challenges and have better academic self-regulation. Therefore, people can grow and thrive through relationships despite their past experience with their relationship partners and attachment security in their relationships. Moreover, people do not need to be at the mercy of their partners, waiting for their partners’ support so they can thrive. By having compassionate goals, people create mutually supportive relationships where they can thrive.

**Caveats and Remaining Issues**
The correlational nature of the current studies does not allow us to draw conclusions about causation. However, the current studies controlled for several potential alternative explanations and the results showed that these alternative explanations cannot account for our findings. Moreover, the longitudinal design in Study 3 allowed us to test the temporal direction of the associations. The results were consistent with our hypotheses, and they also ruled out the reverse direction of causality as an alternative explanation for the association between compassionate goals and growth seeking. Thus, the results of the current studies provided converging evidence for our hypotheses. Future studies can test causal associations with experimental manipulations.

Conclusions

Although humanistic theories propose that striving for personal growth is an inherent human tendency, people do not always seek to grow (Deci & Ryan, 2000; Maslow, 1987). The current research suggests that people can develop the general tendency to strive for growth by trying to be supportive of their partners in their current relationships. Moreover, this general tendency of growth seeking that originates in the mutually supportive relationships fosters thriving in other domains. Specifically, it encourages academic growth goals and better academic self-regulation. Benevolent intentions toward others cultivate mutually supportive relationships, which provides the basis to strive for growth in the face of challenges, difficulties, or setbacks and thrive through them.
References


Appendix A: Tables of Results
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Table 1. Reliability, means, standard deviations, and zero-order correlations for all variables in Study 1. $N = 536$. All scales were rated on scales from 1 to 5, except the Marlowe-Crowne Social Desirability scale which uses a true/false response format. Gender was coded such that 1 = male and 2 = female. $^+p < .10$. $^*p < .05$. $^{**}p < .01$. $^{***}p < .001$. 
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Table 2. Reliability, means, standard deviations, and zero-order correlations for all variables in Study 2. N = 396. All scales were rated on scales from 1 to 7, except the Marlowe-Crowne Social Desirability scale which uses a true/false response format. Gender was coded such that 1 = male and 2 = female. *p < .10. *p < .05. **p < .01. ***p < .001.
Table 3. Means, standard deviations, and intraclass correlations for all variables in Study 3. N = 230 at pretest, N = 218 at posttest. Values on and above the diagonal represent within-dyad (i.e., Actor-Partner) correlations; values below the diagonal represent within-person correlations. All measures were rated on scales from 1 to 5. Gender was coded such that 1 = male and 2 = female. Pre = Pretest; Post = Posttest. *p < .05. **p < .01. ***p < .001.
Appendix B: Graphs of Results
Figure 1. Study 2 mediation model in which compassionate goals predict growth seeking through perceived mutual support. All coefficients represent standardized effects; the values in parentheses represent total effects. *$p < .05$. ***$p < .001$
Figure 2. Study 3 mediation model in which pretest compassionate goals predict increased growth seeking from pretest to posttest through chronic perceived mutual support. All coefficients represent unstandardized effects; the values in parentheses represent total effects. E indicates an error term. **p < .01. ***p < .001
Figure 3. Study 3 full mediation model in which pretest compassionate goals predict increased academic self-regulation from pretest to posttest through chronic perceived mutual support, increased growth seeking, and increased academic growth goals. All coefficients represent unstandardized effects; the values in parentheses represent total effects. **$p < .01$. ***$p < .001$