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Changing Relationship Growth Belief: Intrapersonal and Interpersonal Consequences of Compassionate Goals

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Abstract

The belief that difficulties can lead to growth in relationships, or growth belief, has consequences for relationships (e.g., Knee, 1998). But what predicts change in this belief? We hypothesized that compassionate goals to support others (Crocker & Canevello, 2008) predict increased growth belief through increased need satisfaction. In Study 1, 199 college freshmen reported their friendship growth belief and goals. In Study 2, 65 roommate pairs reported their roommate growth belief, goals, and need satisfaction. Across studies, compassionate goals predicted increased growth belief. In Study 2, goals predicted increased perceived mutual need satisfaction, which predicted increased growth belief. Additionally, partners' compassionate goals predicted actors' increased growth belief. Results suggest that growth beliefs are shaped by goals – own and others'.

People enter interpersonal relationships with assumptions about how relationships typically function. In particular, people's theories about the malleability of relationships predict how they approach relationships. Growth belief involves the belief that relationships can be maintained and problems can be overcome (e.g., Franiuk, Cohen, & Pomerantz, 2002; Knee, 1998).

To date, little is known about how people acquire growth beliefs and how they change over time. Some research treats these beliefs as though they are deeply ingrained, measuring them as stable traits (e.g., Franiuk et al., 2002; Knee, 1998), but other research suggests that growth beliefs may change over relatively short periods of time (e.g., Aronson, Fried, & Good, 2002; Levy, 1999). In the present studies, we explore how people's own compassionate goals to support others shape their relationship growth beliefs and those of close others through a process of goal contagion.

Growth Belief about Relationships

Research on relationship growth belief builds on research examining beliefs about the malleability and stability of personality, intelligence, and morality (Dweck, Chiu, & Hong, 1995; Dweck, Hong, & Chiu, 1993). Incremental theorists believe traits are flexible and can change with effort (Dweck & Leggett, 1988). In interpersonal relationships, growth theorists believe that relationship growth occurs as a function of overcoming relationship problems. These beliefs guide the meaning people assign to relationship events and the inferences they

draw about the self, partner, and relationship (Franiuk et al., 2002; Knee, Patrick, & Lonsbary, 2003). Growth theories are particularly beneficial when relationship problems occur: growth theorists successfully cope with negative events (Kammrath & Dweck, 2006) and their relationship and partner attitudes are unbiased by their perceptions of their partners (e.g., Franiuk, Pomerantz, & Cohen, 2004).

Malleability of Growth Belief

Because growth beliefs have benefits for people and their relationships, particularly when relationship problems occur, it is important to understand whether and how they change. Research and theory suggest that incremental theories of intelligence develop from past socialization and experience and thereafter show stability (e.g., Dweck, 2002). However, people also alter their theories when faced with evidence endorsing a particular belief (e.g., Aronson et al., 2002; Levy, 1999).

No research to our knowledge has examined naturally occurring change in relationship growth belief. Test-retest reliabilities of growth belief suggest stability over time (Franiuk et al., 2002; Knee et al., 2003). However, people adjust their lay theories of close relationships, or mental constructs used to make sense of social relationships, with evidence that something about the nature of their relationships has changed, suggesting that growth beliefs may increase over time and even develop within relationships (Fletcher & Thomas, 1996; Planalp & Rivers, 1996).

Compassionate Goals and Malleability of Relationship Growth Belief

We propose that people's compassionate goals predict their own increased growth belief over time. We focus on compassionate goals as predictors of change in growth belief because past research suggests that although they can fluctuate from week to week and day to day, chronic levels of compassionate goals predict relationship processes that lead to changes in relationship outcomes over time (Canevello & Crocker, in press; Crocker & Canevello, 2008). Previous research also suggests that compassionate and self-image goals account for unique variance in relationship processes and outcomes, and psychological distress, not accounted for by alternative goal dimensions such as growth and validation-seeking, goal progress and setbacks, reassurance-seeking, social desirability, or constructs such as dysfunctional attitudes, rumination and reflection, insecure attachment, self-esteem, esteem for others, or relationship quality (Canevello & Crocker, in press; Crocker & Canevello, 2008; Crocker, Canevello, Breines, & Flynn, in press).

Compassionate goals focus on supporting others, not to obtain something for the self, but out of concern for the well-being of others (Crocker & Canevello, 2008). When people have compassionate goals they want to be a constructive force in their interactions with and avoid harming others. They focus on how they can make a difference for relationship partners, and they act in ways that promote mutually supportive relationships. When people have compassionate goals, they feel that it is important for people to look out for each other and recognize that relationships are not a zero-sum proposition (Crocker & Canevello, 2008; Crocker, Liu, & Canevello, 2008). That is, they understand that by supporting others and satisfying others' needs, they simultaneously create an environment that supports their own need satisfaction (Deci, La Guardia, Moller, Scheiner, & Ryan, 2006). Because mutual need satisfaction fosters environments that emphasize growth and learning (e.g., Deci & Ryan, 2000; Ryan, 1995), we expect that people's perceptions of mutual need satisfaction in close relationships (including both satisfaction of one's own needs and efforts to satisfy others' needs) should lead to their increased relationship growth belief. Thus, we predict that compassionate goals predict increased relationship growth belief in part because they foster

environments characterized by mutual need satisfaction for people and their relationship partners.

Alternatively, compassionate goals might predict change in relationship growth belief through changes in how people evaluate their relationships or partners or the amount of support people receive from partners. When people have compassionate goals, they report increased relationship quality and esteem for others (Canevello & Crocker, in press) and report receiving increased support from others (Crocker & Canevello, 2008). These changes in how people view their relationships or partners or in their perceptions of partners' supportive behaviors may provide concrete evidence that relationships can change, thus reinforcing growth beliefs about relationships.

Implications for Others' Growth Beliefs

We also hypothesize that people's own compassionate goals predict their relationship partners' increased growth beliefs, through a process of goal contagion, whereby one person's compassionate goals lead to partners' increased compassionate goals (Canevello & Crocker, in press). We suggest that through goal contagion, people's compassionate goals indirectly lead to close others' increased growth belief. Figure 1 depicts this interpersonal process. We predict that partners' compassionate goals lead to actors' increased compassionate goals (Path A), which predicts actors' perceptions of mutual need satisfaction in the relationship (Path B) and consequently, actors' increased relationship growth belief (Path C).

Of course, other variables may confound the associations between compassionate goals and relationship growth belief. For example, attachment styles predict not only support provision (Simpson, Rholes, Orina, & Grich, 2002), but also the effectiveness of supportive behaviors (Feeney & Collins, 2001). Big five personality characteristics predict support perceived by others (Branje, van Lieshout, & van Aken, 2004). Self-esteem may contribute to interpersonal processes that promote social bonds (Leary, Tambor, Terdal, & Downs, 1995; Murray, Holmes, & Collins, 2006). Because people with compassionate goals have higher agreeableness and extraversion, higher self-esteem, and more secure attachment styles (Canevello & Crocker, in press; Crocker & Canevello, 2008), it is important to examine whether these variables account for the associations among compassionate goals and increased growth belief.

Overview of the Present Studies

In the present investigation, we examine associations between compassionate goals and change in growth belief in the context of friendships (Study 1) and roommate relationships (Study 2) in freshmen college students. Although most work on growth belief has focused on romantic relationships, theoretically, we see no reason why growth belief would not translate to friendships and roommate relationships. We also see no reason why people's compassionate goals or orientations toward close others would predict change in growth belief differently for romantic relationships, friendships, or roommate relationships. We expect that, in general, when people have the intention to be supportive of others, their belief that relationships can be maintained and problems can be overcome should increase because of increased perceptions of mutual need satisfaction in the relationship.

Students in their first semester at a college or university provide an excellent population in which to examine changes in relationship growth belief. The transition from high school to college may disrupt social networks if students move away from the nuclear family for the first time, thus developing friendships is especially important for new college students. Because in these contexts new relationships are developing and relatively dynamic,

(particularly compared to well-established romantic relationships) compassionate goals for new relationships may affect relationship growth belief.

In two studies, we examined the links between compassionate goals and change in growth belief among first-semester college freshmen. Study 1 used data from the Goals and Adjustment to College Study (Crocker & Canevello, 2008, Study 1; Crocker et al., in press, Study 1), which followed individual college freshmen across their first semester, to examine intrapersonal change in growth belief about friendships from the beginning to the end of a semester as a function of chronic compassionate friendship goals averaged across 10 weekly reports. Study 2 used data from the Roommate Goals Study (Canevello & Crocker, in press, Study 2; Crocker & Canevello, 2008, Study 2), which followed both members of same-sex college roommate dyads across three weeks during their first semester of college, to examine change in college roommates' relationship growth belief as a function of their own and their roommate's chronic compassionate relationship goals measured daily across 21 days. Study 2 also examined whether students' goals lead to changes in their roommates' relationship growth beliefs through the contagion of compassionate goals.

STUDY 1

Method

The present study reports previously unpublished findings from the Goals and Adjustment to College Study (see Crocker & Canevello, 2008, Study 1). Two hundred four first-semester freshmen (61% female) at a large Midwestern university completed pretest, posttest, and 10 weekly surveys over the semester (five participants who completed less than three surveys were dropped from all analyses); see Crocker and Canevello (2008) for a detailed description of the sample and procedure.

Pretest and Posttest Measures—At pretest and posttest, participants completed a measure of growth belief about friendships. Additional measures assessed at pretest included attachment anxiety and avoidance, agreeableness and extraversion, self-esteem, and demographics (gender, race/ethnicity, age, parental income). Measures not germane to the goals of the present investigation were also included.

Growth belief about friendship were measured using a modified version of a scale designed for romantic relationships (Knee, 1998). Growth belief was measured with five items, including “the ideal friendship develops gradually over time,” “a successful friendship evolves through hard work and resolution of incompatibilities,” “a successful friendship is mostly a matter of learning to resolve conflicts,” “successful friendships require regular maintenance,” and “without conflict from time to time, friendships cannot improve.” Participants rated their agreement with each item on a 7-point Likert-type scale with anchors of 1 (*strongly disagree*) and 7 (*strongly agree*). Cronbach's alphas for friendship growth belief was .61 at pretest and .73 at posttest.

Attachment anxiety and avoidance were assessed at pretest with an abbreviated version of the Brennan, Shaver, and Clark (1998) measure assessing attachment styles in the context of romantic relationships. The original scale includes 18 items assessing each dimension; we included the 9 highest-loading items for each subscale. The resulting measures had high internal consistency ($\alpha = .88$ and $.93$ for attachment anxiety and avoidance, respectively).

Self-esteem was measured at pretest using the Rosenberg Self-Esteem Inventory (Rosenberg, 1965). The measure had high internal consistency in the present sample ($\alpha = .89$).

Agreeableness and extraversion were assessed at pretest with a brief measure including two items assessing each Big Five factor (Gosling, Rentfrow, & Swann, 2003). Although the subscales are less reliable than longer measures of Big Five factors, they show adequate convergent and discriminant validity, test-retest reliability, patterns of external correlates, and convergence between self- and observer-ratings (Gosling et al., 2003). In the present study, reliabilities were: extraversion ($\alpha = .68$) and agreeableness ($\alpha = .46$).

Weekly Measures—Each week, participants completed a measure of compassionate goals. Also, past research has examined the effects of compassionate and self-image goals simultaneously as predictors of relational outcomes (e.g., Canevello & Crocker, in press; Crocker & Canevello, 2008). Because compassionate and self-image goals were positively correlated in these data ($r = .54, p < .001$), we also included weekly self-image goals in this investigation.

Compassionate and self-image friendship goals: Each of the 10 weekly assessments included measures of compassionate and self-image friendship goals developed by Crocker and Canevello (2008; Study 1). All items began with the phrase, “In the past week, in the area of *friendships*, how much did you want to or try to:.” Seven items reflected compassionate goals (4 approach-oriented and 3 avoidance-oriented), including “be supportive of others,” “have compassion for others’ mistakes and weaknesses,” “avoid doing anything that would be harmful to others,” “make a positive difference in someone else’s life,” “be constructive in your comments to others,” “avoid being selfish or self-centered,” and “avoid doing things that aren’t helpful to me or others.” Six items reflected self-image goals (2 approach-oriented and 4 avoidance-oriented), including “avoid showing your weaknesses,” “avoid the possibility of being wrong,” “avoid being rejected by others,” “avoid taking risks or making mistakes,” “get others to recognize or acknowledge your positive qualities,” and “convince others that you are right.” Ratings were made on a scale ranging from 1 (*not at all/never*) to 5 (*always/extremely*). We created chronic measures of friendship compassionate ($.83 < \alpha < .93, M_\alpha = .90$) and self-image ($.77 < \alpha < .89, M_\alpha = .83$) goals by averaging across the 10 weekly reports.

Results

Factor Analyses—Because of the significant correlations among chronic compassionate goals and pretest and posttest growth belief (see Table 1), we conducted confirmatory factor analyses (CFA) on those scales in pairs, comparing the fit of individual items in 2-factor models (i.e., growth belief vs. compassionate goals items) versus 1-factor models (i.e., growth belief and compassionate goals items on a single factor).

Results suggest that the items used to assess compassionate goals and growth beliefs, though correlated, are empirically distinct (see Table 2). We performed two sets of CFAs. The first set of CFAs examined *pretest* growth belief and *chronic* compassionate goals; the second set examined *posttest* growth belief and *chronic* compassionate goals. For each set of analyses, the fit for a 2-factor solution was significantly improved over a 1-factor solution. Thus, although they are correlated, relationship growth belief and compassionate goal items are empirically distinct.

Primary Analyses—We examined whether individual differences in chronic compassionate goals (averaged across the 10 weekly reports) were related to change in growth belief about friendships from pretest to posttest, using regression analyses. Because self-image and compassionate goals are correlated ($r = .54, p < .001$) and self-image goals are correlated with growth belief at pretest ($r = .20, p < .01$) and posttest ($r = .24, p < .001$), we controlled for self-image goals in all analyses. We tested residual change from pretest to

posttest by regressing the posttest outcomes on the pretest measure, and chronic compassionate and self-image goals.

Students with higher compassionate goals reported increased growth belief from pretest to posttest, $\beta = .21, p < .01$. Because growth goals were correlated with gender at pretest and posttest, we reran analyses for growth belief, controlling for gender. Results did not change: compassionate goals predicted increased growth belief, $\beta = .19, p < .01$. Gender moderated the effects of compassionate goals on change in growth belief ($\Delta R^2 = .01, p < .05$), such that compassionate goals predict increased growth belief in men ($\beta = .32, p < .01$) but not in women ($\beta = .08, ns$).

These associations were not accounted for by attachment, personality, or self-esteem. We conducted a series of regression analyses predicting residual change in growth belief from compassionate goal, controlling for self-image goals and covariates. In three separate analyses for each belief, we controlled for pretest 1) anxious and avoidant attachment, 2) self-esteem, and 3) agreeableness and extraversion, because in previous research these variables were correlated with compassionate and self-image goals (Crocker & Canevello, 2008). In each of these analyses, the effect of compassionate goals on residual change in beliefs remained unchanged (growth belief: $.22 < \beta < .26, .05 < p < .01$; destiny belief: $-.14 < \beta < -.11$, all *ns*).

We next tested whether the effects of compassionate goals on residual change in growth belief about friendships depended on whether compassionate goals were expressed as approach or avoidance goals by creating two measures of compassionate goals, one composed of approach items, and one composed of avoidance items. We entered compassionate approach goals in one set of analyses, controlling for self-image approach goals, and then entered compassionate avoidance goals in another set of analyses, controlling for self-image avoidance goals. Results remained unchanged: both approach- and avoidance-oriented compassionate goals predicted increased growth belief (compassionate approach goals: $\beta = .22, p < .01$, compassionate avoidance goals: $\beta = .18, p < .01$.) These results suggest that associations between compassionate goals and change in growth belief do not depend on approach- and avoidance-orientations.

Discussion

Study 1 supported our hypothesis that students higher in chronic compassionate goals develop increased friendship growth belief across the semester. This association appeared for men, but not women. Attachment, Big Five factors of personality, and self-esteem did not account for this association. Importantly, these associations did not depend on whether compassionate goals were framed as approach or avoidance goals. In Study 2, we attempted to replicate these findings.

Although the design of Study 1 does not permit conclusions about causality, the results of Study 1 suggest that growth belief changes as a function of the goal to be supportive of others. In Study 2, we attempted to replicate this finding. Study 2 also examined the process by which compassionate goals predict change in growth belief. First, we test a path model based on perceptions of mutual need satisfaction in the relationship; we test whether compassionate goals lead to change in perceptions of mutual need satisfaction in the relationship, which then lead to change in relationship growth belief. We also test a series of alternative path models, based on the assumption that people's growth beliefs change with change in their evaluations of their relationship or partners or change in the amount of support they receive from partners. We test three separate path models in which compassionate goals lead to changes in relationship quality, esteem for roommates, and

social support received from roommates, which then predict change in relationship growth belief.

Another remaining question concerns the possibility of interpersonal effects of compassionate goals on growth belief. Study 1 showed the *intrapersonal* effects of interpersonal goals on students' own growth belief about friendships. Study 2 explored the *interpersonal* effects of interpersonal goals on growth theory by examining how students' compassionate goals affect relationship partners' growth belief. We hypothesize that students who have the goal to be supportive are more responsive to roommates, which leads to roommates' greater perceptions of students' responsiveness, fostering roommates' compassionate goals, and ultimately, roommates' growth belief.

STUDY 2

Study 2 used data from the Roommate Goals Study (Canevello & Crocker, in press, Study 2 ; Crocker & Canevello, 2008, Study 2) to examine intra- and interpersonal associations between compassionate goals and changes in relationship growth belief in a sample of first-semester college roommates. We examined college roommates in Study 2 because their relationships are relatively new and roommates did not know each other before living together, making these relationships relatively unbiased by relationship history and past interactions. Unlike most close relationships, previously unacquainted roommates do not self-select into their relationships. Many first-year students experience significant disruption of their social lives and must build a social network. Roommates are often the first people they meet and with whom they spend significant time.

In Study 2, we tested whether actors' chronic compassionate goals across 21 daily reports predict change in their own growth belief about roommate relationships from pretest to posttest. We examined whether the association between compassionate goals and relationship growth belief was simply due to actors' agreeableness, extraversion, self-esteem, attachment styles, or approach or avoidant goal orientations. Study 2 also allowed us to test whether relationship growth belief predicted change in compassionate goals. Additionally, we examined the process by which compassionate goals lead to change in growth belief. Specifically, we tested whether actors' chronic compassionate goals predicted change in perceived mutual need satisfaction in the relationship, which then predicted change in growth belief. We also tested alternative path models, in which compassionate goals led to changes in relationship quality, esteem for roommates, and social support received from roommates and whether those variables predicted change in growth belief. Finally, we tested whether actors' compassionate goals predict change in partners' growth belief about roommate relationships. In path analyses, we examined whether actors' compassionate goals predicted change in partners' compassionate goals, which led to change in partners' perceived need satisfaction in the relationship which then predicted change in partners' relationship growth belief.

Method

Participants—Sixty-five first-semester freshmen same-sex roommate dyads (130 students; 71% female) at a large Midwestern university who did not know each other prior to college volunteered to complete pretest, posttest, and 21 daily surveys. For detailed information about the participants and procedures see Crocker and Canevello (2008, Study 2).

Procedure—Each roommate completed pretest and posttest questionnaires, including measures of interpersonal goals, relationship growth belief, perceptions of mutual need satisfaction in the relationship, efforts to satisfy roommates' needs, relationship quality, roommate-esteem, and social support received from roommates. Pretest questionnaires also

included questions about demographics (gender, race/ethnicity, age), attachment anxiety and avoidance, self-esteem, and personality. Roommates also completed 21 daily reports of interpersonal goals.

Measures—*Growth belief about roommate relationships* was measured in the pretest and posttest surveys using a modified version of Knee and colleagues' scale (Knee, 1998; Knee et al., 2003), specific to roommate relationships. Growth belief was measured with eight items, including "problems in a roommate relationship can bring roommates closer together," "challenges and obstacles in a roommate relationship can make a friendship even stronger," "successful roommate relationship require regular maintenance," "arguments often enable a roommate relationship to improve," "a successful roommate relationship evolves through hard work and resolution of incompatibilities," "the ideal roommate relationship develops gradually over time," "a successful roommate relationship is mostly a matter of learning to resolve conflicts with a roommate," and "it takes a lot of time and effort to cultivate a good roommate relationship." Participants rated their agreement with each item on a 7-point Likert-type scale with anchors of 1 (*strongly disagree*) and 7 (*strongly agree*). Cronbach's alphas for growth belief were .83 at pretest and .84 at posttest.

Compassionate and self-image goals for participants' relationships with their roommates were measured at pretest and daily using the roommate version of the measure used by Canevello and Crocker (in press; Study 2). Pretest items began with the phrase, "In my relationship with my roommate, I wanted/tried to." Daily items began with "Today, in my relationship with my roommate, I wanted/tried to." All items were rated on a scale ranging from 1 (*not at all*) to 5 (*extremely*). Seven items assessed compassionate goals (3 approach-oriented and 4 avoidance-oriented), including "have compassion for my roommate's mistakes and weaknesses," "be aware of the impact my behavior might have on my roommate's feelings," "avoid neglecting my relationship with my roommate," "avoid being selfish or self-centered," "be constructive in my comments to my roommate," "avoid doing things that aren't helpful to me or my roommate," and "avoid doing anything that would be harmful to my roommate." Seven items reflected self-image goals (3 approach-oriented and 4 avoidance-oriented), including "avoid showing my weaknesses," "avoid the possibility of being wrong," "convince my roommate that I am right," "get my roommate to do things my way," "avoid being blamed or criticized," "avoid coming across as unintelligent or incompetent," and "demonstrate my intelligence." Both scales had high internal consistency at pretest (self-image $\alpha = .80$; compassionate $\alpha = .84$) and across participants and days (self-image goals: $.75 < \alpha < .87$, $M_\alpha = .83$; compassionate goals: $.88 < \alpha < .96$, $M_\alpha = .94$).

Perceptions of mutual need satisfaction in the relationship were measured at pretest and posttest using a nine-item measure derived from the scale developed by La Guardia, Ryan, Couchman, and Deci (2000). Participants rated the extent to which their roommate relationship satisfied their needs on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Items began with the stem "When I am with my roommate." Items included "I feel free to be who I am," "I feel comfortable voicing my opinion," "I feel controlled and pressured to be a certain way" (reverse scored), "I feel like a competent person," "I feel very capable and effective," "I feel inadequate or incompetent" (reverse scored), "I feel a strong bond between us," "I feel cared about," and "I do not feel close to him/her" (reverse scored). Because we were interested in the role of total need satisfaction in predicting change in relationship growth belief (versus satisfaction of each individual need for autonomy, competence, and relatedness), we scored the nine items into a single measure of need satisfaction (La Guardia et al., 2000), which had good reliability at pretest, $\alpha = .85$, and posttest, $\alpha = .94$.

A parallel set of 9 items assessed participants' efforts to satisfy their roommates' needs. Items measuring efforts to satisfy roommate's needs included "I encourage my roommate to be him/herself," "I support my roommate in voicing his/her opinions," "I pressure my roommate to be a certain way" (reverse scored), "I do or say things to suggest that he/she is a competent person," "I do or say things to suggest that he/she is capable and effective," "I do or say things to make him/her feel inadequate or incompetent" (reverse scored), "I try to develop or strengthen the connection between us," "I do or say things to let him/her know that I care," and "I distance myself from him/her" (reverse scored). Again, we scored the nine items into a single measure, which had good reliability at pretest, $\alpha = .86$, and posttest, $\alpha = .92$.

Because need satisfaction and efforts to satisfy roommates' needs were highly correlated ($r_s = .75$ and $.85$ at pretest and posttest, respectively), we averaged these scales into a single score of students' perceptions of mutual need satisfaction in the relationship. This scale had good reliability at pretest, $\alpha = .92$, and posttest, $\alpha = .96$.

Relationship quality included measures of satisfaction, commitment and closeness. Because all scales were highly correlated at each time point (all $r_s > .67$), and we had the same predictions for these indicators of relationship quality, we standardized and averaged these scales to create pretest and posttest composite relationship quality scores.

We measured *relationship satisfaction* with 6 questions: "In general, how satisfied are you with your relationship with your roommate?" "How well does your roommate meet your needs?" "How good is your relationship with your roommate compared to most?" "How many problems are there in your relationship with your roommate?" (reverse scored) "How often do you wish you hadn't moved in with your roommate?" (reverse scored) and "To what extent has your relationship with your roommate met your original expectations?" Students responded on a scale from 1 (*poorly/not at all/never*) to 5 (*extremely well/completely/often*). We measured *commitment* using an abbreviated version of the measure developed by Rusbult and colleagues (Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991): "To what extent are you committed to your relationship with your roommate?" "For what length of time would you like your relationship with your roommate to last?" "To what extent are you attached to your roommate?" and "How likely is it that you will end your relationship with your roommate in the near future?" (reverse scored). Students rated items on a 9-point scale (0 = *Not at all*/*< 1 month*, 8 = *Extremely*/*5+ years*). Two items assessed closeness (e.g., Gore, Cross, & Morris, 2006): "Relative to all other relationships, how would you characterize your relationship with your roommate?" and "Relative to what you know about other people's roommate relationships, how would you characterize your relationship with your roommate?" and were rated on a 1 (*not as close as others*) to 5 (*much closer than others*) scale. The relationship quality composite measures had high internal consistency at pretest ($\alpha = .90$) and posttest ($\alpha = .92$).

Esteem for roommates was measured at pretest and posttest with 10 questions, adapted from the Rosenberg self-esteem measure (Rosenberg, 1965), with items assessing evaluation of roommates (not perceptions of roommates' self-esteem). Sample items included: "I certainly feel my roommate is useless at times," (reverse scored) "I feel that my roommate has a number of good qualities," and "I feel that my roommate is a person of worth, at least on an equal basis with others." Students responded on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Esteem for roommates had adequate internal consistency at pretest ($\alpha = .88$) and posttest ($\alpha = .89$).

Social support received from roommates was measured at pretest and posttest with a shortened version of the Inventory of Socially Supportive Behaviors (Barrera, Sandler, &

Ramsay, 1981). For each of the 15 items, participants indicated the frequency with which their roommate provided support during the previous week on a scale from 1 (*not at all*) to 5 (*every day*). Social support received from roommates had high internal reliability at both pretest and posttest ($\alpha = .94$).

Attachment anxiety and avoidance were assessed at pretest using the Brennan, Shaver, and Clark (1998) measure from Study 1, adapted to roommate relationships. This measure had high internal consistency in Study 2 ($\alpha = .84$ and $.85$ for attachment anxiety and avoidance, respectively).

Agreeableness and extraversion were assessed with the Big Five measure designed by John, Donahue, and Kentle (1991). Each subscale consisted of eight to ten items assessing each personality factor. All items began with the stem “I see myself as someone who:” and was rated on a 1 (*strongly disagree*) to 5 (*strongly agree*) scale. Sample items included: “Is talkative,” (extraversion), and “Is considerate and kind to almost everyone,” (agreeableness). Internal reliabilities for extraversion ($\alpha = .89$) and agreeableness ($\alpha = .84$) were adequate.

Self-esteem: The Rosenberg Self-Esteem Inventory (Rosenberg, 1965) was used to assess global self-esteem at pretest and had high internal consistency in this sample ($\alpha = .89$).

Results

Overview of Analyses—Data analyses proceeded in three phases. In phase 1, we conducted factor analyses to establish that compassionate goals, perceived need satisfaction in the relationship, and growth belief are empirically distinct constructs. In phase 2, we examined whether actors’ chronic compassionate goals (averaged over 21 days) predict change in their own growth belief from pretest to posttest and tested a path model in which chronic compassionate goals predict change in perceptions of mutual need satisfaction in the relationship from pretest to posttest, which then predicted change in relationship growth belief from pretest to posttest. We tested a series of alternative path models in which chronic compassionate goals predicted changes in relationship quality, esteem for roommates, and social support received from roommates from pretest to posttest, which then predicted change in growth belief from pretest to posttest. We also explored the direction of the association between compassionate goals and growth belief. In phase 3, we examined the interpersonal processes by which partners’ compassionate goals predict change in actors’ relationship growth belief and tested a path model whereby partners’ pretest compassionate goals predict actors’ chronic compassionate goals, which then leads to change in actors’ perceived need satisfaction in the relationship from pretest to posttest, which then predicts change in actors’ growth belief from pretest to posttest.

Factor Analyses—Table 3 shows the means, standard deviations, and intrapersonal (i.e., within-person) intraclass correlations, which adjust for the degree of nonindependence between dyad members (Griffin & Gonzalez, 1995) for all primary variables in Study 2. Because of the moderate correlations between compassionate goals, growth belief, and perceptions of mutual need satisfaction in the relationship, and concerns about their conceptual overlap, we conducted CFAs on these variables in pairs. We conducted 6 sets of CFAs: 1) pretest compassionate goals and growth belief, 2) posttest compassionate goals and growth belief, 3) pretest compassionate goals and perceptions of mutual need satisfaction in the relationship, 4) posttest compassionate goals and perceptions of mutual need satisfaction in the relationship, 5) pretest growth belief and perceptions of mutual need satisfaction in the relationship, and 6) posttest growth belief and perceptions of mutual need satisfaction in the relationship. For each pair of variables we fit two models: one with a

single-factor solution, and one with a two-factor solution. Then we tested the difference in fit between the two solutions.

Results indicate that the measures of compassionate goals, growth belief, and perceptions of mutual need satisfaction in the relationship are empirically distinct. We distinguished compassionate goals from growth belief at pretest and posttest, compassionate goals from perceptions of mutual need satisfaction in the relationship at pretest and posttest, and growth belief from perceptions of mutual need satisfaction in the relationship at pretest and posttest. For all 6 comparisons, the fit for a two-factor solution was significantly improved over a single-factor solution (see Table 4).

Intrapersonal Effects

Effects of actors' chronic compassionate goals on their own growth belief: Pretest and posttest growth beliefs correlated moderately to highly, indicating relatively high test-retest reliability (see Table 3). As in Study 1, because students' chronic self-image goals correlated with chronic compassionate goals ($r = .27, p < .01$), we controlled for the corresponding self-image goals in all analyses including compassionate goals.

We controlled for the nonindependence of individuals within roommate dyads in all analyses using the MIXED command in SPSS (Campbell & Kashy, 2002; Campbell, Simpson, Boldry, & Kashy, 2005; Kenny, Kashy, & Cook, 2006), and because individuals within dyads were indistinguishable, we specified compound symmetry so that intercept variances between dyad members were equal. 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 (see Campbell & Kashy, 2002, for a sample arrangement of data). Thus, tests of actor effects included all participants (i.e., both roommates in each pair) and examined associations between students' compassionate goals and changes in their own growth belief. We applied a multiple regression strategy, regressing actors' growth belief onto their own chronic compassionate goals.¹ We used a residual change strategy to test change from pretest to posttest, regressing the posttest dependent variable on relevant pretest or chronic predictors, controlling for the pretest dependent variable. Coefficients for testing change from pretest to posttest were derived from fixed-effects models using restricted maximum-likelihood estimation. All predictors were grand mean centered.

Students with higher chronic compassionate goals increased in growth belief from pretest to posttest, using residual change analyses, $pr = .34, p < .001$. Gender did not moderate this association ($pseudo \Delta R^2 = .00, ns$).

No covariates accounted for the association between chronic compassionate goals and change in growth belief from pretest to posttest. We repeated the original analyses, separately controlling for pretest 1) anxious and avoidant attachment, 2) self-esteem, and 3) agreeableness and extraversion. In each of these analyses, the association between compassionate goals and increased growth belief remained unchanged and significant ($.34 < pr < .37$, all $ps < .001$).

As in Study 1, we also tested whether the effects of compassionate goals on residual change in growth belief depended on whether compassionate goals were expressed as approach or avoidance goals. We created two measures of compassionate goal, one composed of approach items, and one composed of avoidance items and entered the approach goals in one set of analyses, and then entered the avoidance goals in another set of analyses, controlling

¹Traditional APIM analyses require regression of actor outcomes on both actor and partner predictors. Because we were interested only in actor effects in these analyses, we did not control for partner effects.

for the comparable approach and avoidant self-image goals. Results remained unchanged: both approach- and avoidance-oriented compassionate goals predicted increased growth belief (compassionate approach goals: $pr = .33, p < .001$, compassionate avoidant goals: $pr = .32, p < .001$). These results suggest that the association between compassionate goals and change in growth belief do not differ depending on whether goals are approach- and avoidance-oriented.

Although we made no specific predictions that actors' growth goals predict change in their own compassionate goals, we tested this reverse association to determine the plausibility of this causal direction. Students' growth belief did not predict change in their compassionate goals. When we regressed posttest compassionate goals on pretest growth belief, controlling for pretest compassionate goals and posttest self-image goals, pretest growth belief did not predict residual posttest compassionate goals, $pr = .01$, ns.

These results support our hypotheses that, over time, when students have compassionate goals to support their roommates, their growth beliefs about roommate relationships become stronger, but not because of initial attachment, self-esteem, agreeableness or extraversion, or approach and avoidant motivation. Results also suggest the implausibility of the reverse association between growth belief and compassionate goals: growth belief did not predict change in compassionate goals.

Test of the path model: Next, we tested a path model assessing whether chronic compassionate goals predict increased growth belief through increased perceptions of mutual need satisfaction in the relationship. We tested the path model sequentially, with a separate regression equation for each path in which we regressed the criterion on the predictor(s), controlling for all variables preceding that path in the model. Results support our hypothesized intrapersonal path model. Students' chronic compassionate goals predicted their increased perceptions of mutual need satisfaction in the relationship from pretest to posttest, $pr = .49, p < .001$, which then predicted increased growth belief from pretest to posttest, $pr = .23, p < .05$. In addition, the direct association between chronic compassionate goals and increased growth belief dropped from $pr = .45, p < .001$ to $pr = .25, p < .01$, when change in perceptions of mutual need satisfaction in the relationship was added to the model.

Gender did not moderate the association between chronic compassionate goals and change in perceptions of mutual need satisfaction in the relationship, $pseudo \Delta R^2 = .01$, ns. It did moderate the link between change in perceptions of mutual need satisfaction in the relationship and change in growth belief, $pseudo \Delta R^2 = .04, p < .01$, such that this association was stronger in men, $pr = .38, p < .001$, than women, $pr = .20, p < .05$.

Results did not change when we separated our measure of perceptions of mutual need satisfaction in the relationship into students' reports of their own need satisfaction and their efforts to satisfy roommates' needs. Chronic compassionate goals predicted students' own increased need satisfaction from pretest to posttest, $pr = .47, p < .001$, which then predicted their increased growth belief, $pr = .25, p < .01$, and the direct association between chronic compassionate goals and increased growth belief dropped from $pr = .45, p < .001$ to $pr = .27, p < .01$, when change in students' own need satisfaction was added to the model. Similarly, chronic compassionate goals predicted students' increased efforts to satisfy roommates' needs from pretest to posttest, $pr = .50, p < .001$, which then predicted their increased growth belief, $pr = .21, p < .05$, and the direct association between chronic compassionate goals and increased growth belief dropped from $pr = .45, p < .001$ to $pr = .23, p < .05$, when change in students' efforts to satisfy roommates' needs was added to the model. Further, neither variable predicted change in growth belief over the other. When we regressed change in growth belief on change in own need satisfaction and change in efforts

to satisfy roommates' needs simultaneously, controlling for chronic compassionate and self-image goals, neither change in own need satisfaction, nor efforts to satisfy roommates' needs predicted change in growth belief (change in own need satisfaction: $pr = .11$, ns; change in efforts to satisfy roommates' needs: $pr = .09$, ns).

Because it was also possible that chronic compassionate goals might lead to increased relationship quality, esteem for roommates, or social support received from roommates, which then predict increased growth belief, we tested a separate path model for each of these constructs. Students' chronic compassionate goals predicted their increased relationship quality from pretest to posttest, $pr = .21$, $p < .05$, but change in relationship quality did not predict change in growth belief, $pr = .07$, ns. Students' chronic compassionate goals predicted their increased esteem for roommates from pretest to posttest, $pr = .38$, $p < .001$, but change in esteem for roommates did not predict change in growth belief, $pr = .10$, ns. Finally, students' chronic compassionate goals predicted their increased social support received from roommates from pretest to posttest, $pr = .33$, $p < .001$, but change in social support received from roommates only marginally predicted increased growth belief, $pr = .20$, $p < .06$.

These results support our hypothesis that students' chronic compassionate goals lead to increased perceptions of mutual need satisfaction in the relationship, which then leads to increased relationship growth belief. The association between increased perceptions of mutual need satisfaction in the relationship and increased relationship growth was significantly stronger for men. These results also allow us to rule out changes in relationship quality, roommate esteem, and social support received from roommates as predictors of change in growth belief.

Interpersonal Effects

Effects of actors' chronic compassionate goals on partners' growth belief: We examined associations between actors' compassionate goals and changes in partners' growth belief from pretest to posttest. We conducted analyses using analytic strategy described above and employed an Actor-Partner Interdependence Modeling strategy (APIM; e.g., Kenny et al., 2006) by regressing actors' posttest growth belief on actors' and partners' chronic compassionate goals, controlling for actors' pretest growth belief and actors' and partners' chronic self-image goals.

When we controlled for the associations between actors' goals, partners' compassionate goals did not predict change in actors' growth belief, $pr = -.05$, ns. When we removed actors' chronic goals from the model, partners' higher chronic compassionate goals predicted actors' increased growth beliefs from pretest to posttest, $pr = .30$, $p < .01$. Gender moderated this association ($pseudo \Delta R^2 = .04$, $p < .01$), such that compassionate goals predicted increased growth belief in female roommate pairs ($pr = .61$, $p < .01$) but not in male roommate pairs ($pr = .05$, ns).

Again, results did not differ when compassionate goals were expressed as either approach or avoidance goals. When we reran analyses, all results were unchanged. When actors' approach-oriented goals were included in the model, partners' compassionate approach goals did not predict change in actors' growth belief, $pr = -.07$, ns. When we removed actors' chronic approach goals from the model, partners' higher chronic compassionate approach goals predicted actors' increased growth beliefs from pretest to posttest, $pr = .30$, $p < .01$. Similarly, when actors' avoidant-oriented goals were included in the model, partners' compassionate avoidant goals did not predict change in actors' growth belief, $pr = -.03$, ns. When we removed actors' chronic avoidant goals from the model, partners' higher chronic

compassionate avoidant goals predicted actors' increased growth beliefs from pretest to posttest, $pr = .30, p < .01$.

These analyses suggest that partners' compassionate goals play a part in actors' increased growth belief, and that actors' compassionate goals may explain this association; however they do not directly address the likelihood of a link between partners' and actors' compassionate goals. They also do not address how partners' compassionate goals predict changes in actors' compassionate goals. Following previous findings supporting goal contagion between relationship partners (Canevello & Crocker, in press), we tested a path model whereby partners' pretest compassionate goals predict actors' chronic compassionate goals, which then predict change in actors' perceptions of mutual need satisfaction in the relationship and growth belief.²

Test of the path model: We conducted path analyses to examine the plausibility of a sequence in which partners' pretest compassionate goals predict actors' chronic compassionate goals, which predicts change in actors' perceptions of mutual need satisfaction in the relationship, which then predicts change in actors' growth belief (see all Paths in Figure 1). We tested the model in three regression equations, testing each individual path from left to right, controlling for all variables preceding the path of interest in each equation.

Results support our hypothesized model (see Figure 2). Partners' pretest compassionate goals predicted actors' higher chronic compassionate goals, which predicted actors' increased perceptions of mutual need satisfaction in the relationship from pretest to posttest, which in turn predicted actors' increased growth belief from pretest to posttest.

Overall, the results of Study 2 support our hypotheses that compassionate goals predict change in one's own and others' growth belief. Students' chronic compassionate goals predicted their increased growth belief; growth belief did not predict increased compassionate goals. Increased perceptions of mutual need satisfaction in the relationship partially account for the association between chronic compassionate goals and increased relationship growth belief; changes in relationship quality, esteem for roommates, and social support received from roommates do not. Interpersonally, when students had higher pretest compassionate goals, their roommates reported higher chronic compassionate goals, which then led to roommates' increased perceived need satisfaction in the relationship, which in turn led to roommates' increased growth belief.

GENERAL DISCUSSION

Growth beliefs about relationships lead to improved relationship outcomes, particularly in the context of relationship problems (e.g., Knee et al., 2003). Growth theorists, who believe that relationships can improve with effort, view problems in relationships as opportunities and their relationships tend to fare better when relationship problems arise (Knee & Canevello, 2006). But where do these relationship beliefs come from?

In two studies, we examined whether people's own compassionate goals predict changes in their own growth belief over time and whether change in perceptions of mutual need

²Note that, although we replicated the general path model tested by Canevello and Crocker (in press) using the same data set, in these analyses we examined variables measured at different time points. In this investigation, we examined paths from partners' *pretest* compassionate goals to partners' *chronic* responsiveness to actors to actors' *chronic* perceptions of partners' responsiveness to *change* in actors' compassionate goals from pretest to posttest. Canevello and Crocker (in press) examined paths from partners' *chronic* compassionate goals to *change* in partners' responsiveness to actors to *change* in actors' perceptions of partners' responsiveness to *change* in actors' compassionate goals.

satisfaction in the relationship at least partially account for this association. Furthermore, we proposed that compassionate goals have interpersonal effects, predicting change not only in one's own relationship growth belief, but also in the growth belief of relationship partners. The results of the studies reported here are consistent with our hypotheses that people's compassionate goals predict their own and their partners' increased growth belief and that change in perceptions of mutual need satisfaction in the relationship account for some of the association between compassionate goals and change in growth belief. We consider these findings in turn.

Goals and Malleability of Relationship Theories

Across studies, chronic compassionate goals lead to increased growth belief. Students with compassionate goals developed increased growth beliefs about friendships and roommates in the first semester of college. Importantly, these associations were not accounted for by attachment, self-esteem, agreeableness, extraversion, or approach and avoidance motivation.

We explored this process more closely in Study 2, and found that compassionate goals predict increased perceptions of mutual need satisfaction in the relationship, which included need satisfaction from roommates and efforts to satisfy roommates' needs, which then predict increased growth belief. Importantly, these associations held when we examined need satisfaction from roommates and efforts to satisfy roommates' needs separately. When we entered them into the same model, neither accounted for the effect of the other on change in growth belief. These results suggest that change in perceived mutual need satisfaction, where people's own needs are satisfied and they make efforts to satisfy others' needs, plays an important role in change in people's belief that relationships can develop and grow. Through their own compassionate goals, students create an environment in which they simultaneously make efforts to satisfy roommates' needs and their own needs are satisfied by roommates, which then alters their own relationship growth belief. These results also speak to the nonzero-sum nature of compassionate goals and need satisfaction in relationships. Compassionate goals and need satisfaction are not self-sacrificing, in the sense that people must lose or forego satisfaction of their own needs for others to benefit. Instead, when people have compassionate goals in close relationships, they create environments that are mutually beneficial for their partners and themselves, which then leads to their increased relationship growth belief.

We did not find support for alternative explanations involving increased relationship quality, esteem for roommates, or social support received from roommates. Thus, these results also suggest that compassionate goals predict increased growth belief because they address both partners' core needs, but not because they simply increase the quality of the relationship, esteem for relationship partners, or the amount of social support received from partners.

Interpersonal Mechanisms

Study 2 provided evidence that one person's compassionate goals predict change in another person's growth belief. Specifically, partners' compassionate goals predicted actors' increased growth belief about roommate relationships. This effect became nonsignificant when both actors' and partners' goals were entered as predictors, suggesting a path model whereby partners' compassionate goals predict actors' increased compassionate goals, which then predict actors' increased growth belief. Path analyses supported our hypothesis that partners' compassionate goals lead to actors' increased compassionate goals, which lead to actors' increased perceptions of mutual need satisfaction in the relationship and subsequent increases in actors' growth belief about roommate relationships. No interpersonal associations could be explained by approach and avoidance motives.

In sum, the results of Study 2 provide evidence of both intrapersonal and interpersonal consequences of compassionate goals for increased growth belief. Students' compassionate goals not only affect their own beliefs, but they also have consequences for close others' compassionate goals and growth belief. These data suggest that people's compassionate goals predict changes in their growth beliefs about their relationships, which in prior research predicted relationship functioning (Franiuk et al., 2004; Knee et al., 2003). They also suggest that intrapersonal processes contribute to changes in growth beliefs. Most research and theory on growth beliefs assume that these theories change primarily as a result of external forces acting upon them. Results presented here suggest a more complex story. These data suggest that others affect people's growth and destiny beliefs, and that people's own goals also shape their assumptions about the nature of relationships.

Two possible conclusions could be drawn from these interpersonal effects. First, close others' compassionate goals affect us – they affect our own compassionate goals, subsequent responsiveness to others, and resulting changes in growth beliefs, illustrating how others affect our motivation, behavior and beliefs. Second, our compassionate goals affect our own behaviors and beliefs, as well as the compassionate goals and growth beliefs of close others. Although both conclusions are consistent with our results, the second may be more useful to people who want their relationships to improve, because it emphasizes that people may be able to change their own and others' relationship experiences by clarifying their own compassionate goals. It may be possible to change others by changing the self first.

Gender Effects

Interestingly, the association between compassionate goals and increased growth belief was moderated by gender in Study 1, such that this association was present in men but not women, suggesting that when men have a chronic focus on supporting others out of concern for their well-being they show increased belief that relationships can improve and problems can be overcome. However, there were no gender differences in the association between compassionate goals and change in growth belief in Study 2.

We also found inconsistent effects by gender in testing the association between partners' compassionate goals and actors' increased growth belief. Partners' chronic compassionate goals predicted actors' increased growth belief for women roommate pairs but not men. Finally, gender unexpectedly moderated the association between change in perceptions of mutual need satisfaction in the relationship and change in growth belief, such that this associations was stronger for men than women.

Although these gender effects are potentially informative, we hesitate to over-emphasize them, given that we did not hypothesize them and they did not replicate between studies. However, we do suggest that future research examine potential gender differences more closely.

Reverse Effects: Growth and Destiny Beliefs Predicting Goals

Our results contribute to research on growth belief by showing that in friendship and roommate relationships people's compassionate goals for their relationships predict changes in their growth belief. Previous research on growth belief has theorized a unidirectional relation between growth and destiny beliefs and students' goals, primarily in the domain of academics (Dweck & Leggett, 1988; Robins & Pals, 2002). For example, college freshmen with higher incremental self-theories reported greater learning orientations (Robins & Pals, 2002). In Study 2, we tested whether students' pretest relationship growth belief predicted change in their goals from pretest to posttest. Growth belief did not predict change in compassionate goals for relationships across three weeks. Thus, these studies suggest that

students' compassionate goals predict their increased growth beliefs 3 and 10 weeks later, but students' growth beliefs have little bearing on their later compassionate goals. One explanation for why growth goals do not predict change in compassionate goals may be that believing that relationships can change and improve with effort does not necessarily mean that people feel connected to, concerned about, or caring toward others, which are hallmarks of compassionate goals.

In light of evidence that growth theories are particularly beneficial in the context of relationship problems and that compassionate goals appear to have more general beneficial effects on relationship functioning (Crocker & Canevello, 2008), intervening to increase compassionate goals may lead to greater improvement in relationships than intervening to increase growth belief.

Caveats

One limitation of these studies concerns characteristics of the sample. First, both samples were largely female (61% in Study 1 and 68% in Study 2). Despite the relatively small number of men, we tested whether gender moderated the associations found in both studies. Results of these moderation analyses were inconsistent between samples and analyses; additional research is needed to clarify the generalizability of the findings across genders. Second, Study 2 examined relationships between college roommates. We see no reason why the processes described here should not hold across different samples (e.g., romantic, family, work relationships, and older samples) but future research is warranted to determine their generalizability. At the same time, as discussed above, our college student and roommate samples possess a variety of characteristics that make them ideal for an initial investigation of how compassionate goals can predict change in people's own and others' relationship growth beliefs

Because goals were not manipulated, these studies do not enable strong conclusions about causal relationships among variables. However, several aspects of the results are consistent with the hypothesis that compassionate goals have a causal effect on growth beliefs. In both studies, compassionate goals demonstrated strong associations with changes in growth belief. These effects could be due to unmeasured variables, although we ruled out attachment styles, extraversion, agreeableness, self-esteem, relationship quality, and roommate-esteem as alternative explanations. Study 2 also examined the temporal associations among variables, showing that chronic compassionate goals predict increased growth belief. Results did not support the reverse direction of causality, in which growth beliefs cause increases in compassionate goals. Overall, these results support the plausibility of a causal effect of compassionate goals on changes in growth beliefs.

One might also question the effects of chronic compassionate goals on change in growth belief, particularly in Study 2, because we followed roommates over a short period of time and students knew each other for between 2 and 6 weeks prior to entering the study. However, the length of time roommates knew each other cannot account for *how* compassionate goals predict change in growth belief. The fact that these changes occurred quickly in newly-formed relationships speaks to the remarkable influence of people's goals on their own and others' growth beliefs, even between people who are relatively unacquainted.

Finally, this research did not examine the effect of changes in growth beliefs on people's relationship quality. Growth theories of relationships have been associated with positive relationship functioning when the relationship is stressed. Therefore, we assume that changes in people's theories lead to changes in their relationships, but this association is likely moderated by a number of factors. Future research should test these associations and

examine the processes by which compassionate goals and growth belief contribute to relationship quality and functioning.

Contributions

These studies make several contributions to the existing literature on growth belief in relationship. First, we have shown that people's growth beliefs for roommate relationships can change. No research that we know of examines *how* these relationship theories change. This work is important given what we know about the implications of growth belief for relationship functioning and coping.

Second, we show evidence that compassionate goals strengthen growth belief, in part because compassionate goals foster mutual need satisfaction in the relationship, which increase growth belief. These findings are consistent with recent work on need satisfaction, suggesting that need satisfaction fosters an orientation toward learning and growth (e.g., Deci & Ryan, 2000). In addition, our results showed that changes in how people view their relationships or partners (i.e., relationship quality, esteem for roommates, and support received from roommates) do not lead to change in growth belief. These findings are somewhat surprising given that, in other domains, people shift their incremental beliefs, based on evidence supporting that belief. For example, when shown evidence that intelligence can change and develop over time, students report increased belief in the malleability of intelligence (Aronson et al., 2002). Our findings suggest that, to the extent that increased relationship quality, esteem for roommates, and support received from roommates represent evidence of relationship change and development, increased evidence supporting growth belief may not be enough to actually change people's growth belief. Our results suggest that having the goal to support others and mutual need satisfaction as another route to changing people's beliefs about relationship maintenance and overcoming problems.

Third, these studies show how growth beliefs can change naturally. Previous research on entity and incremental theories in the academic domain has shown that theories can change as a result of deliberate interventions. Our research suggests that interventions are not necessary to change relationship growth theory. These data suggest that people's growth belief can be a function of their own goals—that they have the power to create their own beliefs. At the same time, these findings suggest that students' compassionate goals contribute to close others' goals and growth belief. We know of no other research suggesting that people's goals even indirectly predict close others' growth beliefs.

Finally, theory and research on entity and incremental theories suggest that theories play a role in determining later goal frameworks (Dweck et al., 1995; Dweck & Leggett, 1988). Data from these studies suggest that some types of goals, specifically, compassionate goals, contribute to subsequent growth belief. Thus, these results may have implications for more general theory and research on entity and incremental theories.

Conclusion

Assumptions about the malleability of interpersonal relationships predict relationship functioning and quality. This research suggests that compassionate goals foster growth relationship beliefs, underscoring the extent to which people create their own relationship destinies. By having compassionate goals and responding to others' needs, people can be catalysts for changing their own and others' assumptions about the nature of relationships, which may ultimately improve the quality of their relationships. These data suggest that people do not have to wait for others to change for their relationship beliefs to change.

Instead, they have the power to mold their assumptions about relationship functioning, and ultimately, create the kinds of relationships they want.

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Figure 1. Conceptual depiction process by which actors' and partners' compassionate goals predict change in actors' relationship growth belief.

Figure 2.

Path coefficients for interpersonal effects of partners' compassionate goals on changes in actors' relationship growth belief.

NOTE: All estimates are partial correlations, *** $p < .001$, ** $p < .01$, * $p < .05$

Means, Standard Deviations, and Correlations Among Pretest (Below Diagonal) and Posttest (Above Diagonal) for All Primary Variables in Study 1.

Table 1

	1.	2.	3.	Pretest <i>M</i> (<i>SD</i>)	Posttest <i>M</i> (<i>SD</i>)
1. Growth Belief	.61***	.34***	.23**	4.96 (.82)	4.86 (.89)
2. Chronic Weekly Compassionate Goals ^a	.22**	--		3.31 (.67)	
3. Gender (Baseline) ^b	.17*	.20**	--	.23 (.98)	

Note: N = 199 at pretest, N = 194 at posttest. The pretest-posttest correlation for growth belief is shown on the diagonal.
^aBecause compassionate goals were assessed weekly, the mean and standard deviation denotes the average weekly score.
^bGender was measured only at pretest and was coded so that 1 = *male* and 2 = *female*.

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

Table 2

CFAs Distinguishing Compassionate Goals and Growth Belief Items in Study 1.

Variable Items Included in CFA:	2-Factor Solution		1-Factor Solution		Difference in Fit	
	χ^2 (df)	RMSEA	χ^2 (df)	RMSEA	χ^2_{diff}	(df)
Pretest Growth Belief and Chronic Compassionate Goals	135.39 (53)	.09	220.53 (54)	.13	85.13	(1) ***
Posttest Growth Belief and Chronic Compassionate Goals	138.76 (53)	.09	298.48 (54)	.16	159.73	(1) ***

Note:
*** $p < .001$,
** $p < .01$,
* $p < .05$, $N = 199$.

Table 3
Means, Standard Deviations, and Within-person Intraclass Correlations Among All Primary Variables in Study 2.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	<i>M</i> (<i>SD</i>)
1. Pretest Growth Belief													4.84 (.85)
2. Pretest Compassionate Goals	.35***												4.06 (.57)
3. Pretest Perceptions of Mutual Need Satisfaction in the Relationship	.24***	.33***											5.42 (.78)
4. Pretest Relationship Quality	.24***	.35***	.75***										0 (.92)
5. Pretest Esteem for Roommates	.24***	.33***	.65***	.74***									4.59 (.51)
6. Pretest Received Social Support	.14*	.31***	.54***	.68***	.40***								3.05 (.90)
7. Posttest Growth Belief	.39***	.24***	.17**	.25***	.28***	.08							4.86 (.82)
8. Posttest Compassionate Goals	.09	.28***	.35***	.37***	.43***	.16*	.46***						3.88 (.75)
9. Posttest Perceptions of Mutual Need Satisfaction in the Relationship	.09	.20**	.54***	.53***	.56***	.24***	.40***	.74***					5.52 (.94)
10. Posttest Relationship Quality	.04	.12	.56***	.78***	.61***	.45***	.26***	.57***	.75***				0 (.90)
11. Posttest Esteem for Roommates	-.05	.16*	.39***	.47***	.58***	.14*	.26***	.63***	.74***	.69***			4.46 (.65)
12. Posttest Received Social Support	.03	.19**	.43***	.51***	.43***	.56***	.28***	.47***	.55***	.63***	.47***		2.90 (.90)
13. Chronic Compassionate Goals	.16*	.35***	.45***	.49***	.44***	.41***	.35***	.69***	.53***	.48***	.46***	.49***	3.34 (.81)

Note:

 $p < .001$,

**
 $p < .01$,

*
 $p < .05$,

†
 $p < .08$.

$N = 130$ at pretest, $N = 124$ at posttest. Chronic compassionate goals were calculated by averaging across the 21 daily reports. Growth belief and perceptions of mutual need satisfaction in the relationship were measured on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Chronic compassionate goals were measured on a scale ranging from 1 (*not at all*) to 5 (*extremely*). Esteem for roommates was measured on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Social support received from roommates was measured on a scale ranging from 1 (*not at all*) to 5 (*every day*). Relationship quality was standardized.

CFAAs Distinguishing Compassionate Goals, Perceptions of Mutual Need Satisfaction in the Relationship and Growth Belief in Study 2.

Table 4

Variable Items Included in CFA:	2-Factor Solution		1-Factor Solution		χ^2 Difference	
	χ^2 (df)	RMSEA	χ^2 (df)	RMSEA	χ^2 diff	(df)
Compassionate Goals & Growth Belief						
Pretest	236.42 (89)	.12	371.51 (90)	.16	135.09 (1)	***
Posttest	154.12 (89)	.08	348.20 (90)	.16	203.08 (1)	***
Compassionate Goals & Perceptions of Mutual Need Satisfaction in the Relationship						
Pretest	714.59 (274)	.11	848.31 (275)	.13	133.72 (1)	***
Posttest	1126.12 (274)	.16	1242.51 (275)	.17	116.40 (1)	***
Growth Belief & Perceptions of Mutual Need Satisfaction in the Relationship						
Pretest	723.74 (298)	.11	915.26 (299)	.13	191.52 (1)	***
Posttest	1125.32 (298)	.15	1351.93 (299)	.17	226.61 (1)	***

Note:
*** $p < .001$,
** $p < .01$,
* $p < .05$,
N = 124.

Table 5

Actor-partner intraclass correlations for all primary variables in Study 2.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Pretest Growth Belief	.10												
2. Pretest Compassionate Goals	.06	.10											
3. Pretest Perceptions of Mutual Need Satisfaction in the Relationship	.19**	.16*	.44***										
4. Pretest Relationship Quality	.21***	.18**	.53***	.61***									
5. Pretest Esteem for Roommates	.24***	.11	.38***	.45***	.39***								
6. Pretest Received Social Support	.10	.10	.44***	.48***	.31***	.48***							
7. Posttest Growth Belief	.24***	.15*	.16**	.10	.16**	.10	-.08						
8. Posttest Compassionate Goals	.17**	.21***	.33***	.24***	.18**	.19**	-.01	.10					
9. Posttest Perceptions of Mutual Need Satisfaction in the Relationship	.25***	.13*	.36***	.32***	.25***	.22***	.00	.24***	.33***				
10. Posttest Relationship Quality	.16*	.06	.40***	.44***	.31***	.34***	-.09	.13	.22***	.34***			
11. Posttest Esteem for Roommates	.15*	.09	.26***	.22***	.22***	.17**	.02	.18**	.24***	.21***	.16		
12. Posttest Received Social Support	.08	.02	.29***	.38***	.30***	.34***	.00	.22***	.29***	.34***	.31***	.42***	
13. Chronic Compassionate Goals	.08	.22***	.47***	.41***	.34***	.37***	.12	.19**	.27***	.31***	.27***	.34***	.36***

Note:

 $p < .001$,

**
 $p < .01$,

*
 $p < .05$,

†
 $p < .08$.

N = 130 at pretest, N = 124 at posttest. Chronic compassionate goals were calculated by averaging across the 21 daily reports. Growth belief and perceptions of mutual need satisfaction in the relationship were measured on a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Chronic compassionate goals were measured on a scale ranging from 1 (*not at all*) to 5 (*extremely*). Esteem for roommates was measured on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Social support received from roommates was measured on a scale ranging from 1 (*not at all*) to 5 (*every day*). Relationship quality was standardized.