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Pers Soc Psychol Bull 2012 38: 101 originally published online 25 August 2011
DOI: 10.1177/0146167211420734

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Personality and Social Psychology Bulletin
38(1) 101–113
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DOI: 10.1177/0146167211420734
http://pspb.sagepub.com



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Abstract

People often try to improve their interpersonal skills to satisfy romantic partners. However, when and why a partner appreciates these efforts is an important but underaddressed question. The present research explored how people's theories that interpersonal abilities are either fixed entities or can be changed incrementally affect their responses to relationship partner's efforts at self-improvement. Study 1 validated a new measure for these theories and showed that, compared to the former *entity theorists*, the latter *incremental theorists* were less likely to attribute recalled instances of partners' negative behaviors to dispositional causes and perceive these behaviors as fixed and stable. An experiment that induced these different implicit theories (Study 2) and a longitudinal study (Study 3) further demonstrated that perceptions of partners' self-improvement efforts led to greater increases in relationship security and quality among incremental than among entity theorists. How implicit theories may shape the interpersonal dynamics of self-improvement is discussed.

Keywords

self-improvement, implicit theories, interpersonal self-regulation, relationship quality and security, social support

Received February 17, 2010; revision accepted July 10, 2011

Even people who have fallen in love and formed stable relationships differ from each other in countless ways. Conflicts that arise from these differences are inevitable. In the wake of such conflicts, relationship partners often realize the need to change how they perceive and relate to each other for the greater health of the relationship. Therefore, in romantic relationships, people frequently invest time and energy in improving their interpersonal abilities—their patience while listening to their partner's problems, their willingness to accommodate their partner's needs, and their proficiency in delivering timely and helpful support.

Whether or not these efforts at self-improvement are ultimately successful, they have the potential to strengthen romantic relationships. Merely observing that a partner cares enough about the relationship to engage in such efforts could create more positive feelings between partners, increase felt security in the relationship, and improve perceived relationship quality. However, for these positive outcomes to occur, people must not only perceive that their partner is trying to improve but also believe that their partner is truly capable of achieving such improvement. That is, to the extent that people feel that interpersonal abilities are relatively stable and cannot be changed, they may be unmoved by their partner's efforts at improvement and may not experience the same positive relationship outcomes. Therefore, in the present studies we

investigate how people's fundamental beliefs, that is, their *implicit theories*, about the stability or malleability of interpersonal abilities affect the connection between perceptions of their partners' efforts at self-improvement and their evaluations of their relationship.

The Value of Relationship Partners' Efforts at Self-Improvement

Considerate behaviors that people perform for their relationship partners are not always appreciated. That is, people do not always give their partners credit for every good deed that actually occurs (e.g., Gleason, Iida, Shrout, & Bolger, 2008; Overall, Sibley, & Travaglia, 2010). Instead, people appreciate their partner's behavior only when they perceive that the act is adequately responsive to their current needs (Maisel & Gable, 2009).

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Much research has shown that when relationship partners are responsive, implying understanding, validation, and care, people feel secure that the partner will continue to love and value them and are happy to stay in the relationship (Murray & Holmes, 2009; Reis, 2007). Moreover, because of the centrality of a partner's responsiveness for relationship well-being, recent research has extensively examined what behaviors people interpret as responsive and serve to foster positive relationship evaluations (Gable, Gonzaga, & Strachman, 2006; Maisel, Gable, & Strachman, 2008). In the present research, we focus on one of these types of behaviors: a partner's efforts at self-improvement.

Partners seldom match each other perfectly, and their differences can be a source of conflict within a relationship (Holmes & Boon, 1990; Robins, Caspi, & Moffitt, 2000). To manage this conflict, partners often actively attempt to improve their ability to relate to their partner and understand his or her perspective (Hira & Overall, in press; Hui & Bond, 2009). To the extent that people recognize and value these efforts at self-improvement, they should appreciate this attempt to be responsive to their relational needs and feel secure and satisfied with the relationship. Supporting this conjecture, previous studies have consistently shown that people are more satisfied with and more committed to a relationship the more they believe their partners are pursuing the improvement of their interpersonal abilities (e.g., Hedy, Eggen, Gustitus, McLeod, & Ng, 2003; Hira & Overall, in press; Wilson, Charker, Lizzio, Halford, & Kimlin, 2005).

Despite these consistent findings, we suggest that for some people, a partner's efforts at this type of self-improvement will not be seen as responsive to relational needs. Drawing from the literature on implicit theories of personality (Dweck, 1999), we propose that individuals whose basic beliefs about others are that people cannot successfully achieve fundamental changes in their basic attributes will be skeptical that a partner's efforts to improve his or her interpersonal abilities can ultimately resolve relationship conflicts. These individuals may therefore not interpret such efforts as particularly responsive to their needs, which would then reduce the extent to which perceptions of these efforts would lead to greater relationship security and quality.

Implicit Theories and the Interpretation of Social Behaviors

To effectively navigate the complexity of their social environments, people tend to formulate a set of basic assumptions about the fundamental nature of human attributes. These assumptions, or *implicit theories*, then provide people with a sense of understanding, prediction, and control when attempting to interpret others' behaviors (Molden & Dweck, 2006). Such theories are termed "implicit" because, unlike formal scientific theories, they are seldom given explicit articulation. Still, these informal theories provide a coherent framework through which people extract meaning from their social

experiences and play an important role in guiding social inferences and social behavior.

Two basic types of implicit theories that have been identified and widely investigated are an *entity* theory, in which people's attributes are believed to be relatively fixed and unchangeable entities, and an *incremental* theory, in which people's attributes are believed to be relatively dynamic and capable of incremental development (Dweck, Chiu, & Hong, 1995; Dweck & Leggett, 1988). Multiple studies have shown that these two implicit theories set up distinct interpretative frameworks for social behavior (Chiu, Hong, & Dweck, 1997; Molden, Plaks, & Dweck, 2006). In line with their belief that people are fundamentally stable, entity theorists tend to be *trait focused* and seek to understand individuals in terms of their unchanging psychological characteristics. Therefore, entity theorists tend to interpret and explain people's behaviors in terms of their fixed dispositions. In contrast, in line with their belief that people are fundamentally malleable, incremental theorists tend to be *process focused* and seek to assess the dynamic psychological processes driven by people's changing mental states and situations. Therefore, incremental theorists tend to interpret and explain people's behaviors in terms of their current psychological states (e.g., their goals, needs, and affective experiences) and situations.

For example, unlike entity theorists, incremental theorists do not believe that one's current behavior necessarily predicts one's same behavior in the future (Chiu et al., 1997; Plaks, Grant, & Dweck, 2005). As a consequence, incremental theorists are more likely to update their judgments about a person based on his or her more recent behaviors (Butler, 2000). Furthermore, because of their belief that abilities are malleable and can be developed, incremental theorists tend to explain failure in terms of insufficient effort and, in the wake of such setbacks, are inspired to work to change their abilities through efforts at self-improvement (Hong, Chiu, Dweck, Lin, & Wan, 1999).

Multiple studies have also shown that people's implicit theories have a profound impact on their evaluations of their relationships. For instance, people's current negative assessments of their partner reduce relationship well-being more among entity theorists of personality, who believe the partner cannot change, than among incremental theorists of personality, who believe the partner can (Ruvolo & Rotondo, 1998). In contrast, incremental theorists are more willing to explicitly voice displeasure at their partner's behavior, presumably because they believe and hope that this will inspire their partner to change (Kammrath & Dweck, 2006). Furthermore, Knee and colleagues (see Knee, Patrick, & Lonsbary, 2003) have compiled an extensive program of research examining people's more general theories about whether two people in a relationship are either meant for each other (i.e., a *destiny* theory) or whether successful relationships must be cultivated and developed (i.e., a *growth theory*). Their findings have generally shown that destiny theorists' relationship satisfaction and longevity are substantially influenced by how much

their partner lives up to their ideals (Franiuk, Cohen, & Pomerantz, 2002; Knee, Nanayakkara, Vietor, Neighbors, & Patrick, 2001) and how much relationship satisfaction they experience at the beginning of the relationship (Knee, 1998), whereas growth theorists' relationship satisfaction and longevity are relatively independent of these influences.

In the present research, we extended these previous studies by exploring how people's relationship experiences can be also shaped by their implicit theories about interpersonal ability, an important personal characteristic that determines relationship outcomes (Fletcher, Simpson, Thomas, & Giles, 1999). Using the logic outlined above, we predicted that people's entity or incremental theories about specific interpersonal abilities should lead them to adopt a more trait-focused or process-focused view, respectively, of their partner's capacity to improve these abilities through effort.

Specifically, we propose that because entity theorists should not expect any efforts made by their partner to improve interpersonal abilities to be successful, they should be unlikely to view these efforts as adequate responses to their needs in the relationship. Indeed, to the extent that such efforts may only draw attention to "irresolvable" incompatibilities, entity theorists may prefer to put them out of their mind. Therefore, although previous studies have generally shown that a partner's efforts at improvement increase relationship security and satisfaction, we would not expect this to be true for entity theorists.

In contrast, because incremental theorists should expect a partner's efforts at improving interpersonal abilities to be effective, to the extent that they perceive such efforts, they should be more likely to believe that the partner is adequately responding to their needs. These perceptions should, in turn, increase felt security in the relationship, in terms of believing that their partner will continuously value and approve them and their positive evaluations of the relationship as a whole. However, if incremental theorists do not perceive their partner to be making efforts toward self-improvement they should instead feel that their partner is being particularly unresponsive to their needs and should experience decreased relationship security and satisfaction.

Distinguishing Implicit Theories of Interpersonal Abilities From Implicit Theories in Other Domains

Studies have shown that the implicit theories that people hold can be extremely general (i.e., about the stability or malleability of "the world") or more specific (i.e., about the stability or malleability of intelligence or morality; see Dweck, 1999; Dweck et al., 1995). Furthermore, people's implicit theories in one domain are not necessarily the same as their implicit theories in another domain (Dweck et al., 1995). Therefore, as noted above, in the present studies we chose to focus specifically on implicit theories of people's interper-

sonal abilities. Although implicit theories of personality as a whole have been more widely studied (see Molden & Dweck, 2006), these theories might not be as effective at predicting people's reactions to a relationship partner's efforts at improving specific interpersonal abilities (but see Kammrath & Dweck, 2006). Furthermore, in the relationships literature, interpersonal abilities are among the attributes that are most strongly related to relationship success (Fletcher et al., 1999) and are something that people frequently perceive as in need of development in the early stages of relationships (Holmes & Boon, 1990). Thus, people's implicit theories about whether these particular abilities are stable or malleable could be especially important in how relationships are evaluated and whether they continue.

For the present studies, we also chose to focus on implicit theories concerning the stability or malleability of a relationship partner's interpersonal abilities over more general implicit theories about destiny or growth in relationships as a whole, which were described above (see Knee et al., 2003). Despite the clear role of destiny theories of relationships in a variety of important relationship outcomes, their relevance for the present question concerning how people react to a partner's efforts at self-improvement is less clear. That is, although destiny theorists could view the fact that such efforts are required as a sign that the relationship is not meant to be, they could also view this dedication on the part of their partner as a sign that the relationship is meant to last. In contrast, as discussed earlier, someone with an entity theory of interpersonal abilities should clearly be more skeptical and less affected by a partner's efforts at self-improvement because of the fact that such improvement is not believed to be all that possible. This additional clarity of the predictions was therefore another reason we focused on implicit theories of interpersonal ability rather than growth or destiny theories of relationships in the current studies.

Overview of the Present Studies

To test the prediction that an entity theory of interpersonal abilities should attenuate, or perhaps even eliminate, the positive influence of perceptions of a partner's efforts at self-improvement on partner evaluations, felt relationship security, and reported relationship quality, we conducted three studies. Study 1 served as a general validation of a newly created scale to measure implicit theories of interpersonal ability. After completing this new scale, participants recalled a recent action of their partner that had upset them and then reported the extent to which the behavior reflected an underlying disposition. Consistent with previous research on implicit theories in other domains, compared to incremental theorists of interpersonal abilities, entity theorists should be more likely to infer their partner's negative behavior was the result of dispositions that could not be changed.

Studies 2 and 3 tested our primary hypotheses concerning how implicit theories of interpersonal abilities affect the impact

of perceived efforts at self-improvement on felt security and perceived relationship quality, two important relationship outcomes studied in the literature. Felt relationship security is the faith that one's partner truly and continually loves and values one (Murray, Holmes, & Collins, 2006), whereas perceived relationship quality is a global evaluation about people's experiences in a relationship and has been widely tested as an outcome variable in the relationship literature (Fletcher, Simpson, & Thomas, 2000). These variables were chosen because they are closely related to people's perception of partner's responsiveness and predict important relationship consequences, such as people's dependency on and valuation of a relationship (e.g., Murray & Holmes, 2009; Overall, Fletcher, & Simpson, 2006).

To establish the causal effects of implicit theories of interpersonal abilities on relationship outcomes, Study 2 induced either an entity or incremental mind-set and tested whether perception of the partner's efforts at self-improvement was associated with greater temporary elevation of perceived relationship security among incremental than among entity theorists. To establish the consequences of implicit theories of interpersonal abilities in ongoing relationships, Study 3 then utilized a dyadic longitudinal design and tested whether initial perception of a partner's efforts at self-improvement was a better predictor of later improvement in relationship security and relationship quality among incremental than entity theorists.

Study 1: Perceptions of a Partner's Negative Behaviors

Study 1 was a pilot study designed to replicate previous findings with a new three-item measure of implicit theories of interpersonal ability. Previous research has shown that, compared to incremental theorists, entity theorists are more inclined to draw dispositional inferences and make evaluative judgments from single instances of behaviors (e.g., Chiu et al., 1997; Molden et al., 2006). To replicate this previous finding, participants in this study recalled and judged one behavior their partner had performed that upset them during the previous two weeks. We predicted that individuals endorsing an entity theory of interpersonal ability would be more likely to explain this behavior in dispositional terms and believe that it would be unlikely to change in the future.

Method

Participants. In exchange for course credit, 55 Hong Kong college students (34 females; age $M = 20.60$, $SD = 1.68$) participated this study. They were all currently involved in an exclusive heterosexual dating relationship for an average of 17.93 months ($SD = 16.11$).

Measures. Participants first filled out the scale of implicit theories of interpersonal ability (ITIA), which was embedded

in a set of filler questions. They were then asked to recall a recent negative behavior of their partner and report their emotional experiences and attributions related to the behavior.

ITIA. The ITIA scale was constructed by adapting the general content of the scales created by Dweck et al. (1995). Participants rated three items on 6-point scales (1 = *strongly disagree* and 6 = *strongly agree*). These three items are "Interpersonal ability is something very basic, and it can't be changed very much," "Whether a person can relate to others harmoniously is a very basic disposition about him/her, and it can't be changed very much," and "If a person wants to change his/her interpersonal ability, there are few things he/she can do" ($\alpha = .80$). To disguise the primary goal of the study, this scale was embedded in a set of filler questions.

In an earlier pilot study, we also constructed a three-item incremental theory scale adapted from scales created by Dweck (1999). The specific items were "People can always change their own interpersonal ability," "No matter how their interpersonal ability is, people can change it substantially," and "Even if it is something very basic about them, people's ability to relate to others is changeable" ($\alpha = .82$). However, the results of the study indicated that the entity and incremental scales were highly negatively correlated, $r(100) = -.82$, suggesting that agreement with an entity theory of interpersonal ability and agreement with an incremental theory of interpersonal ability are polar opposites. Because similar negative correlations are typically found between entity and incremental theories in other domains ($r_s = -.85$ to $-.70$; e.g., Chiu et al., 1997; Hong et al., 1999), as has often been done in the previous research (e.g., Butler, 2000; Hong et al., 1999; Renaud & McConnell, 2007), to save time and reduce redundancy, we administered only the entity theory scale for this and subsequent studies, with high scores on average indicating agreement with and endorsement of an entity theory versus low scores indicating agreement with and endorsement of an incremental theory.

Recall of negative interpersonal behaviors. Participants were asked to recall and write down one instance in which their partner had behaved negatively toward them in the past 2 weeks. Participants then answered the following questions concerning this behavior on 7-point scales (1 = *not at all* to 7 = *very much*).

Negative emotions. Participants responded to two items measuring the extent to which the event made them unhappy. The two items included "How much did it affect your emotions?" and "How much did it upset you?" ($\alpha = .90$).

Dispositional inferences and judgments of the changeability of the behavior. Participants then responded to three items measuring the extent to which they made a stable, global, and internal attribution for the recalled behavior. The three items included, "How likely is it that your partner will repeat this behavior in the future?" "How likely is it that your partner will behave toward you in the same way on other occasions?" and "To what extent does this behavior reflect your partner's

stable disposition?" ($\alpha = .66$). Participants also completed a single item concerning the extent to which they believed the behavior could be changed over time. Dispositional inferences and judgments of changeability were only weakly correlated, $r = -.23$, $p = .09$, and were therefore analyzed as separate variables.

Results and Discussion

Although participants' implicit theories were always analyzed as a continuous variable, for ease of exposition, we refer to individuals who, on average, agreed that interpersonal character is stable as entity theorists and individuals who, on average, disagreed that interpersonal character is stable as incremental theorists. Preliminary analyses showed that gender and relationship length did not significantly relate to any of the variables in this study (with ps ranging from .10 to .78). In addition, we also found that negative emotions associated with the recalled partner behavior did not relate to ITIA, $r(53) = .08$, $p = .57$, suggesting that entity and incremental theorists reported negative events that were equally upsetting. Moreover, these negative emotions did not moderate any of the findings below ($ts < 1$).

Correlational analyses did reveal that, as predicted, compared to incremental theorists, entity theorists drew stronger dispositional inferences from the single recalled instance of their partner's negative behavior toward them, $r(53) = .28$, $p = .04$, and were less likely to believe that the negative behavior would diminish over time, $r(53) = -.28$, $p = .04$. These results replicated the well-established connection between an entity theory and a stronger focus on stable dispositions when interpreting behavior, and thereby provided initial support for the validity of the ITIA scale (Chiu et al., 1997; Molden et al., 2006).

Study 2: Perception of Partner's Efforts at Self-Improvement and Felt Relationship Security

Having established the predictive validity of the ITIA scale in Study 1, we designed Study 2 to test how entity and incremental theories of interpersonal abilities affect people's responses to a relationship partner's efforts at self-improvement. One potential influence of these perceived efforts is an increase in specific feelings of security about the relationship (i.e., confidence that one's partner truly and continually loves and values one; Murray et al., 2006). Individuals who feel secure with a relationship tend to perceive the potential risk of betrayal and rejection as unlikely and augment their dependency on the relationship partner (e.g., Mikulincer, Shaver, Bar-On, & Ein-Dor, 2010; Murray et al., 2006; Murray & Holmes, 2009). Therefore, any changes in felt security that stem from people's implicit theories of interpersonal abilities

could have implications for important relationship outcomes.

Participants first reported their perception of their partner's efforts at improving interpersonal ability and were then induced to endorse an entity or incremental theory of this ability as part of a reading comprehension task. Afterward, participants reported their current feelings of relationship security. Among incremental theorists, a partner's efforts at self-improvement should be perceived as an effective route through which relationship security might be enhanced, whereas among entity theorists, a partner's efforts at self-improvement should ultimately be perceived as generally less effective and thus less relevant for perceptions of relationship security. Therefore, believing that one's partner is trying to improve should lead to a greater increase in perceived relationship security, and believing that one's partner is not trying to improve should lead to a greater decrease in perceived relationship security, among incremental theorists than among entity theorists.

Method

Participants. A total of 133 volunteers in the United States who reported being in a close relationship participated in an online study that was administered through the Amazon Mechanical Turk website (Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Ipeirotis, 2010). Data from 18 participants were discarded because they expressed suspicion about the real purpose of the implicit theory manipulation. Data from 7 additional participants were discarded because they failed to give the correct answer in an instructional manipulation check, which was designed to test whether participants closely followed the instructions (Oppenheimer, Meyvis, & Davidenko, 2009). The final sample was thus composed of 108 participants (78 females, age $M = 34.44$, $SD = 11.54$). In all, 61 participants were married, and the average relationship length was 106.00 months ($SD = 119.65$).

Procedures. The experiment was introduced as a study on the effect of close relationships on cognitive functioning. Participants were told that they would answer some warm-up questions about their relationships and then complete a reading comprehension task, before finally answering a detailed survey about their relationship. They began by indicating the extent to which their current partner actively attempted to improve each of 20 different interpersonal characteristics on a 9-point scale (1 = *very little* and 9 = *very much*; Murray, Holmes, & Griffin, 1996). These self-improvement efforts involved both enhancing positive characteristics (e.g., "patience" and "understanding") and reducing negative characteristics (e.g., "thoughtlessness" and "irrationality"). The ratings were averaged to indicate people's perception of the partner's overall efforts at self-improvement ($\alpha = .91$).

Induction of implicit theories. Participants next read a brief "scientific" article prepared to look like it had been recently

published in *Psychology Today* and then answered several “comprehension questions” related to the article. Half of the participants were assigned to read an article that presented “evidence” confirming an entity theory of interpersonal character, and half were assigned to read an article that presented evidence confirming an incremental theory of interpersonal character. The entity article was titled “Interpersonal Abilities, Like Plaster, Are Pretty Stable Over Time,” whereas the incremental article was titled “Interpersonal Abilities Are Changeable and Can Be Developed.” Adapted closely from articles that have been successfully used to manipulate implicit theories in other domains (e.g., Haselhuhn, Schweitzer, & Wood, 2010; Hong et al., 1999; Miele & Molden, 2010; Nussbaum & Dweck, 2008), the present articles included multiple examples of (fictitious) research that supported the entity or the incremental positions, respectively. To ensure the manipulation of participant’s implicit theories was maximally effective, after reading the article, participants then answered several questions about the primary theme of the article and recalled personal experiences that supported the view described in the article. The full text of both articles is available from the authors on request.

Felt relationship security. To assess felt relationship security, a four-item scale adapted from Murray, Holmes, and colleagues’ work (Marigold, Holmes, & Ross, 2007; Murray, Holmes, & Griffin, 2000) was then administered among several other filler questionnaires. The items were, “I am confident that my partner will always want to look beyond my faults and see the best in me,” “I am completely confident that my partner loves me,” “I feel that my partner can be counted on to help me,” and “Though times may change and the future is uncertain, I know my partner will always be ready and willing to offer me strength and support.” Participants answered the questions based on a 7-point scale (1 = *very little* and 7 = *very much*; $\alpha = .93$).

Manipulation check. Finally, to ensure that the comprehension articles had indeed altered their implicit theories, participants completed the three-item ITIA scale ($\alpha = .92$).

Results and Discussion

Manipulation check and preliminary analyses. As expected, participants who read the article supporting an entity theory reported greater endorsement of an entity theory of interpersonal character as compared to those who read the article supporting an incremental theory, $t(106) = 5.79, p < .001$. Preliminary analyses also showed that age, gender, marital status, and relationship length did not moderate any of the following results (all $ps > .25$).

Main analyses. A subsequent hierarchical regression on felt relationship security was conducted with the implicit theory condition ($-1 = \text{incremental theory}$ and $1 = \text{entity theory}$) and standardized scores of perceived partner’s efforts at self-improvement entered into Step 1 and the interaction between these variables entered into Step 2. Felt relationship

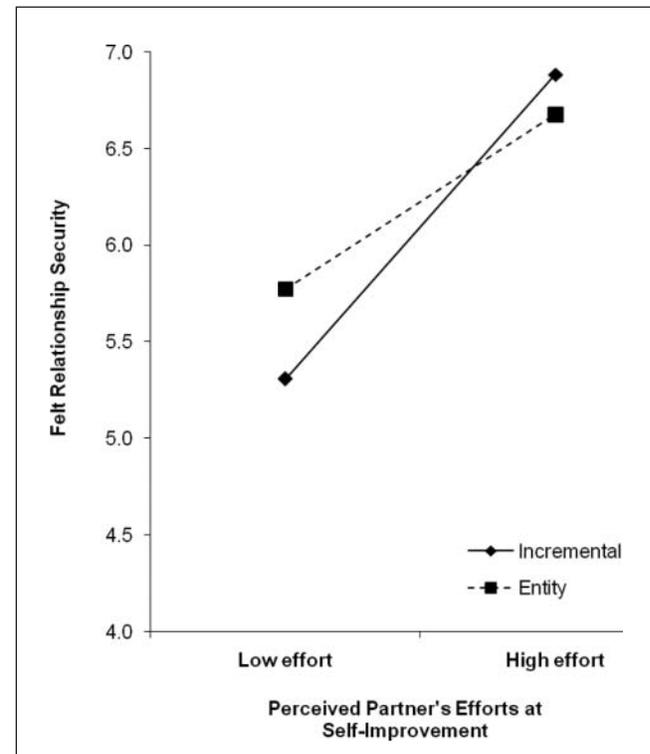


Figure 1. Felt relationship security as a function of temporarily induced implicit theories and perceived partner’s efforts at self-improvement (Study 2)

security was predicted by the perceived partner’s efforts at self-improvement, $\beta = .59, t(105) = 7.44, p < .001$, but not by implicit theories, $\beta = .06, t(105) = 0.80, p = .43$. Importantly, felt relationship security was also predicted by the interaction between implicit theories and perceived partner’s efforts at self-improvement, $\beta = -.16, t(104) = -2.06, p = .04$. As hypothesized, simple-slope analyses (Aiken & West, 1991) revealed that perceived partner’s efforts at self-improvement were more strongly associated with felt relationship security among incremental theorists, $\beta = .76, t(104) = 6.66, p < .001$, than among entity theorists, $\beta = .44, t(104) = 4.11, p < .001$ (see Figure 1). Moreover, although—likely because of a ceiling effect—there was no difference between the felt security of incremental and entity theorists when the partner’s efforts were high (1 *SD* above the mean), $\beta = -.10, t(104) = -0.89, p = .37$, incremental theorists actually felt more insecure than entity theorists when the partner’s efforts were perceived as low (1 *SD* above the mean), $\beta = .22, t(104) = 2.03, p = .05$.

Therefore, this study supported the causal role of implicit theories on the connection between perceived partner’s efforts at self-improvement and evaluations of important and far-reaching aspects of one’s relationship. Moreover, these effects were not further moderated by relationship length, marital status, or age, suggesting that they have implications across a wide spectrum of intimate relationships.

Study 3: Perception of Partner's Efforts at Self-Improvement and Changes in Felt Relationship Security and Quality

After Study 2 established that temporary inductions of entity or incremental theories of interpersonal ability affect the role of perceived partner's efforts at self-improvement in people's current evaluations of their relationship, Study 3 used a dyadic, longitudinal design to examine the long-term effects of these implicit theories on relationship security as well as relationship quality, a global evaluation of a relationship (Fletcher et al., 2000). By recruiting couples and asking each member to report on his or her relationship experiences in two waves separated by 3 months, we were able to test how one's initial perception of a partner's efforts at self-improvement would lead to later change in one's own perceptions of the partner's interpersonal characteristics, relationship security, and relationship quality (i.e., the *actor effect*). In addition, we were also able to explore whether one's own implicit theory and perception of one's partner's efforts at self-improvement was associated with one's partner's relationship experience as well (i.e., the *partner effect*). Finally, by measuring people's implicit theories about personality in general and relationships as a whole alongside their implicit theories about interpersonal ability, we were able to more clearly test the unique contributions of theories concerning interpersonal ability beyond theories in these other domains.

Method

Participants and procedures. A total of 44 heterosexual romantic couples (age $M = 20.76$, $SD = 1.26$) were recruited for a two-wave, longitudinal study, and each person was paid \$18. The participants were all college students in Hong Kong and were all currently involved in an exclusive heterosexual dating relationship for about 16.88 months ($SD = 13.98$).

When participants volunteered for the study, the separate members of each couple were scheduled for different experimental time slots to ensure that people's responses were not affected by the presence of their partner. At the beginning of the semester (Time 1), participants completed a battery of questionnaires including all of the independent, control, and dependent variables described below. Three months later, at the end of the semester (Time 2), participants again completed measures of the primary dependent variables involving their partner's interpersonal character, their perceived relationship quality, and their felt relationship security.

Independent variable: ITIA. The three-item scale of ITIA used in Studies 1 and 2 was administered to the participants in this study ($\alpha = .86$).

Independent variable: Perception of the partner's efforts at self-improvement. As in Study 2, participants then indicated the extent to which their current partner actively pursued self-improvement with an expanded set of 30 interpersonal

characteristics ($\alpha = .93$). In addition, participants also rated the extent to which they themselves pursued self-improvement on each of the 30 interpersonal abilities using the same scale. The ratings were then averaged to represent perception of their own, overall efforts at self-improvement ($\alpha = .93$). Preliminary analyses suggested that there was some degree of consensus between the two partners concerning how much a relationship partner pursues self-improvement, as reflected by a significant correlation between self- and partner-ratings on this variable, $r(88) = .23$, $p < .05$. However, given that it is people's own constructed reality, be it accurate or biased, that has been previously demonstrated to exert influence on their relationship experiences (Luo & Snider, 2009; Murray & Holmes, 1994), we focused on how individuals perceive their partner's efforts at self-improvement rather than the partner's self-reported efforts in the analyses reported below.

Control variables. Measures of participants' implicit theories in two other domains—theories about the relationship as a whole and about personality in general—were administered at Time 1 to test the unique explanatory power of implicit theories of interpersonal abilities beyond these other established measures (Kammrath & Dweck, 2006; Knee et al., 2003).

Implicit theories of relationships. The full 22-item Implicit Theories of Relationships scale (Knee et al., 2003) was administered to measure destiny and growth beliefs. Sample items include "To last, a relationship must seem right from the start" (*destiny theory*; $\alpha = .70$) and "A successful relationship evolves through hard work and resolution of incompatibilities" (*growth theory*; $\alpha = .73$). Participants responded on 7-point scales (1 = *strongly disagree* and 7 = *strongly agree*).

Implicit theories of personality. The three-item measure of implicit theories about personality in general (Chiu et al., 1997) was also administered ($\alpha = .78$). Like the ITIA scale, participants responded on a 6-point scale (1 = *strongly disagree* and 6 = *strongly agree*), with high scores again indicating endorsement of an entity theory and low scores indicating endorsement of an incremental theory. One sample item is "People can do things differently, but the important parts of who they are can't really be changed."

Dependent variables administered at Time 1 and 2: Perception of the partner's interpersonal characteristics. In addition to rating their efforts at improving each of the 30 interpersonal characteristics, participants also rated how much their partner actually possessed each of these characteristics on 9-point scales (1 = *much less than most of his or her peers*, 5 = *average*, and 9 = *much more than most of his or her peers*). Ratings of negative attributes were reverse scored and averaged with the other ratings to form an overall measure of perceptions of a partner's positive interpersonal characteristics (α s at Times 1 and 2 = .89 and .82, test-retest reliability = .45).

Felt relationship security and perceived relationship quality. The same four-item measure of felt relationship security used in Study 2 was administered (α s at Times 1 and 2 = .64 and .78, test-retest reliability = .48). In addition, the 18-item scale of perceived relationship quality (Fletcher et al., 2000)

Table 1. Standardized Regression Coefficients in Multilevel Analyses in Study 3

Change in actor's perception	Actor effect			Partner effect		
	Actor's ITIA ^a	Actor's PPE	Actor's ITIA × PPE	Partner's ITIA	Partner's PPE	Partner's ITIA × PPE
Partner's interpersonal ability	-.043	-.015	-.295*	-.216	-.021	-.065
Relationship security	.011	.269*	-.380**	.155	-.159	-.198
Relationship quality	-.019	.102	-.356**	.007	-.162	-.127

N = 55. ITIA = implicit theories of interpersonal ability; PPE = perceived partner's efforts.

^aA higher ITIA score reflects greater endorsement of the entity theory.

p* < .05. *p* < .01.

was also used to capture the general quality of the romantic relationship. The scale consists of six different components of relationship quality, namely, relationship satisfaction, commitment, intimacy, trust, passion, and love. Participants responded to the items on 7-point scales (1 = *very little* and 7 = *very much*). The overall combined score was used for analyses (*α*s at Times 1 and 2 = .93 and .90, test–retest reliability = .58).

Results and Discussion

Preliminary analyses. Preliminary analyses showed that gender and relationship length did not moderate the effects presented in the following analyses, and these variables will not be discussed further. Analyses also showed that implicit theories of interpersonal ability were related to initial perception of partner's interpersonal characteristics, $r = -.23$, $p = .03$, such that entity theorists had less positive impressions of these characteristics at Time 1, but not perception of partners' efforts at self-improvement, felt relationship security, and perceived relationship quality at Time 1 ($|r|$ s < .15). In addition, perception of partner's efforts at self-improvement was not a proxy of initial perception of partner's interpersonal characteristics, $r = -.01$, $p = .94$, suggesting that any effects related to perception of partner's effort could not be accounted by the initial perception of partner's interpersonal characteristics.

Main analyses: Change in partner and relationship perceptions. Because the responses of an individual were nested within the relationship dyad, the actor–partner interdependence model (Campbell & Kashy, 2002; Kashy & Kenny, 2000) was used to estimate how each outcome measure was influenced by both the actor's input (*the actor effect*) and that of the partner (*the partner effect*). To model the changes in these outcome measures from Time 1 to Time 2, regression analyses were performed to obtain the unstandardized residuals of each measure at Time 2 after partialling out the variance explained by its level at Time 1.

In performing the analyses, the independent variables, implicit theories of interpersonal ability, and perceived partner's efforts at self-improvement were first standardized.

At the within-dyad level, dependent variables were then simultaneously predicted by the intercept, the actor's implicit theory, the actor's perception of partners' efforts, and the interaction between these two actor variables, as well as the partner's implicit theory, the partner's perception of the actor's efforts, and the interaction between these two partner variables. At the between-dyad level, only the within-dyad intercept term was allowed to freely vary across dyads (Campbell & Kashy, 2002). Given that the regression coefficients are usually small in multilevel analyses, results are reported to three decimal places.

A total of 60 participants responded to questionnaires at both waves of the study. The data from 5 participants were discarded, as their relationship dissolved during the 3-month period. Therefore, the responses of 55 participants (including 22 complete dyads) were analyzed for all longitudinal analyses.

As summarized in Table 1, multilevel analyses showed that the actors' own implicit theory moderated the association between their perceptions of a partner's efforts at self-improvement and the change in their judgments of (a) the partner's interpersonal character, $\beta = -.295$, $t(47) = -2.21$, $p = .03$, (b) relationship security, $\beta = -.380$, $t(48) = -3.23$, $p < .01$, and (c) relationship quality, $\beta = -.356$, $t(48) = -2.72$, $p < .01$. Simple-slope analyses (Aiken & West, 1991) revealed that, for incremental theorists (evaluated at 1 *SD* below the scale mean), their perceived partner's efforts at self-improvement at Time 1 predicted later increases in reports of relationship security, $\beta = .649$, $t(46) = 4.10$, $p < .001$, and relationship quality, $\beta = .458$, $t(48) = 2.63$, $p = .01$. There was also a suggestive but nonsignificant association between their perceived partner's efforts and later increases in ratings of partner's positive interpersonal characteristics, $\beta = .280$, $t(46) = 1.52$, $p = .14$. In contrast, for entity theorists (evaluated at 1 *SD* above scale mean), there was no association between perceived partner's efforts at Time 1 and later judgments of their partner's positive interpersonal characteristics, $\beta = -.309$, $t(46) = -1.43$, $p = .16$, their relationship security, $\beta = -.111$, $t(46) = -0.58$, $p = .56$, or their relationship quality, $\beta = -.254$, $t(48) = -1.22$, $p = .23$ (see Figure 2).

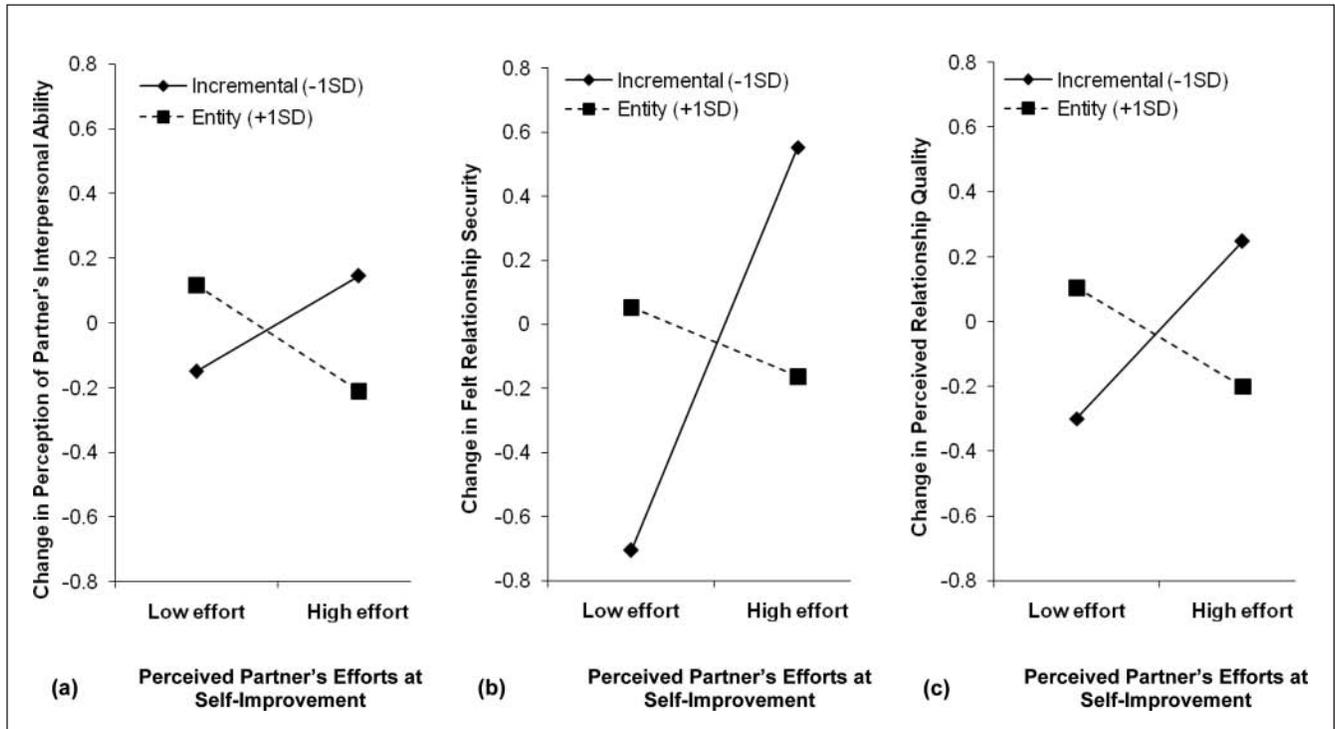


Figure 2. Changes in perceptions of one's partner (Panel A), felt relationship security (Panel B), and perceived relationship quality (Panel C) as a function of implicit theories and perceived partner's efforts at self-improvement (Study 3)

Additional simple-slope analyses also revealed that, when perceived partner efforts were high (1 *SD* above mean), incremental theorists showed enhanced judgments of their partner's positive interpersonal characteristics, $\beta = .337$, $t(47) = 1.78$, $p = .08$, relationship security, $\beta = .368$, $t(48) = 2.20$, $p = .03$, and relationship quality, $\beta = .375$, $t(48) = 2.02$, $p = .05$. In contrast, when perceived partner's efforts were low (1 *SD* below mean), incremental theorists showed reduced relationship security, $\beta = -.391$, $t(44) = -2.16$, $p = .04$, and reduced relationship quality, $\beta = -.338$, $t(48) = -1.72$, $p = .09$, but did not differ from entity theorists in their later judgments of their partner's positive interpersonal characteristics, $\beta = -.252$, $t(46) = -1.24$, $p = .22$.

Notably, we did not find any significant partner effects across any of the outcome variables ($ps > .08$).¹ Thus, although actors' own implicit theories and perceptions of their partner's efforts at self-improvement were associated with their own judgments of the relationship, these theories and perceptions did not appear to also reflectively influence their partner's judgments of the relationship.

Supplementary analyses: Discriminant validity of the ITIA. Further analyses involving the additional implicit theories measures showed that the ITIA was moderately associated with destiny beliefs about relationships, $r(86) = .48$, $p < .01$, and with theories about personality in general, $r(86) = .33$, $p < .01$, but did not correlate with growth beliefs about relationships,

$r(86) = -.14$, $p = .21$. These results are consistent with previous findings concerning the relative independence of implicit theories in different domains (see Dweck, 1999; Dweck et al., 1995) and suggest that ITIA is related to but still distinct from other implicit theories that have been found to influence relationships. In addition, when the above longitudinal analyses were repeated using people's implicit theories of relationships or general theories of personality in place of the ITIA measure, the critical theory \times perceived partner's effort interactions were no longer significant (with ps ranging from .08 to 1.00). More importantly, further regression analyses in which perceived partner's effort, the four different implicit theories measures, and the four theory \times perceived partner's effort interactions were all entered simultaneously showed that the ITIA \times perceived partner's effort interactions reported above remained significant when predicting changes in felt relationship security and perceived relationship quality (although not in perceptions of one's partner's interpersonal characteristics, $p = .38$). No other interactions were significant. Thus, in this particular case, participants' implicit theories of interpersonal abilities appeared to have a unique predictive utility beyond other implicit theories about relationship processes.

In summary, this longitudinal study demonstrated that perceived partner's efforts at self-improvement were associated with later change in felt relationship security and

perceived relationship quality among incremental theorists of interpersonal ability, but not among entity theorists of interpersonal ability. Interestingly, the predictive power of implicit theories was somewhat stronger on relationship security than on relationship quality, perhaps because relationship security is more specifically related to perceptions of partner responsiveness than general relationship quality (Marigold et al., 2007). Furthermore, the associations of implicit theories about interpersonal ability and relationship outcomes reported above were independent of any associations of implicit theories of personality in general or of relationships as a whole and were primarily relevant for an individual's own, rather than his or her partner's, experience of the relationship.

Although a similar interaction between individuals' theories of interpersonal ability and their perceived partner's efforts at self-improvement was found for judgments about actual changes in a partner's interpersonal ability, this pattern was not as clear or consistent as in the relationship outcome measures. It is possible that the 3-month window in this longitudinal study was too short for participants to detect or expect any reliable change in interpersonal ability, and longer periods of time are necessary to clearly observe this effect. However, it should be noted that the current mixed results for perceived partner change suggest that, even if the efforts a partner is believed to be dedicating to self-improvement are not yet seen as actually producing this improvement, incremental theorists still form more positive impressions of the relationship, whereas entity theorists do not. That is, it appears that for incremental theorists, mere perceptions of more or less effort themselves can be sufficient to improve or hurt, respectively, feelings about the relationship whether or not these efforts are still yet to produce any observable changes.

General Discussion

The objective of the present research was to examine how people's implicit theories about the stability or malleability of interpersonal abilities influence when and why people respond positively to a relationship partner's perceived efforts at self-improvement. Overall, the results of three studies revealed that whereas believing that interpersonal abilities can be incrementally developed leads to increased perceptions of relationship quality and felt security in the relationship when such efforts are detected, but decreased perceptions of quality and security when they are not, believing that interpersonal abilities are fixed attenuates the influences of these perceived efforts on evaluations of one's relationship.

In validation of our newly created measure of people's implicit theories of interpersonal ability, Study 1 showed that, compared to entity theorists, incremental theorists were less likely to attribute instances of their partner's negative behavior to stable dispositional causes, which is analogous to past research (see Chiu et al., 1997; Molden et al., 2006). Studies 2 and 3 then demonstrated that whether these implicit theories of interpersonal ability were temporarily induced or

measured as chronic individual differences, the theories moderated the impact of people's perceptions of their partner's efforts at self-improvement on how secure and satisfied they felt with their partner. Moreover, Study 3 also demonstrated that these results were independent of any effects of people's more general theories about personality as a whole or about the nature of relationships in general. Thus, despite the limitation of somewhat small sample sizes in Studies 1 and 3, our hypotheses concerning people's implicit theories of interpersonal ability were fully supported.

Clarifying the Effects of Incremental Theories on Relationship Evaluation

One important contribution of the present research is that it helps clarify the role of incremental theories in the evaluation of others. Previous research on beliefs about stability or destiny versus malleability or growth both within (e.g., Ruvolo & Rotondo, 1998; Knee et al., 2003) and beyond (e.g., Chiu et al., 1997) the relationship domain has typically shown that entity theorists are more likely to experience dissatisfaction in their relationships and form negative evaluations of their partners than incremental theorists. That is, although entity theorists interpret conflict and negative behaviors by their partners as signaling deep and unchangeable flaws in the relationship, incremental theorists instead interpret these as areas where improvement is needed and tend to be less extreme in the conclusions that they draw (see also Study 1). However, what Figures 1 and 2 reveal is that when people are evaluating their partners in terms of the effort they are putting into the relationship, incremental theorists are also capable of more extreme judgments and may show not only increased security and satisfaction when such effort is perceived to be high but also decreased security and satisfaction when such effort is perceived to be low. Indeed, confirming this latter effect, in both of these studies, when perceived effort at self-improvement was low, incremental theorists judged their relationship more negatively than entity theorists. Thus, compared to an entity theory, an incremental theory does not appear to make people less evaluative in general and instead merely alters the key dimension on which the evaluation is based.

When Does Consideration for One's Partner Improve Relationships? The Perceiver Matters

Another, more general contribution of the present research is that it further defines when and how consideration of support for relationship partners does or does not benefit the relationship. As noted at the outset, previous research has suggested that such support does not always improve relationships (e.g., Gleason et al., 2008). The benefits of support are greatest when it allows people to see their partner as responsive to their own needs (Maisel & Gable, 2009). Although past studies have primarily focused on how and what people

should do to ensure their partner forms these perceptions (e.g., Maisel et al., 2008), the present studies generally highlight the importance of also studying how support-receiving partners construe and value the support they are receiving. Future studies could explore other factors beyond people's implicit theories that might influence how people interpret the efforts relationship partners make on their behalf.

The present research also raises some broader questions about the role of self-regulation in promoting relationship well-being. Individuals who exercise effortful self-control have long been found to form stronger relationships by suppressing selfish and aggressive impulses for the sake of their partner (Luchies, Finkel, & Fitzsimons, in press; Peetz & Kammrath, in press). However, our studies suggest that, to the extent that someone does not believe the specific self-regulatory strategy his or her partner employs will be beneficial for the relationships, any perceived efforts made by the partner will not be appreciated, and further positive dyadic effects of self-regulation may not occur. Therefore, future research could more closely examine the circumstances under which self-regulation benefits relationships either by individual or dyadic processes.

Implications of Implicit Theories for Dyadic Processes of Self-Improvement in Relationships

Other implications of the current findings for dyadic processes in relationships involve how people's implicit theories might influence their support and encouragement of a partner's efforts to improve themselves in general. Given that incremental theorists place more value on efforts at self-improvement, they should be more likely to encourage their partner to engage in these efforts (e.g., Kammrath & Dweck, 2006), which could have consequences for both partners' experience of the relationship (see Rusbult, Finkel, & Kumashiro, 2009). Beyond merely encouraging their partner, incremental theorists might also be more likely to monitor and assist with a partner's efforts at self-improvement efforts, as well as more likely to show disappointment and dissatisfaction if and when they did not see these efforts.

In the present studies, we tested how judgments and perceptions of a partner's self-improvement can be influenced by implicit theories in the domain of close relationships. However, the dyadic processes that emerge from these judgments and perceptions could presumably generalize to other types of relationships as well. For instance, the implicit theories endorsed by leaders in an organization can influence the skill development of their subordinates (Heslin & VandeWalle, 2008). Specifically, managers who endorse an incremental versus entity theory value mentoring and professional training more, and therefore are more willing to inspire and support subordinates to self-improve and develop professional skills. Moreover, as in the findings reported here, managers

who are incremental theorists may be more favorably impressed by the mere perception of efforts at self-improvement, and such efforts may play a stronger role in their evaluation of employees. These are valuable topics for continued research.

Concluding Remarks

Efforts at self-improvement are not always self-focused and may frequently be initiated for the purpose of sustaining or improving relationships with others. However, relationship partners may differ in the extent to which they acknowledge or appreciate these efforts, and such differences could have important implications for the ultimate quality of the relationship. The present studies illustrated one important factor that can determine how positively a partner's efforts at self-improvement are received: people's implicit theories about whether these efforts can actually lead to real changes in the interpersonal abilities that help build and sustain satisfying relationships. Additional studies should further explore how these types of theories might influence the dyadic processes involved in self-regulation within relationships and examine when such self-regulation does or does not help bring people closer together.

Acknowledgments

We are indebted to Darius Chan, Eli Finkel, Helene Fung, Kim Halford, and John Holmes for their helpful comments on this work.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Note

1. The actor's theory \times perceived partner's effort interaction did not predict the partner's later perceptions of the actor's interpersonal character or reported relationship quality ($ps > .23$). However, there was a marginally significant actor's theory \times perceived partner's effort interaction on the partner's later perception of relationship security, $\beta = -.198$, $t(45) = -1.82$, $p = .08$. Follow-up analyses suggested that, among entity theorists, actor's increased perceptions of his or her partner's efforts reduced the partner's felt relationship security over time, $\beta = -.357$, $t(44) = -2.02$, $p = .05$. In contrast, among incremental theorists, actor's perceptions of his or her partner's efforts did not predict the partner's later relationship security, $\beta = .039$, $t(46) = 0.24$, $p = .81$. Though this finding is at best tentative, it is in line with our general idea that entity theorists do not appreciate their partner's efforts at self-improvement as much as incremental theorists do, and this may in turn dishearten their self-improving partner and make him or her insecure in the relationship.

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