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Using mental contrasting with implementation intentions to self-regulate insecurity-based behaviors in relationships

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Abstract In relationships, behaviors aimed at alleviating insecurity often end up increasing it instead. The present research tested whether a self-regulatory technique, mental contrasting with implementation intentions (MCII), can help people reduce the frequency with which they engage in insecurity-based behaviors. Participants in romantic relationships identified an insecurity-based behavior they wanted to reduce and learned the MCII strategy, a reverse control strategy, or no strategy. One week later, participants in the MCII condition showed a greater reduction in the self-reported frequency of their unwanted behavior compared to participants in the control conditions, as well as a greater increase in relationship commitment from 2 months prior to the intervention.

Keywords Insecurity · Relationships · Self-regulation · Mental contrasting with implementation intentions (MCII)

Introduction

Imagine the following scenario. Mike and Karen have been in a relationship for 9 months and live together. One day, Mike leaves Karen a message saying he will not be home for dinner because he wants to go out with colleagues. Karen feels insecure about the fact that Mike didn't include her in his plans. She decides to call him during the evening, ostensibly to confirm some weekend plans. He doesn't answer the first time, so she waits a while, then tries a few more times but cannot reach him. When Mike gets home, they both act like nothing is wrong because nothing, in fact, should be wrong. No explicit transgressions were made, after all. Mike later comments on how great Karen looks. Karen does not take the compliment seriously. She thinks he is being nice because he inferred, from her calls, that she felt insecure about him going out without her. What happened here? Is this a small misunderstanding, typical of any relationship, or is it symptomatic of a bigger issue?

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Relationship insecurity

Relationship (or relational) insecurity is often described as a self-perpetuating cycle of thoughts, feelings and behaviors involving both partners, even if one partner harbors most of the insecurity (Gottman 1994; Downey et al. 1998; Lemay and Clark 2008a, b; Lemay and Dudley 2009, 2011). In the scenario above, Karen's insecurity is first triggered by Mike not including her in his dinner plans. Her resulting behavior is an attempt to alleviate this insecurity, but Mike's response (not answering her calls, and then gratuitously complimenting her looks) only reinforces it. Of course, this could just be a small hiccup in an otherwise fine relationship. However, it could also be a version of a scenario that occurs frequently between these two individuals. It could lead to an argument, a bigger conflict, or at worst, a decision to end the relationship.

Researchers have long tried to understand how these insecurity-based cycles begin, how they are sustained, and how they might be stopped. A common focus has been on the partner who harbors the most insecurity—i.e., individuals

with high attachment anxiety (Collins 1996), low self-esteem (Murray et al. 2000), proneness to depression (Joiner et al. 1999), and/or high rejection sensitivity (Downey et al. 1998). Although experiential roots of insecurity may vary, individuals who harbor it typically behave in ways that push the partner away, ultimately reinforcing initial feelings of insecurity (see Nezlek et al. 1997; Downey et al. 1998; Murray et al. 2006).

Recent research by Lemay and colleagues has shown that insecurity-based behaviors are not the only culprit in the cycle. Lemay and Clark (2008a, b; see also Lemay and Dudley 2009, 2011) observed that these behaviors are inevitably accompanied by *reflected appraisals of insecurity*, beliefs that one's insecurity is obvious to the person toward whom the behaviors are directed. Moreover, these beliefs cause suspicion or doubt as to the authenticity of any positive feelings or behaviors from the partner that would alleviate the person's original feelings of insecurity. Back to our opening scenario, Karen expressed insecurity by conspicuously calling Mike at an inopportune time. According to Lemay and colleagues, this behavior was accompanied by the belief that Mike was made conscious of her insecurity (even though he may not have been). As a result, when he later noted how great she looked, Karen interpreted a probably genuine compliment as an inauthentic attempt to soothe her, which only perpetuated her feelings of insecurity. In other words, the mere consciousness of having behaved in a way that expressed her insecurity (even if it was not decoded by Mike) was enough to cause a cycle of thoughts, feelings and behaviors between her and Mike that could potentially lead to unnecessary distress.

Self-regulation in relationships

In their *risk regulation model*, Murray et al. (2006) take a self-regulatory approach to describe insecurity dynamics in relationships. The main tenet of this model is that relationships involve a unique conflict between the goals of self-protection and relationship-promotion. That is, in order to form a meaningful and stable relationship, one must comfortably depend on one's partner, but dependence involves a risk of rejection. The ideal relationship state is one of security (or assurance) that one will not be rejected, but security inevitably varies with relationship events. The less secure a person feels, the more he/she is likely to engage in self-protective behaviors to avoid rejection (Murray et al. 1998, 2002, 2003). When a particular self-protective behavior successfully alleviates insecurity, it is more likely to be applied again in a similar situation (Mischel 1973; Bandura 1977). Consequently, people can develop habits of engaging in "crutch" behaviors when feeling insecure.

Intervention research

Recently, a few studies have tested the effectiveness of theoretically driven interventions to interrupt insecurity cycles. Marigold et al. (2007) showed that it is possible to help people with low self-esteem, who are prone to doubting the authenticity of compliments from their partner, accept such compliments by thinking about them more abstractly, thus cognitively reframing them as positive representations of their partner's general regard for them. Likewise, Marigold et al. (2010) showed that this same cognitive reappraisal manipulation can prevent people with low self-esteem from exaggerating the perception of relationships threats, as well as from engaging in negative critical behaviors toward their partners in a laboratory setting. Finally, Stinson et al. (2011) showed that a self-affirmation manipulation, asking participants to write about a value that is important to them, improved insecure participants' feelings of security up to 4 weeks after the self-affirmation intervention.

These findings are promising evidence that both feelings of insecurity and insecurity-based behaviors are changeable. The study we present here fits in this vein of intervention research but differs in important ways. First, it assumes that insecurity-based behaviors are normative and that most individuals engage in them from time to time, regardless of individual differences in insecurity. Consequently, we think it should be possible to reduce such behaviors in all individuals, not just the chronically insecure. Secondly, its theoretical foundation is based in the goal-pursuit literature. We had set out to find an effective way to help participants reduce their everyday insecurity-based behaviors by themselves. Recent research on the self-regulation of goal pursuit (e.g., for summaries see Bargh et al. 2010; Oettingen and Gollwitzer 2010) pointed toward this promising avenue: Strategies that people can apply by themselves and that explicitly focus on pursuing goals aimed at changing behaviors and habits. As described earlier, we conceptualize insecurity-based behaviors as relationship habits that can lead to problematic relationship outcomes. Thus, we argue that the self-regulation of such behaviors should be approachable using techniques that have proven effective in reducing other kinds of unwanted behaviors, like overeating or smoking. The specific technique we use here is called Mental Contrasting with Implementation Intentions (MCII). We briefly review the concepts involved in this technique before describing the study in detail.

MCII: Mental contrasting with implementation intentions

MCII combines two established self-regulatory strategies (mental contrasting and implementation intentions) to form

one potent strategy for behavior change (Adriaanse et al. 2010; Christiansen et al. 2010; Duckworth et al. 2011; Kirk et al. in press; Oettingen et al. 2012; Stadler et al. 2009, 2010; reviews by Oettingen 2012; Oettingen and Gollwitzer 2010). Participants first go through a *mental contrasting* exercise to create strong goal commitment and to identify the obstacles that stand in the way of goal attainment. *Implementation intentions* (if–then plans) are then formed to help translate the goal commitment into actual behavior.

Mental contrasting

In mental contrasting, people think about a behavior they would like to achieve or change (e.g., 'nagging my partner less'), imagine the positive future in the event of success (e.g., 'having fewer arguments and more happy times'), and then think about obstacles in the present reality that stand in the way of attaining the positive future (e.g., 'easily getting jealous'). If these obstacles are deemed surmountable (e.g., if 'I think it is possible for me to manage my moments of jealousy'), a strong mental association between the positive future and the obstacles in the present reality, as well as between the obstacles and the means to master these obstacles, leads to high energization and a strong commitment to change the behavior (Kappes and Oettingen 2012; Kappes et al. in press; Oettingen et al. 2009). The effectiveness of mental contrasting in creating this strong commitment has been supported in a series of experimental studies pertaining to various life domains, such as achievement, interpersonal relations, and health (e.g., Oettingen 2000; Oettingen et al. 2001, 2005, 2010a, b; review by Oettingen 2012).

Implementation intentions

After mental contrasting, MCII requires the formation of implementation intentions. Implementation intentions are helpful because even if mental contrasting leads to strong goal commitment, people often have trouble translating their goal commitments into action, especially if the goal in question concerns changing an ingrained behavior (Armitage and Conner 2001; Webb and Sheeran 2006). Implementation intentions are simple action plans that follow an if–then format specifying when, where and how a goal intention should be implemented into action. Forming an if–then plan creates a perceptual readiness to recognize the critical cue, and links it to a specific goal-directed behavior. When the cue is then encountered, the goal-directed behavior is automatically enacted. That is, it is enacted quickly, efficiently, and without the need for conscious intent (Gollwitzer 1999). Implementation intentions have been shown to facilitate goal attainment in laboratory experiments using standardized performance tasks, as well as in field studies using complex behavioral tasks. They have been proven effective in various domains such as achievement, interpersonal relations, and health (see meta-analysis of 94 studies by Gollwitzer and Sheeran 2006).

In MCII, implementation intentions are formulated in such a way that the obstacles identified in mental contrasting are specified as the critical cues in the 'if' part of the plan. Following our example where jealousy leads to nagging, an if–then plan could be "*If* I feel jealous, *then* I will refocus my thoughts on my school work," therefore letting the moment of jealousy pass without engaging in the nagging behavior.

The combination of mental contrasting and implementation intentions into a single self-regulatory strategy for behavior change makes sense for two reasons. Implementation intentions are most effective when based on strong goal commitment (Sheeran et al. 2005), and when the situational cue specified in the "if" part is the most appropriate critical cue to take action toward the goal (Parks-Stamm et al. 2007). As explained earlier, the two main benefits of mental contrasting are that it creates strong goal commitment, and it clarifies critical obstacles that stand in the way of goal attainment (hence, critical cues for taking action; Oettingen et al. 2001). Thus, mental contrasting creates the strong goal commitment and identifies the critical cues necessary for implementation intentions to work most effectively. The strategies complement each other to help individuals set feasible goals and strive for them successfully.

Empirical support

Studies have shown the efficacy of MCII in helping people achieve goals that required the initiation of a new behavior or the increase of a behavior already initiated. These included increasing exercise and improving diet in healthy adults (Stadler et al. 2009, 2010), increasing exercise in chronic back pain patients (Christiansen et al. 2010), practicing PSAT questions (Duckworth et al. 2011) and improving time management in students (Oettingen et al. 2011). Additionally, MCII has been shown to help people change ingrained behaviors (i.e., break existing bad habits). Adriaanse et al. (2010), for example, showed that it helped participants break unhealthy snacking habits. Moreover, in these studies, MCII was more effective compared to mental contrasting or implementation intentions used alone. It remains to be seen however, if the MCII strategy can help people change a behavior that is directed toward another person, as the other person's behavior influences the cues that would be used in the strategy.

The present study

In the present study, participants in romantic relationships identified an insecurity-based behavior that they wanted to

reduce, and felt confident they *could* reduce if they tried (i.e., a behavior that was actually feasible to reduce). They identified how frequently they engaged in this behavior the previous week. They then either learned the MCII strategy, a reverse control strategy, or no strategy. We included a reverse control strategy condition to adjust for content and format of MCII. Specifically, the reverse control strategy is identical in content and format to mental contrasting, but differs in the order of elaborated aspects: Participants first elaborate the present reality and only then the desired future. Thus the present reality is not interpreted in the context of the future, and is not perceived as an obstacle (Kappes et al. 2012). Indeed, in previous research, the reverse control condition has consistently failed to instigate the cognitive, affective, and motivational consequences of mental contrasting. For example, it did not create strong mental associations between future and present reality and between present reality and means to overcome this reality (Kappes and Oettingen 2012; Kappes et al. in press). It also failed to energize people and it did not lead people to firmly commit. In addition, the present reverse control condition used a muted if–then statement (if…behavior, then…outcome) rather than an implementation intention (if … obstacle, then … behavior). As the goal-directed action is not specified in the then-part of the if–then statement, the statement lacks the ingredients that are known to instigate the typical effects of implementation intentions once the obstacle is encountered (e.g., acting quickly, efficiently, and without conscious intent).

As dependent variable, 1 week later, participants again reported their frequency of engaging in the behavior during the previous week. We expected that participants who learned the MCII strategy would be more successful at reducing their behavior, compared to their baseline frequency, than participants in the other two conditions. Additionally, in order to investigate whether changes in behavior might impact other important relationship variables, we asked participants to report their feelings of commitment in their relationship before and after the intervention. We expected that participants in the MCII condition, due to their successful implementation of a behavioral change that should benefit their relationship, would show more relationship commitment, compared to their baseline, than participants in the other two conditions.

Methods

Participants

Participants were recruited from the New York University introductory psychology subject pool. They received course credit in exchange for their participation. Selection criteria required they be over 18 years old and involved in a heterosexual relationship of at least 3 months duration (if two eligible students were in a relationship together, only one was selected for the study). One hundred and twenty-seven students participated in the study: 82 % female, with a mean age of 19.01 (SD = 1.07).

Procedure and materials

In a pre-screening battery of tests, students who indicated that they were involved in a heterosexual relationship of at least 3 months were sent an email inviting them to participate in a study about relationship thoughts, feelings and behaviors. They were informed that the study entailed (1) filling out questionnaires (during each of two lab sessions, scheduled 1 week apart), and (2) receiving daily email reminders about content related to the first lab session (once per day for the 7 days between the two lab sessions). At the first session, in order to preserve their confidentiality but be able to match their data, participants were asked to create their own identification number using the last four digits of their telephone number and the first two letters of their mother's maiden name. They indicated this number on both questionnaires (in lab sessions 1 and 2) and in their responses to the emailed daily reminders.

Lab session 1 Participants were randomly assigned to one of three conditions: an MCII strategy condition, a Reverse strategy control condition, and a No strategy control condition. Participants answered the same questions in each of the conditions, except for the "self-regulatory strategy" described below.

Insecurity-based behavior Participants were asked to identify a typical "crutch" behavior that they engage in when they feel insecure in their relationship. They were asked to pick a behavior (1) that was typical enough that they engaged in it in the past week, and might engage in it in the coming week; (2) that they would like to diminish or refrain from engaging in the coming week; and (3) that they thought was actually well possible for them to diminish or refrain from engaging in, even if it might be challenging. Common behaviors identified by participants included: *calling too often to check where he is; asking whom she spent time with during the day; checking his Facebook and email; looking through his phone log.* To measure the baseline frequency of their identified behavior, we asked: *Over the past 7 days, how often did you engage in this behavior?* Participants answered on a scale from 1 (*never*) to 7 (*very often*).

Control variables Based on past research applying the MCII intervention to feasible behavior change (e.g., Christiansen et al. 2010; Stadler et al. 2009, 2010; review

by Oettingen 2012), we expected that the predicted effects of the MCII intervention would occur over and above how desirable (incentive value to succeed) and how feasible (expectation of success) participants thought it was for them to reduce their behavior. We measured these two variables, respectively, using the following questions referencing the upcoming 7 days: *How important to you is it that you diminish this behavior? How likely is it that you will diminish this behavior?* Participants answered these questions on a scale from 1 to 7, with *1 = not at all* and *7 = very much*. Moreover, we adjusted for variables that may influence opportunities for participants to engage in their insecurity-based behavior. Assuming that the frequency with which partners see each other is a proxy for the number of opportunities participants have to engage in their insecurity-based behavior, we controlled for the frequency with which participants saw their partner in a given week. Participants were asked to indicate this on a scale from 1 to 5, with *1 = everyday*, *2 = five to six times per week*, *3 = three to four times per week*, *4 = one to two times per week*, and *5 = less than once per week*. Finally, given that insecurity-based behaviors are unwanted behaviors, we controlled for social desirability and therefore included a commonly used short measure of this variable (the 10-item Marlowe-Crowe scale; see Fraboni and Cooper 1989).

Self-regulatory strategy Participants in the MCII strategy condition and the Reverse strategy condition were given an exercise, which was presented as a mental strategy to help them diminish their behavior in the coming week.

MCII strategy Participants in the MCII condition were asked: *What is the most positive outcome you associate with diminishing your insecurity-based behavior?* They were asked to write it down using a few keywords. Examples of positive outcomes included: *complete trust; genuine happiness for my partner and myself; closer bonding*. Participants were then asked to elaborate this outcome in writing. They were given half-a-page of space and were presented with the following instructions: *Imagine as vividly as possible all of the events and scenarios associated with this positive outcome. Let your mind and feelings go and imagine things fully. Please write your thoughts and images in the space below*. Next, they were asked: *What is the most critical obstacle that might stand in the way of you diminishing your insecurity-based behavior?* As they did with the positive outcome, they were asked to summarize the obstacle using keywords and then elaborate it in writing for half-a-page. Examples of obstacles included: *neediness; not trusting enough; feeling jealous*. Finally, participants were asked to formulate a plan using the obstacle they had just identified as a critical cue, as well as a behavior to overcome that obstacle. The format of the plan was therefore that of a typical implementation intention: *If* (obstacle), *then* (behavior). However, in order to ensure a standardized goal-directed behavior that could effectively overcome participants' diverse obstacles, we gave participants a behavioral strategy rather than let them choose one. We told participants to use the strategy of simply continuing with their ongoing activities in the face of their obstacle (i.e., not engage in their insecurity-based behavior by refocusing on the present moment). This strategy was symbolized by the phrase *I will continue with my ongoing activities*. Thus, a typical plan would be ***If** I feel jealous, **then** I will continue with my ongoing activities*. This strategy was chosen so as to orient them away from their obstacle in a proactive manner, thus getting over their moment of insecurity without engaging in their crutch behavior. Though most participants may be able to come up with specific behaviors by themselves, we wanted to provide them with a behavior that is known to be effective in distracting people from temptations (i.e., orienting oneself away from the tempting stimulus or ignoring the stimulus, Mischel and Patterson 1978; summary by Gollwitzer and Oettingen 2011).

Reverse strategy Participants assigned to the second condition were asked to complete the same steps as in the MCII strategy, therefore controlling as much as possible for time, format, and content. However, the steps were taken in a theoretically ineffective order. Thus, participants started by identifying and elaborating in writing a critical obstacle standing in the way of diminishing their crutch behavior. They then identified and elaborated in writing a positive outcome associated with diminishing this behavior. Finally, they formulated a plan that began with the behavior of continuing with ongoing activities, followed by an outcome (specified by themselves) of doing this in the face of their obstacle. The format was therefore: *If* (behavior); *then* (outcome). A typical plan was: ***If** I continue with my ongoing activities, **then** I will not think about what bothers me*. Such a plan should not have the same effect as an implementation intention because it does not explicitly specify a critical cue in the 'if' part and does not include a goal-directed behavior in the 'then' part of the plan. Therefore it cannot link the critical cue to a goal-directed behavior, and does not automatize goal striving.

No strategy Participants in the No strategy control condition were not given an exercise: They were simply asked, as all participants were, to try their best to diminish their behavior.

Email reminders Every day for the duration of the 7 days following the first lab session, all participants were sent an email containing a generic link to an online survey homepage. At this homepage, participants entered their personal identification code and were linked to a condition-

specific page. Participants in the MCII condition were asked to re-write all of the critical components of the MCII strategy, exactly as they did during the first lab session, i.e., (1) the behavior they identified as wanting to diminish; (2) the positive outcome; (3) the obstacle; and (4) the implementation plan. Participants in the Reverse strategy condition were asked to do the same but in the order they were given during the first lab session, thus: (1) the behavior they wanted to diminish; (2) the negative obstacle; (3) the positive outcome; and (4) the reverse plan. Participants in the No strategy condition were simply asked to re-write the behavior they wanted to diminish.

Lab session 2 One week after the first lab session, all participants returned to the lab to answer follow-up questions. First, they were once again asked to identify the particular behavior that they wanted to diminish (the same behavior identified the week before and in their responses to the daily reminders).

Change in frequency of insecurity-based behavior As in the first lab session, participants were then asked to indicate the extent to which, during the past week, they had engaged in this behavior: *Over the past 7 days, how often did you engage in this behavior?* The answer scale ranged from 1 (*never*) to 7 (*very often*). The change in frequency of insecurity-based behavior was measured by subtracting the frequency of insecurity-based behavior measured at Time 1 from Time 2, with negative values showing a decrease and positive values showing an increase in frequency.

Change in relationship commitment They were also asked to fill out a measure of relationship commitment (the Assessment of Relationship Commitment scale, Gagne and Lydon 2003). This was a measure they had completed in the pre-screening battery of tests 2 months prior to the experiment. The scale consists of six items, asking participants the extent to which they are presently *committed, attached, invested, devoted, loyal, dedicated* to their relationship, on a scale from 1 to 9, with *1 = not at all*, *5 = neutral*, and *9 = completely*. Cronbach's α for this scale in our study was 0.92. We assessed change in relationship commitment using a difference score, subtracting the baseline score from the post-intervention score. Thus, a positive difference score would indicate an increase in commitment.

Control variables Insecurity-based behaviors are often based on and triggered by perceived conflicts with a partner. To adjust for perceived frequency of conflicts we asked participants: *Compared to the week before your first lab session for this study, how many conflicts did you have with your relationship partner?* Participants answered this question on a scale from 1 to 7, with *1 = much less* and *7 = much more*.

Results

Descriptive analyses

At the first session (T1), six of the 127 participants (all female, 5 %) indicated that during the previous week they had not engaged in their identified insecurity-based behavior. Thus they were excluded from the analyses. The six participants did not differ from the other participants concerning, frequency of seeing partner, social desirability, condition, incentive value, and frequency of conflicts, all $ps > .14$. They had higher expectations ($M = 6.67$, SD = 0.52) than the other participants ($M = 4.08$, SD = 1.76), $F(1, 126) = 12.81$, $p < .001$. Through randomization, 41 participants were assigned to the MCII strategy condition, 41 were assigned to the Reverse strategy condition, and 39 were assigned to the No strategy condition. Frequency of insecurity-based behavior measured at Time 1 ($M = 4.06$, SD = 1.55; $M_{MCII} = 3.98$, $SD_{MCII} = 1.46$; $M_{RS} = 3.85$, $SD_{RS} = 1.64$; $M_{NS} = 4.36$, $SD_{NS} = 1.53$) and the baseline measure of relationship commitment ($M = 8.21$; SD = 1.00; $M_{MCII} = 8.06$, $SD_{MCII} = 1.10$; $M_{RS} = 8.44$, $SD_{RS} = 0.84$; $M_{NS} = 8.13$, $SD_{NS} = 1.03$) did not differ by condition, $ps > .29$. The same was true for gender, length of relationship and all control variables mentioned before, all $ps > .05$. Descriptive statistics and correlations of measured control variables are provided in Table 1. For reasons outlined earlier, all of the variables in Table 1 were entered as covariates in our model.

Frequency of insecurity-based behavior

The difference in self-reported frequency of insecurity-based behavior from before to after the experiment was −1.08 (SD = 1.86) with negative values showing a decrease in the unwanted behavior from T1 to T2. To examine the effects of self-regulatory strategy on frequency of insecurity-based behavior, we used a general linear model (GLM) with the difference measure as the dependent variable, condition as a fixed between-subject factor, and incentive value, expectations, frequency of seeing partner, social desirability, and frequency of conflicts as covariates. There were no main effects of expectations or social desirability, $ps > .34$, but an increase in insecurity-based behavior was predicted by high frequency of seeing partner, $\beta = -0.23$, $F(1, 113) = 7.11$, $p < .01$, *partial* $\eta^2 = .06$, high frequency of conflicts, $\beta = 0.29$, $F(1, 113) = 11.13$, $p = .001$, *partial* $\eta^2 = .09$, and low incentive value, $\beta = -0.29$, $F(1, 113) = 9.40$, $p < .005$, *partial* $\eta^2 = .08$.

Moreover, there was the predicted main effect of condition, $F(2, 113) = 3.05$, $p = .05$, *partial* $\eta^2 = 0.05$. Participants in the MCII condition reported to engage in their targeted behavior less often, $M = -1.63$, SE = 0.27,

Table 1 Correlations, means, and standard deviations of covariates ($N = 121$)

	1	2	3	4	5
1. Frequency of seeing partner	–				
2. Frequency of conflicts	−0.07	–			
3. Social desirability	−0.03	−0.02	–		
4. Expectations	0.12	0.02	0.17	–	
5. Incentives	−0.10	0.04	0.001	0.37***	–
M (SD)	3.73 (1.58)	3.29 (1.56)	4.74 (1.87)	4.08 (1.76)	5.26 (1.61)

*** $p < .001$

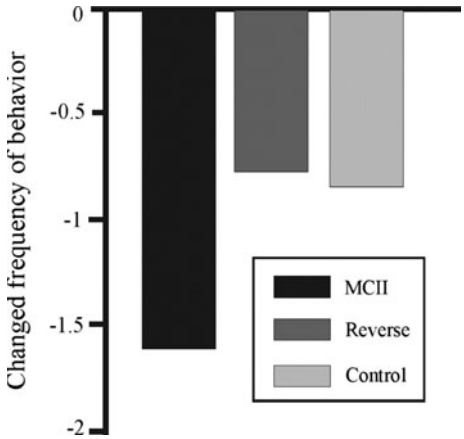

Fig. 1 Change in frequency of behavior by self-regulatory strategy. Covariates appearing in the model are evaluated at the following values: frequency of seeing partner per week = 3.76, social desirability = 4.74, conflicts with partner = 3.29, incentives = 5.26, expectations = 4.08

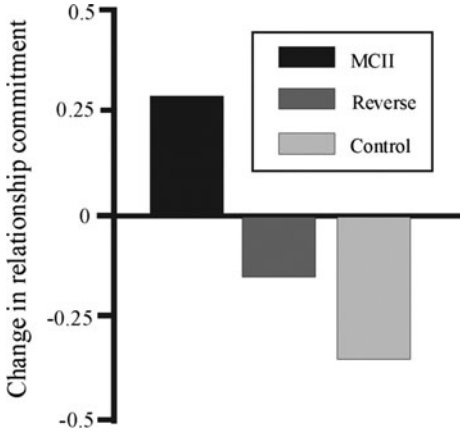

Fig. 2 Change in commitment by self-regulatory strategy. Covariates appearing in the model are evaluated at the following values: frequency of seeing partner per week = 3.76, social desirability = 4.74, conflicts with partner = 3.29, incentives = 5.26, expectations = 4.08

compared to participants in the Reverse strategy condition, $M = -0.78$, SE = 0.27, $t(113) = 2.19$, $p = .03$, and participants in the No strategy condition, $M = -0.82$, SE = 0.28, $t(113) = 2.07$, $p = .04$. The latter two conditions did not differ, $t(113) = 0.12$, $p > .90$ (see Fig. 1).[1]

Relationship commitment

We assessed change in relationship commitment using a difference score, subtracting the baseline score (2 months prior to the intervention) from the T2 score (1 week after the intervention). Thus, a positive difference score indicated an increase in commitment. The mean change in commitment was −0.09 (SD = 0.88). Again, we used a GLM with difference in relationship commitment as the dependent variable, condition as a fixed between-subject factor, and incentive value, expectations, frequency of seeing partner, social desirability, and frequency of conflicts as covariates. There were no main effects of expectation, social desirability and frequency of seeing partner, *p*s > .28, but stronger relationship commitment was predicted by low frequency of conflicts, $\beta = -0.19$, $F(1, 113) = 4.42$, $p < .04$, *partial* $\eta^2 = .04$, and high incentive value, $\beta = 0.18$, $F(1, 113) = 3.51$, $p < .07$, *partial* $\eta^2 = .03$.

Importantly, there was the predicted main effect of condition, $F(2, 113) = 5.73$, $p < .005$, *partial* $\eta^2 = 0.09$. Participants in the MCII condition felt more committed, $M = 0.27$, SE = 0.13, compared to those in the Reverse strategy condition, $M = -0.17$, SE = 0.13, $t(113) = 2.27$, $p < .03$, and in the No strategy condition, $M = -0.37$, SE = 0.14, $t(113) = 3.31$, $p = .001$. The latter two conditions did not differ, $t(113) = 1.03$, $p > .30$ (see Fig. 2).[2]

[1] Adding frequency of insecurity-based behavior measured at Time 1 as covariate did not change the pattern of results; main effect of condition, $F(2, 112) = 6.04$, $p < .005$. Participants in the MCII condition reported to engage in their targeted behavior less often, $M = -1.65$, SE = 0.21, as compared to participants in the Reverse strategy condition, $M = -0.98$, SE = 0.22, $t(112) = 2.17$, $p = .03$, and to participants in the No strategy condition, $M = -0.59$, SE = 0.22, $t(112) = 3.42$, $p = .001$.

[2] Adding the baseline commitment as covariate did not change the pattern of results; main effect of condition, $F(2, 112) = 5.82$, $p < .005$. Participants in the MCII condition reported stronger commitment, $M = 0.22$, $SE = 0.13$, as compared to those in the

Discussion

This study tested whether a self-regulatory strategy, Mental Contrasting with Implementation Intentions (MCII), can help people reduce unwanted behaviors in the context of relationships. Participants in romantic relationships identified an insecurity-based behavior that they wanted to reduce, and then learned the MCII strategy, a reverse control strategy, or no strategy. One week later, participants in the MCII condition reported a significantly greater reduction in their unwanted behavior compared to participants in other conditions, as well as a significant increase in relationship commitment from 2 months prior to the intervention.

Averting a destructive cycle

Researchers often describe the perpetuation of relationship insecurity in terms of a vicious cycle. That is, moments of insecurity, however small or situation-specific, can carry over to later situations and induce negative responses from others, which then perpetuate the insecurity. How the insecurity is carried over from one situation to the next has been explained, not only in terms of the negative effects of behavioral expressions of this insecurity, but also in terms of the concomitant self-consciousness of being seen by others as insecure (Lemay and Clark 2008a, b). Approaching this problem from a self-regulation perspective, we reasoned that learning a strategy to reduce behavioral expressions of insecurity (and thus the self-consciousness of having expressed it) might be an important tool for people to manage the inevitable moments of insecurity that arise in relationships. Our study showed that, indeed, learning such a strategy can produce significant change.

Building a constructive cycle

How should one explain the observed increase in relationship commitment? Studies have shown that highly committed relationship partners tend to engage in *pro-relationship behaviors*, e.g., a willingness to sacrifice personal interest for the good of the relationship (Van Lange et al. 1997); and a tendency to accommodate rather than retaliate when a partner is perceived to behave poorly (Rusbult et al. 1991). In situations where feelings of insecurity arise, it might be difficult to engage in these pro-relationship behaviors. Through our intervention, we essentially taught participants to spontaneously do this. We taught them to forgo engaging in a behavior that might provide personal satisfaction but might not be good for the relationship—i.e., we taught them to momentarily sacrifice personal security and behave in an accommodating way. If, as prior research suggests, high commitment leads people to engage in these kinds of pro-relationship behaviors, then it is conceivable that inducing these behaviors might in turn increase feelings and perceptions of commitment. Thus, it could be said that beyond averting a cycle of insecurity, our participants also initiated a constructive relationship cycle by engaging in a pro-relationship act, which resulted in increasing commitment and possibly buffering against future insecurity.

Limitations and future directions

Limitations of the current study include the convenience sample: Future studies should replicate the effectiveness of MCII for reducing unwanted relationship behaviors in different samples, as well as in other kinds of relationships. These might include romantic partners who are older and in longer-term relationships, partners in non-romantic relationships such as mentor-student relationships or parent–child relationships, and partners who are dependent on each other in any other way (e.g., business partners, health care professionals and their patients, therapists and their clients). Future studies may also look at the self-regulation of insecurity-based behaviors that are in line with specific mate-guarding and mate-retention behaviors (Buss 2007; Campbell and Ellis 2005). In this vein, such studies may consider the contexts and partner variables under which certain insecurity-based behaviors may be useful rather than hurtful to guard and retain the partner. MCII could be an effective tool to strengthen such insecurity-based behaviors, especially when context or person variables demand them in order to guard and retain romantic partners (Kappes et al. 2011).

The present study is also limited regarding the time constraint of the dependent variable: On the one hand, producing change in interpersonal behavior over the period of 1 week is impressive; on the other hand, we do not know how stable the behavior change is. In other domains (e.g., health), MCII has produced behavior changes that have lasted over months and up to 2 years (Stadler et al. 2009, 2010). Future studies might invest in a longer-term design, which would also provide the opportunity to measure other downstream effects of the behavior change on the relationship.

Finally, the self-reported nature of our dependent variable could be seen as a limitation. However, given the established importance of self-perception in the insecurity literature (see Lemay and Clark 2008a, b), a self-reported change in behavior might be just as important as an observed change: e.g., if Karen thinks she prevented herself from behaving in a

Footnote 2 continued
Reverse strategy condition, $M = -0.10$, SE = 0.13, $t(112) = 1.78$, $p < .08$, and in the No strategy condition, $M = -0.39$, SE = 0.13, $t(112) = 3.41$, $p = .001$.

way that expressed her insecurity, she will not think that Mike is being inauthentic with his compliment. This might be enough to thwart a cycle of insecurity from starting. Still, it would be interesting to find partner-observed decreases in participants' behaviors. Future studies could explore this possibility, as well as other partner-reported effects.

Conclusion

The strategy of Mental Contrasting with Implementation Intentions (MCII) helped people to set and implement the goal of reducing a self-perceived insecurity-based behavior. The application of this strategy also led to an increase in relationship commitment. The study thus extended the application of MCII to the relationships domain and offered a new perspective on how to potentially decrease insecurity in relationships.

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