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Bolstering Implementation Plans for the Long Haul: The Benefits of Simultaneously Boosting Self-Concordance or Self-Efficacy

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Recent studies suggest that implementation planning exercises may not be as helpful for long-term, self-initiated goals as for short-term, assigned goals. Two studies used the personal goal paradigm to explore the impact of implementation plans on goal progress over time. Study 1 examined whether administering implementation plans in an autonomy supportive manner would facilitate goal progress relative to a neutral, control condition and a condition in which implementation plans were administered in a controlling manner. Study 2 examined whether combining implementation plans with a self-efficacy boosting exercise would facilitate goal progress relative to a neutral, control condition and a typical implementation condition. The results showed that implementation plans alone did not result in greater goal progress than a neutral condition but that the combination of implementation plans with either autonomy support or self-efficacy boosting resulted in significantly greater goal progress.

Keywords: *goal success; autonomy; implementation plans; self-efficacy*

Motivation concerns the selection, energization, and direction of behavior (McClelland, 1988). A common way that people seek to motivate themselves is by setting personal goals (Bandura, 2001). Thus, a student may decide that during the semester she wants to exercise 3 times per week, attend all class lectures, and keep her dormitory room clean. It is common

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TABLE 1: Implementation Plans and Progress for Self-Initiated Goals

| Study | Time Frame | n | d |
|---|------------|-----|-------|
| Koestner, Lekes, Power, & Chicoine (2002) | | | |
| Study 1 | Weekend | 106 | 0.40 |
| Study 2 | 1 Month | 40 | -0.06 |
| Downie, Koestner, Horberg, & Haga (2006) | 1 Week | 85 | 0.50 |
| Powers, Koestner, & Topciu (2005) | | | |
| Study 1 | 1 Month | 50 | 0.26 |
| Study 2 | 1 Month | 133 | 0.18 |

experience, however, that simply listing one's goals is not sufficient to ensure that the goals will be accomplished (Baumeister & Heatherton, 1996). Indeed, it is common for individuals to fail repeatedly at even highly important goals such as New Year's resolutions (Prochaska, Diclemente, & Norcross, 1994).

One major reason for ineffective goal pursuit is that people fail to develop specific action plans for how they will attain their goals. Thus, they fail to specify when they will initiate their goal pursuit and how they will ensure their persistence in the face of distractions and obstacles (Gollwitzer, 1996). Research suggests that furnishing goals with specific implementation intentions can greatly enhance successful goal striving because it links the desired behaviors with certain situations and allows for automatic responding without having to continually make decisions about when and how to act on ones' goals (Gollwitzer & Schaal, 1998).

A recent meta-analysis confirmed that people who supplemented their goals with implementation intentions had significantly better success (Gollwitzer & Sheeran, 2006). The analysis, which involved 85 studies and a sample of more than 8,000 participants, yielded a moderately strong implementation effect on goal progress, $d+ = 0.63$. The majority of studies included in the analysis focused on assigned, health-related goals such as taking vitamins or exercising. It also showed that the positive effects of implementation plans were at least as strong when goal progress was assessed with objective indicators rather than self-reports ($d+ = 0.72$).

Implementation plans have typically been employed in situations where the researcher has assigned the goal to the participant. For example, college students were asked to write an assigned report over the Christmas holidays (Gollwitzer & Brandstaetter, 1997) or employees were asked to follow a low fat diet for a 1-month period (Armitage, 2004). But given that individuals are responsible for selecting many of their personal pursuits, it is important to determine whether implementation plans prove similarly effective for self-generated goals such as

New Year's resolutions. Recent studies have examined this question by adopting the methodology of Sheldon and colleagues in which participants are asked to list several of their most important personal strivings and then are followed over time to track their goal progress (Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001; Sheldon & Kasser, 1998). Five studies have combined Sheldon's methodology for measuring and tracking success in self-generated goals with random assignment to an implemental planning versus neutral condition.

Table 1 provides a meta-analysis of the studies that examined the relation between implementation plans and progress on self-generated goals. Correlations and regression coefficients were converted to Cohen's d . Composite effect size estimates ($d+$) were calculated as the average of individual effects (d) weighted by the reciprocal of their variance, thus giving greater weight to more reliable effect size estimates (Hedges & Olkin, 1985). All effect-size computations and summary analyses were done using DSTAT (Johnson, 1993), a meta-analytic software program. Each calculation of $d+$ provided both a test of whether the value differed from 0.00 and a 95% confidence interval (CI). The homogeneity of the set of effect sizes was tested by the within-class goodness-of-fit statistic (Q_w), which has an approximate chi-square distribution with $k - 1$ degrees of freedom, where k equals the number of effect sizes (Johnson, 1993).

A significant overall effect emerged for implementation plans, $d+ = 0.28$ (CI 0.09, 0.48), $p = .01$. The set of effects was homogeneous, $Q(4) = 2.80$, ns . Participants were significantly more likely to make successful progress when they had made implementation plans to accompany their goals. However, the effect for implementation plans on these self-generated goals is considerably smaller than the effect obtained in studies with assigned goals. Moreover, a close examination of the studies in Table 1 reveals that the two studies with short-term follow-ups of 1 week or less showed a relatively strong implementation effect, $d+ = 0.44$, (CI 0.15, 0.73), whereas the three studies that included follow-ups of 1 month or longer revealed a nonsignificant implementation effect, $d+ = 0.15$ (CI -0.11, 0.48). These results suggest that (a) implementation plans may not be as beneficial for self-initiated goals as for assigned goals and (b) implementation plans may not be beneficial for self-initiated goals with a time frame spanning throughout 1 month or more.

That implementation plans appear to be less effective for long-term goals is perhaps not surprising. Implementation plans are cognitive strategies that are vulnerable to memory decay and interference over time. It is also likely that, over time, personal goals are increasingly subject to obstacles and distractions and that many of these could not be anticipated when the

implementation plans were first developed. There is also evidence that individuals hold diverse personal strivings in their everyday lives (Emmons, 1986). The simultaneous pursuit of competing goals over the long haul may reduce the connectedness between a specific goal and situational cues, thus reducing the effect of initial planning and making goal pursuit more difficult (Emmons & King, 1988).

Can implementation plans for self-generated goals be strengthened so that they facilitate goal progress throughout a longer time span? We suggest that implementation plans can be bolstered by the addition of a separate motivational factor that strengthens aspects of the self. Kuhl and Fuhrmann (1998) have noted that effective goal pursuit involves two distinct volitional components, which they label self-maintenance and goal maintenance. The former involves maintaining awareness of aspects of oneself that support the goal, whereas the latter involves strategies that maintain the goal in consciousness when competing motivations arise. These researchers argue that the coordination of these two volitional systems is a prerequisite for robust goal progress. Implementation intentions serve a clear goal maintenance function by enhancing the accessibility of specified situational cues and forging an association between the cue and a goal-relevant response (Gollwitzer, 1999). There are two self-related motivational factors that have already been shown to affect personal goal progress and that could, conceivably, be combined with implementation planning: self-concordance and self-efficacy. Self-concordance refers to whether a goal (or plan) reflects a person's developing interests and core values versus something he or she feels compelled to do by external or internal pressures (Sheldon & Elliot, 1999). Self-efficacy refers to whether a person feels confident that he or she has the ability to perform the actions that lead to goal attainment (Bandura, 2001).

We propose that implementation plans designed to simultaneously encourage self-concordance or self-efficacy will better equip individuals to persist during the process of striving to attain one's goal. Self-concordance and self-efficacy represent two critical aspects of the self that have already been theoretically and empirically linked to goal pursuit processes. If a goal or plan is self-concordant, this will prevent conflict about the source of the goal from interfering with goal pursuit. If a person feels self-efficacious about a goal or plan this will prevent doubts about one's abilities from thwarting one's goal pursuit. Both self-concordance and self-efficacy have been associated with calling on greater effort in the pursuit of goals (Bandura, 1997; Sheldon & Elliot, 1998) and feeling a greater sense of commitment to long-term personal pursuits (Koestner, Lekes, Powers, & Chicoine,

2002, Study 2). Thus, both self-concordance and self-efficacy involve linking core aspects of the self—personal values and interests and a sense of personal competence, respectively—to the goal in ways that support and enhance pursuit. Supplementing implementation intentions in either manner should provide self-maintenance that may be critical to sustaining longer-term, self-initiated goals.

Present Investigation

Two studies used the personal goal paradigm to explore the impact of implementation plans on goal progress over time. Study 1 examined students' most important academic and social goals throughout a month. Study 2 examined students' most important New Year's resolution throughout a span of 5 months.

Study 1 examined whether eliciting implementation plans in an autonomy-supportive manner would facilitate goal progress relative to a neutral condition and a condition in which implementation plans were administered in a controlling manner. The study also included an initial assessment of goal self-concordance as well as post-manipulation assessments of goal readiness and self-concordance of implementation plans. A previous study of New Year's resolutions showed that perceived readiness to pursue one's goal is significantly associated with long-term goal progress (Norcross, Ratzin, & Payne, 1989).

Study 2 examined whether combining implementation planning with an exercise designed to boost self-efficacy about one's goal would facilitate goal progress relative to a neutral condition and a typical implementation condition. The study also included assessments of goal self-efficacy. We hypothesized that because our studies involved long-term, self-generated goals, the development of implementation plans alone would not result in greater personal goal progress than a neutral condition. However, we expected that the combination of implementation plans and either autonomy or self-efficacy support would result in significantly greater goal progress. We also expected to replicate previous findings by showing that baseline levels of goal self-concordance and goal self-efficacy would be associated with progress.

STUDY 1: AUTONOMY SUPPORTIVE VERSUS CONTROLLING IMPLEMENTATION PLANS

One way to bolster implementation plans is to make sure that they are internalized in a self-concordant manner (Sheldon, 2002). A number of previous studies have examined the relation of goal self-concordance to goal progress but none have explored whether self-concordance is relevant for implementation plans as well. Table 2 provides a meta-analysis of 12 studies that

TABLE 2: Meta-Analysis of Progress by Self-Concordance for Self-Initiated Goals

| Study | Time Frame | n | d |
|--|------------|-----|------|
| Sheldon & Kasser (1998) | 2 months | 90 | 0.04 |
| Sheldon & Elliot (1998) | | | |
| Study 1 | 1 month | 128 | 0.26 |
| Study 2 | 3 months | 141 | 0.16 |
| Study 3 | 1 month | 82 | 0.18 |
| Sheldon & Elliot (1999) | | | |
| Study 1 | 3 months | 169 | 0.41 |
| Study 2 | 3 months | 73 | 0.69 |
| Sheldon & Houser-Marko (2001) | | | |
| Study 1 | 6 weeks | 189 | 0.63 |
| Study 2 | 1 week | 94 | 0.53 |
| Koestner, Lekes, Powers, & Chicoine (2002) | | | |
| Study 1 | 3 days | 106 | 0.61 |
| Study 2 | 1 month | 58 | 0.70 |
| Judge, Bono, Erez, & Locke (2005) | | | |
| Study 1 | 2 months | 240 | 0.45 |
| Study 2 | 2 months | 250 | 0.32 |

examined the relation between goal self-concordance and goal progress. The procedures for the meta-analysis were identical to those reported for the meta-analysis in Table 1. A highly significant overall effect emerged for goal self-concordance, $d^+ = 0.40$ (CI 0.30, 0.50), $p < .0001$. The set of effects was homogeneous, $Q(11) = 13.31$, *ns*. Participants were significantly more likely to make progress when they had selected goals that were self-concordant. The time frame of the goal did not influence the relation of self-concordance to progress. Of importance, studies have shown that the benefits of self-concordant goals are maintained after controlling for other personality and motivational factors such as neuroticism and goal commitment (Sheldon & Houser-Marko, 2001; Sheldon & Kasser, 1998). Furthermore, the benefits also were demonstrated using sophisticated goal attainment scaling methods (Sheldon & Elliot, 1998) and peer reports (Sheldon & Houser-Marko, 2001).

Given the evidence that self-concordant goals are associated with greater progress, it is natural to ask whether implementation plans would be more successful over time if they were introduced in a way that encouraged making them self-concordant. There is considerable evidence from social, developmental, and educational psychology studies that certain interpersonal behaviors will be experienced as supporting autonomy and will, in turn, result in the development of more autonomous (i.e., self-concordant) goals (Ryan & Deci, 2000). Autonomy support refers to the extent to which important interpersonal figures such as teachers, managers, or doctors recognize an individual's feelings and unique perspective, provide choices

and options, and refrain from excessive control and pressure (Reeve, Bolt, & Cai, 1999). Autonomy support has been shown to facilitate internalization, self-concordance, and healthy adaptation among children and college students (Deci, Eghrari, Patrick, & Leone, 1994; Grolnick & Ryan, 1989; Joussemet, Koestner, Lekes, & Houliort, 2004; Joussemet, Koestner, Lekes, & Landry, 2005). Indeed, several experiments have demonstrated that motivating factors such as rewards, praise, limits, and competition produce dramatically different effects depending on whether the interpersonal context supports autonomy versus controls behavior (i.e., pressures one to act, think, or feel in a particular way; Koestner, Ryan, Bernieri, & Holt, 1984; Reeve & Deci, 1996; Ryan, Mims, & Koestner, 1983).

In Study 1, we hypothesized that autonomy supportive implementation plans would result in significantly greater goal progress than a neutral condition, whereas controlling implementation plans would not. Regarding mediating processes, it was expected that both forms of implementation plans would enhance goal readiness but only the autonomy-supportive implementation exercise would enhance the self-concordance of implementation plans. We also expected to replicate previous findings and show that baseline levels of goal self-concordance were significantly associated with progress.

METHOD

Participants

Participants were recruited through ads for a study of goal pursuits in the student newspaper. Only respondents who indicated that they had a relevant personal goal in both the academic and social domains were included in the study. The sample included 65 women and 22 men. Everyone was paid \$20 for their participation. Four participants did not complete the follow-up and were excluded from analyses. Two participants dropped out of the neutral condition and one each dropped out of the autonomy supportive and controlling conditions. The participants who did not complete the follow-up did not differ from others in terms of baseline levels of goal readiness and goal self-concordance, $t_s(82) = 0.30$ and 0.67 , respectively.

Procedure

Participants were tested in small groups during the 2nd week of the semester and were followed up by e-mail 1 month later. All participants were informed that they would be asked to complete a questionnaire about their academic and social goals for the semester and that their responses would remain confidential.

Participants were randomly assigned to either a control group or to one of two experimental conditions. Participants in all conditions were first asked to report on their demographic characteristics. Participants were then asked to describe an academic and a social goal that they wanted to pursue during the semester. Participants in the neutral condition were then asked to rate each of these goals in terms of self-concordance and readiness.

After listing the academic and social goals they wanted to pursue during the semester, participants in the two experimental conditions listened to a taped recording about goal setting. The taped instructions informed participants that the study was designed to understand how university students succeed at their personal goals. The instructions then outlined the importance of setting specific implementation plans. In the autonomy-supportive experimental condition, instructions gave information about implementation plans while acknowledging the participant's personal perspective and emphasizing choice. In the controlling experimental condition, instructions gave information about implementation planning while using pressuring language and emphasizing the importance of doing things exactly right. Participants in the two experimental conditions then completed the implementation planning exercise separately for each of their goals. They were then asked to rate each goal in terms of self-concordance and readiness. Self-concordance of implementation plans also was measured. An e-mail follow-up containing the measure of goal progress was sent to all participants after 4 weeks.

Autonomy Support Manipulation

Prior to doing the implementation planning exercises, participants in the autonomy support condition listened to the following instructions:

The present study is designed to understand how university students succeed at their personal goals. Previous research has shown that about ½ of university students make New Year's resolutions but the vast majority of students fail to keep them. We're interested in what helps people to achieve their resolutions.

Recent research has shown that just setting a goal to accomplish something, or even making a resolution, is not the best way to help people attain their goals. It is natural to hope for the best when you set a goal, but goal setting is a rather tricky thing. To give yourself the best chance of succeeding, it seems that it can be helpful to make some very specific plans for exactly how you will work on your goal. This involves considering when and where you will perform the actions necessary to carrying out your goals. And even though it is often hard, it is important to find ways to keep your plans. Another important aspect of goal setting is to try to

anticipate possible obstacles that could interfere with the pursuit of your goal . . . and to try to develop a plan for how to handle these obstacles in order to successfully carry out your goals.

You are free to choose a plan that will be easy and enjoyable for you; this will help you stick to your goal in tough times. We understand that this kind of "implementation" planning takes a little extra time but it makes a really big difference. The key is to find a plan that really fits you and fits with what you are trying to accomplish. We understand that choosing a specific plan of actions for a specific goal can be a challenging task. Therefore, we created a little exercise to support your effort in doing so. We hope it will make the task easier on you. A little bit of thoughtful planning can really make goal setting work better for you.

The document in front of you contains exercises designed specifically to help you create a "personally friendly" plan that will help you in pursuing an academic and a social-interpersonal goal. You are now ready to complete these exercises. Please follow the instructions provided in the document in front of you. Thank you for your cooperation.

Controlling Manipulation

Prior to doing the implementation planning exercises, participants in the controlling condition listened to the following instructions:

The present study is designed to understand how university students can succeed at their personal goals. About ½ of university students make New Year's resolutions but the vast majority of students fail to keep them. We're interested in what helps people to achieve their resolutions.

Just setting a goal to accomplish something or even making a resolution is not really very helpful. You are kidding yourself if you think setting a goal will make something good happen. In order to succeed you must make specific plans for exactly how you will implement your goal. You have to decide when and where you will perform the actions necessary to carrying out your resolutions. It is your own responsibility to come up with a good plan that will work. And you must stick to these plans. You must also anticipate possible obstacles to achieving your goal and have a plan for how to handle these obstacles in order to successfully carry out your goals.

You should not be fooling around if you are to have any chance of attaining your goal. So you should really do things right; you should create an implementation plan. Careful planning is what you need to do if you want to be a successful goal setter. We really want you to remember that planning is a crucial task and that it is your own responsibility to come up with THE good plan. Goal setting is not for the mentally lazy.

The document in front of you contains exercises through which you will be instructed to create a good

plan of action for an academic and a social-interpersonal goal. It is now time to complete these exercises. You must carefully follow the instructions provided in the document in front of you. Thank you.

Implementation intention exercises. Participants in the two experimental conditions then completed a paper-and-pencil implementation planning exercise taken from Koestner et al. (2002) that was modified depending on the condition. The exercises involved listing the goal, stating a specific action plan, specifying when and where to pursue the goal, and identifying a possible obstacle as well as a way to overcome the obstacle. The wording of the specific sections varied slightly depending on condition. For example, in the autonomy supportive condition, participants were instructed to “think of specific actions or plans that will help you reach your academic goal. You are invited to think of a plan of action that really fits your needs and personal values.” In the controlling condition, participants were instructed, “You have to identify specific actions or plans that must be pursued to reach your academic goal. You should work on a good plan of action.” A space was then provided for participants to write in their specific plans. Participants took approximately 4 min to complete their implementation plans.

Measures

Self-concordance of goals. Sheldon and Kasser’s (1998) four items for measuring self-concordance were used. For each goal, participants rated on a 9-point Likert-type scale from 1 (*not at all for this reason*) to 9 (*completely because of this reason*). The four types of reasons were, respectively, external (“because somebody else wants you to or because you’ll get something from somebody if you do”), introjected (“because you would feel ashamed, guilty, or anxious if you didn’t—you feel that you ought to strive for this”), identified (“because you really believe that it is an important goal to have—you endorse it freely and value it wholeheartedly”), and intrinsic (“because of the fun and enjoyment which the goal will provide you—the primary reason is simply your interest in the experience itself”). A summary index of self-concordance was formed by subtracting the introjected and external regulation ratings from those for intrinsic and identified reasons.

Readiness. Readiness to pursue the goal was assessed by the following four items ($\alpha = .82$): “I know exactly what to do and where to do it to maximize my chances of attaining this goal,” “I have the intention of investing myself fully in attaining this goal,” “I have a clear portrait of what I need to do to attain this goal,” and “I am willing to invest a significant amount of effort to pursue this goal.”

TABLE 3: Goal Progress by Condition: Study 1

| | M | SD |
|---------------------------------|------|------|
| Neutral | 4.48 | 1.65 |
| Controlling implemental | 4.76 | 1.32 |
| Autonomy-supportive implemental | 5.46 | 1.44 |

Self-concordance of plans. The same four items that were used to assess self-concordance of goals also were used to assess the self-concordance of implementation plans. However, participants were asked to answer the question in terms of their plans instead of the goal. Therefore, only the participants in the experimental conditions completed this measure. The ratings were made in terms of their implementation plans for the academic and social goal together rather than individually for each type of goal.

Goal progress. Goal progress for each of the academic and social goals was assessed with a single item: “Please rate the extent to which you made progress on this goal.” Ratings were made on a 9-point Likert-type scale from 1 (*not at all*) to 9 (*totally*).

RESULTS AND DISCUSSION

Preliminary Analyses

Progress for participants’ academic and social goals was significantly related, $r = .43$, $p < .01$. Self-concordance for the academic and social goals also was significantly related, $r = .30$, $p < .01$. We therefore calculated mean progress and self-concordance scores across the two goals. Goal self-concordance at baseline was significantly related to goal progress at 1 month ($r = .30$, $p < .01$). Gender had no main or interactive effect on goal progress so that male and female participants were combined for subsequent analyses.

Main Analyses

An analysis of covariance was performed on goal progress with Implementation Intention condition as a between-subject factor (Neutral, Controlling Implemental, and Autonomy-Supportive Implemental) and baseline goal self-concordance as a covariate. The ANCOVA yielded a significant main effect for condition, $F(2, 76) = 3.15$, $p < .05$. The means and standard deviations are reported in Table 3. It can be seen that progress in the autonomy supportive implementation condition is considerably higher than in the other two conditions. The planned contrast of the Autonomy-Supportive Implemental condition versus the other two conditions was highly significant, $F(1, 77) = 6.00$, $p < .05$. Post hoc comparisons

TABLE 4: Meta-Analysis of Progress by Self-Efficacy for Self-Initiated Goals

| Study | Time Frame | n | d |
|--|------------|-----|-----|
| Sheldon & Kasser, (1998) | 2 months | 90 | .49 |
| Koestner, Lekes, Powers, & Chicoine (2002) | | | |
| Study 1 | 3 days | 106 | .24 |
| Study 2 | 1 month | 40 | .55 |
| Powers, Koestner, & Topciu (2005) | | | |
| Study 1 | 1 month | 50 | .63 |
| Study 2 | 1 month | 133 | .43 |
| Judge, Bono, Erez, & Locke (2005) | | | |
| Study 1 | 2 months | 183 | .36 |
| Study 2 | 2 months | 251 | .34 |
| Downie, Koestner, Horberg, & Haga (2006) | 1 week | 85 | .62 |

showed that participants in the Autonomy-Supportive Implemental condition made significantly greater progress than those in the Neutral condition, $t(49) = 2.35$, $p < .05$, and marginally greater progress than those in the Controlling Implemental condition, $t(49) = 1.86$, $p = .07$. The difference between the Controlling Implemental condition and the Neutral condition did not approach significance, $t(53) = 0.76$, *ns*.

Supplemental Analyses

An ANCOVA was performed to examine whether the experimental conditions influenced participants' readiness to pursue their goal. A marginally significant main effect emerged, $F(2, 79) = 2.61$, $p = .08$. A planned contrast showed that the two implementation conditions resulted in significantly greater readiness (Controlling $M = 6.90$, Autonomy-Supportive $M = 6.62$) than the Neutral condition ($M = 6.21$), $F(1, 80) = 4.08$, $p < .05$. Goal readiness at baseline was significantly positively related to later goal progress ($r = .32$, $p < .01$).

An ANCOVA also was performed to examine whether the Autonomy-Supportive versus Controlling Implemental conditions influenced the self-concordance of the implementation plans.¹ Participants in the Autonomy-Supportive condition reported marginally greater self-concordance for their implementation plan ($M = 7.67$) than did participants in the Controlling Implementation condition ($M = 6.35$), $F(1, 49) = 3.34$, $p = .07$. Self-concordance of the implementation plan was significantly positively related to goal progress ($r = .33$, $p < .05$).

Summary

The results of Study 1 showed that only implementation plans delivered in an autonomy supportive manner resulted in significant goal progress relative to a neutral

condition. Controlling implementation plans did not enhance goal progress relative to a neutral condition. The positive effect of autonomy-supportive implementation plans could partially be explained by the fact that participants in this condition internalized their plans in a more self-concordant manner. In turn, the self-concordance of implementation plans resulted in greater goal progress, even after controlling for the effect of baseline goal self-concordance. The study also replicated previous findings by showing a significant positive relation between baseline levels of goal self-concordance and later goal progress and a significant positive relation between goal readiness and later progress.

An interesting pattern of results emerged for reports of goal readiness. Both of the implemental conditions (the autonomy supportive and the controlling) led participants to report that they were significantly more ready to pursue their goals than were participants in the neutral condition. That is, implemental participants reported that they were "willing to invest a significant amount of effort to pursue this goal" and that they "knew exactly what to do and where to do it to maximize my chances of attaining this goal." Yet, this enhanced readiness was not combined with greater goal success for controlled participants. The disjunction between perceived readiness and actual goal success for these participants points to the fact that success with long-term goals probably requires both volitional and motivational readiness (Heckhausen, 1991).

STUDY 2: SUPPLEMENTING IMPLEMENTATION PLANS WITH A SELF-EFFICACY BOOST

Study 2 examined whether the effectiveness of implementation plans for long-term self-initiated goals could be bolstered by adding a self-efficacy boosting component to the goal-setting and planning exercise. Self-efficacy refers to a sense of confidence in one's ability to perform actions leading to desired outcomes (Bandura, 1977). Self-efficacy is associated with important motivational outcomes such as enhanced effort and commitment, selection of more challenging goals, keener focus on goal pursuit, and perseverance in the face of difficulties (Bandura, 1997), all of which may help translate self-efficacy into goal attainment.

Several previous studies of progress for self-initiated goals have included measures of goal self-efficacy. Table 4 provides a meta-analysis of eight studies that examined the relation between self-efficacy and progress for self-initiated goals. The procedures for the meta-analysis were identical to those reported for the meta-analyses in Tables 1 and 2. A highly significant overall effect emerged for goal self-efficacy, $d^+ = 0.41$ (CI 0.32, 0.50),

$p < .0001$. The set of effects was homogeneous, $Q(7) = 6.02$, *ns*. Participants reported greater progress when they felt self-efficacious toward a goal.

The present study attempted to bolster implementation plans by combining them with an exercise designed to boost self-efficacy toward the New Year's resolution. The self-efficacy manipulation was designed to strengthen participants' confidence in their ability to realize their personal goals and it was based on three sources of self-efficacy previously detailed by Bandura (1977, 1989). The first source, performance mastery experiences, refers to self-efficacy derived from recalling previous accomplishments germane to current or future goals. A second source of efficacy information is vicarious experiences, whereby the goal-setter observes an individual similar to himself perform behaviors leading to goal attainment. Finally, efficacy may be strengthened through verbal persuasion from other people that one is capable of achieving one's goal. In the present study, self-efficacy was targeted by encouraging participants to reflect on previous and vicarious mastery experiences as well as on sources of social support.

Study 2 examined students' progress on their most important New Year's resolution throughout the span of 5 months. The study explored whether combining an implementation planning exercise with an exercise to boost self-efficacy about one's goal would facilitate goal progress relative to a neutral condition and a typical implementation condition. The study also included assessments of goal self-efficacy.

We hypothesized that because long-term, self-generated goals were involved, the development of implementation plans alone would not result in greater personal goal progress than a neutral condition. However, we expected that the combination of implementation plans and self-efficacy boosting exercises would result in significantly greater goal progress. We also expected to replicate previous findings showing that baseline levels of goal self-efficacy would be associated with progress 20 weeks later.

METHOD

Participants

Sixty-eight undergraduates (44 women, 24 men) from the McGill University voluntary, paid subject pool were recruited by e-mail in the 1st week of January to participate in the present study. All participants reported an intention to set at least one New Year's resolution and 48% of participants were setting their particular resolution for the first time. The vast majority of resolutions were academic or social in nature. Fifty-nine participants completed the 5-month follow-up survey

(38 women, 21 men). Three participants dropped out of each group. Participants who did not complete the follow-up did not differ significantly from participants who returned all follow-ups in terms of initial self-efficacy, $t(66) = 0.76$, $p > .10$. Participants received \$20.

Procedure

Identical to previous studies on New Year's resolutions (e.g., Koestner et al., 2002; Marlatt & Kaplan, 1972), participants were scheduled to complete questionnaires during a laboratory session in early January. They were randomly assigned to one of three conditions: Neutral, Implemental, or Implemental + Self-Efficacy. Goal ratings and exercises were completed with regard to participants' most important New Year resolution. Participants received a follow-up questionnaire via e-mail 20 weeks later.

Questionnaires completed in January first requested demographic information and baseline ratings of goal self-efficacy for participants' New Year's resolutions. Afterward, participants completed their respective experimental manipulations. Those in the Implemental only condition filled out the implementation plans. Participants in the Implemental + Self-Efficacy condition completed both the implementation plans and the self-efficacy exercises. Neutral condition participants completed an irrelevant goal task to ensure that they completed a questionnaire of comparable length to other conditions. Participants received an individualized sticker reminding them of the paper-and-pencil tasks they had completed. A space for participants to copy down their resolution also was provided on the sticker. A 20-week, follow-up, e-mail questionnaire assessed goal progress and self-efficacy.

Materials

Self-efficacy. The items for self-efficacy of the New Year's resolution were identical to those used by Koestner et al. (2002). Participants were asked to rate the extent to which they possessed the resources and skills necessary to attain their resolution on a 9-point Likert-type scale ranging from 1 (*not at all*) to 9 (*very much*).

Control condition. Participants in the neutral condition listed three future benefits that would result from resolution attainment as well as three negative consequences that would be avoided. Participants took approximately 3 min to complete this task.

Implementations planning. The implementation planning exercise was identical to Study 1 except that controlling or autonomy-supportive instructions were omitted.

Self-efficacy boost. In this exercise, participants reflected on their past mastery experiences, vicarious experiences,

TABLE 5: Goal Progress and Self-Efficacy by Condition: Study 2

| | n | Goal Progress | | Self-Efficacy | |
|--------------------------------|----|---------------|------|---------------|------|
| | | M | SD | M | SD |
| Neutral | 22 | 5.00 | 2.51 | 7.24 | 1.41 |
| Implemental | 18 | 5.38 | 2.38 | 7.56 | 1.91 |
| Implemental + Self-Efficacy | 19 | 6.78 | 1.71 | 8.16 | 0.95 |

and means of social support. Participants were instructed to write about (a) a goal they had already achieved that was similar to their current resolution, (b) an individual similar to themselves who already attained the same goal they were pursuing, and (c) an individual who could encourage them in their pursuit.

Goal progress. The goal progress measure was identical to that used in Study 1.

RESULTS AND DISCUSSION

Preliminary Results

Pearson’s correlations were calculated among the self-efficacy and goal progress measures. The baseline and 20-week assessments of self-efficacy were significantly positively correlated ($r = .47, p < .001$). Goal progress at 20 weeks was significantly positively related to self-efficacy at the same time ($r = .39, p < .01$). Self-efficacy at baseline was unrelated to later goal progress ($r = .03, p > .10$). Gender had no main or interactive effect on goal progress so it was dropped from subsequent analyses.

Main Results

An analysis of covariance was performed on goal progress with condition as a between-subject factor (Neutral, Implemental Only, and Implemental + Self-Efficacy) and baseline self-efficacy as a covariate. The ANCOVA yielded a significant main effect for condition, $F(2, 55) = 3.46, p < .05$. The means and standard deviations for the three groups are reported in Table 5. It can be seen that the progress in the Implemental + Self-Efficacy condition was considerably higher than in the other two conditions. The planned contrast of the Implemental + Self-Efficacy condition versus the other two conditions was significant, $F(1, 56) = 6.50, p < .01$. Post hoc comparisons showed that participants in the Implemental + Self-Efficacy condition made significantly greater progress than did those in the Neutral condition, $t(38) = 2.57, p < .01$, and those in the Implemental Only condition, $t(34) = 2.05, p < .05$. The difference between the Implemental Only condition

and the Neutral condition did not approach significance, $t(37) = 0.49, p > .10$.

An analysis of covariance was performed on self-efficacy at 20 weeks with condition as a between-subject factor (Neutral, Implemental Only, and Implemental + Self-Efficacy) and baseline self-efficacy as a covariate. The ANCOVA yielded a marginally significant main effect for condition, $F(2, 54) = 2.79, p = .07$. It can be seen in Table 5 that the Implemental + Self-Efficacy condition yielded considerably higher levels of self-efficacy at 5 months than did the other two conditions. The planned contrast of the Implemental + Self-Efficacy condition versus the other two conditions was significant, $F(1, 56) = 4.71, p < .05$.

Summary

The results of Study 2 showed that only implementation plans delivered in combination with a self-efficacy boosting exercise resulted in significant goal progress relative to a neutral condition. The standard implementation plans did not enhance actual progress relative to a neutral condition. The positive effect of the combined implemental plus self-efficacy condition seems to have been at least partially explained by the fact that participants in this condition acquired greater self-efficacy for their New Year’s goal.

Study 2 failed to find a relation between baseline self-efficacy and later goal progress. This failure to replicate previous research (see Table 4) can perhaps be attributed to our reliance on a single-item measure of self-efficacy. A more extensive assessment of self-efficacy might have yielded stronger results.

GENERAL DISCUSSION

Recent studies suggest that implementation planning exercises may not be as helpful for long-term, self-initiated goals as for short-term, assigned goals. Kuhl and Fuhrmann (1998) have noted that effective goal pursuit involves two distinct volitional components, which they label self-maintenance and goal maintenance. The purpose of the present studies was to examine whether the effectiveness of implementation planning (i.e., goal maintenance) for long-term, self-initiated goals could be improved by adding motivational features that bolster self-maintenance. Specifically, Study 1 examined whether the combination of autonomy support and implementation plans would lead to robust goal progress, whereas Study 2 examined whether the combination of self-efficacy and implementation plans would result in long-term goal progress. The results showed that implementation plans alone did not result in greater goal progress than a control condition but

that the combination of implementation plans with either autonomy support or self-efficacy boosting resulted in significantly greater progress.

Many previous studies have shown that the impact of a motivational intervention depends on whether it is presented in a controlling versus autonomy-supportive manner (e.g., rewards, praise, limits, competition). However, to the best of our knowledge, this is the first demonstration that implementation planning exercises will have more beneficial effects if they are delivered in an autonomy-supportive manner. Why should an autonomy-supportive context for implementation intentions bolster their effectiveness? Several interpretations are possible. Study 1 suggested that autonomy support stimulates successful goal pursuit because it allows individuals to integrate their implementation plans in a self-concordant manner that highlights interest and personal meaning rather than pressure and obligation. Such integration may have helped strengthen the link between the situational cues and the goal behavior specified in the implementation intention. In turn, this stronger association would aid the automatic initiation of goal behaviors when confronted with the goal cues (Gollwitzer, 1999), leading to superior goal attainment.

Another possibility is that participants in the autonomy support condition processed the implementation intention exercise more fully than did those in the controlling condition both during the study and afterward. Recent educational research suggests that people show better conceptual learning of information presented in an autonomy-supportive manner because they involve themselves more deeply in the material (Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005). Deeper processing of implementation plans would have contributed to their effectiveness by reinforcing links between the goal situation and goal action. In the future, it would be interesting to determine whether participants in the autonomy support condition actually are thinking more about the plan in the following days and weeks.

Many previous studies have shown that boosting self-efficacy can result in better performance (Bandura, 1997). However, to the best of our knowledge, Study 2 represents the first demonstration that implementation planning exercises will have more beneficial effects if they are accompanied by exercises specifically designed to boost individuals' confidence about their abilities to achieve their goal. Of importance, the results showed that participants in the implementation plus self-efficacy condition reported both greater goal self-efficacy and greater goal progress at the follow-up. It should be noted that Study 2 explored New Year's resolutions, which are known to be particularly challenging goals (Prochaska et al., 1994). Why should self-efficacy improve the effects of implementation intentions?

Implementation intentions bolstered with self-efficacy may have produced better results because highly efficacious individuals seek out and use strong self-regulatory strategies when faced with difficult goals (Bandura, 2001) and approach tasks with greater cognitive flexibility (Gist, Schwoerer, & Rosen, 1989). It is possible that the implementation plans completed by those with heightened self-efficacy were of superior quality than those made by less efficacious individuals. Future studies could explore the content of the implementation plans to determine whether differences in quality exist as a function of self-efficacy.

It should be noted that in Study 2, unlike Study 1, the critical experimental condition did not intervene directly on the process of forming implementation plans. Instead, the self-efficacy exercise was designed to enhance the confidence that participants had in their ability to achieve their superordinate goals (e.g., to maintain a B+ grade point average). It would be interesting to examine whether manipulations could be designed to focus specifically on self-efficacy about one's ability to construct and follow through with an implementation plan. For example, an individual could be asked to think of a previous time that they developed a successful implementation plan for a similar goal. We would expect that exercises that enhance implementation plan self-efficacy would translate into higher goal progress. The possibility of targeting the self-efficacy of implementation plans and the distal goal simultaneously should be explored.

The focus of this investigation was on self-initiated, long-term goals. It remains to be seen whether autonomy support and boosting self-efficacy would similarly strengthen the positive effects of implementation plans on assigned goals or short-term goals. Recall, however, that the effectiveness of implementation plans for such goals has already been clearly established (Sheeran, Webb, & Gollwitzer, 2005). It is also important to note that the present study did not test whether boosting autonomy and self-efficacy in the absence of implementation plans would enhance goal progress. However, previous attempts to directly enhance goal progress via interventions designed to foster self-concordance have met with failure (Koestner et al., 2002, Study 2; Sheldon, Kasser, Smith, & Share, 2002). As such, we believe that exercises designed to intervene simultaneously on the distinct volitional components of goal maintenance and self-maintenance might lead to a more optimal pursuit of personal goals (Kuhl & Fuhrmann, 1998).

The present research represents an initial attempt to document the benefits of combining implementation plans with autonomy support and self-efficacy exercises. It would be interesting to examine other contextual and personality factors that might moderate the

obtained effects. For example, there is evidence that implementation intentions are particularly helpful when individuals are strongly committed to their goals (Sheeran, Milne, Webb, & Gollwitzer, 2005), when the goals are difficult rather than easy (Gollwitzer & Brandstaeetter, 1997), when individuals are cognitively distracted (Brandstaeetter, Lengfelder, & Gollwitzer, 2001), and when individuals have depleted self-regulatory resources (Webb & Sheeran, 2003). Would autonomy support and self-efficacy particularly help distracted or depleted individuals to make successful implementations plans, and would such help be especially apparent for strongly held but difficult goals? It also would be interesting to examine whether other goal characteristics such as pleasantness and approach/avoidance framing (Elliot & Thrash, 2002) influence the impact of implementation plans that have been combined with autonomy support or self-efficacy. Finally, the potential moderating role of personality factors such as action orientation (Fuhrmann & Kuhl, 1998) and perfectionism (Powers, Koestner, & Topciu, 2005) also should be considered.

The present research was limited by the exclusive use of self-report measures. Previous studies have demonstrated the effect of implementation intentions using both self-report and more objective measures of goal progress such as test performance (Gollwitzer, 1999). Indeed, a recent meta-analysis showed that the positive effects of implementation plans were just as strong for objective measures of progress as for self-reports (Sheeran et al., 2005). Nonetheless, future research on combining self-efficacy and autonomy support with implementation plans would certainly do well to diversify measures of goal progress to include peer reports or performance outcomes.

The present studies were partly inspired by Kuhl and Fuhrmann's (1998) contention that effective goal pursuit involves two distinct volitional components, which they labeled self-maintenance and goal maintenance. Implementation intentions were thought to serve a clear goal maintenance function by enhancing the accessibility of specified situational cues and forging an association between the cue and a goal-relevant response (Gollwitzer, 1999). Self-concordance and self-efficacy were hypothesized to help participants to maintain awareness of aspects of themselves (e.g., their interests and values or their skills) that supported the implementation planning. One might ask whether interventions that do not focus explicitly on self-maintenance also could improve the effectiveness of implementation plans. There is recent evidence that relational supports can bolster implementation plans. Prestwich and colleagues (2005) found that implementation plans that were developed collaboratively rather than individually

resulted in extremely high rates of goal success. Future studies using the personal goal paradigm could explore whether the relational bond or alliance between the experimenter and the participants would influence how implementation plans are formed, integrated, and followed through.

In conclusion, the present studies demonstrated that the positive effects of implementation plans, which are reliably obtained with short-term assigned goals, also can be obtained with long-term, self-generated goals as long as the implementation plans are developed in an autonomy-supportive manner or accompanied by efforts to strengthen feelings of self-efficacy about the ultimate goal.

NOTE

1. Control participants were not included in this analysis because they were not asked to make implementation plans.

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