

Should goal-strivers think about “why” or “how” to strive? It depends on their skill level

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Abstract The current studies attempted to increase individuals’ internalization of their own difficult or unpleasant goals, using either a low-level or a high-level writing intervention. Two writing studies showed that an appropriate match between level of goal-relevant skill (low versus high) and level of prompted goal-cognition (low versus high) enhances motivation. Those lower in initial skills were more likely to internalize their goals over time (Studies 1 and 2) and report greater goal expectancies (Study 2) if they wrote about the “how” of the goals, whereas those higher in initial skills were more likely to experience these positive outcomes by writing about the “why” of goals. This interaction pattern was found in both a short-term experimental study of health goals (Study 1) and in a 2 month longitudinal study of academic goals (Study 2). Results are discussed in the context of action identification theory and of self-regulation, which emphasize allocating attention to the right level of abstraction for optimal functioning.

Keywords Self-determination theory · Action-identification theory · Goal implementation · Personal goals · Internalization · Goal expectancy

In daily life, we often have to get ourselves to do important yet uninteresting or difficult necessities and tasks. Such necessary tasks include mundane goals like

completing household chores, filling out tax returns, and balancing our checkbooks, but also include longer-term and more effortful goals such as beginning an exercise regime, studying for an upcoming final exam, and even searching for a job. Because they are un-enjoyable or even aversive to perform, we may be tempted to give up such goals; however, because they are necessary for our longer-term interests or important for heading off highly undesirable outcomes, giving them up may not be a viable option. Thus, we may be “stuck” pursuing such goals unwillingly—out of felt obligation, pressure, or fear. This is problematic because research shows that we do not do as well when we approach a goal or task with such controlled (or non-autonomous) motivation. Such ambivalence may undercut our efforts, such that we are saddled for longer than we need to be with a disliked goal, unable to fully complete it and put it behind us. How can people be helped to overcome their ambivalence, so they can effectively negotiate life’s necessities?

To address this question, the current studies attempted to increase individuals’ internalization of their own difficult or unpleasant goals, using either a low-level or a high-level writing intervention. Based on the optimality hypothesis of action identification theory (Vallacher and Wegner 1987; Vallacher et al. 1989), we expected that participants with low domain-skill would gain more internal motivation from low-level writing about concrete plans for achieving the goals, whereas participants with high domain-skill would gain more internal motivation from high-level writing about why the goal is ultimately important and meaningful. Thus, it may be essential to “match” the person’s skill level with the writing topic, so that the writing exercise allows the participant to address the most salient barriers to internalization.

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Internalizing personal goals

According to self-determination theory (SDT; Ryan and Deci 2000, 2002), the type of motivation that underlies individuals' behavior is critical to behavioral performance. SDT distinguishes between autonomous motivation, which is characterized by a feeling of choice and a personal endorsement of the given activity, and controlled motivation, which is characterized by internal or external pressure towards the activity (Ryan and Connell 1989; Ryan and Deci 2000). For example, a student is autonomously motivated to pursue academic excellence when she has an intrinsic desire to learn and become an educated person. On the other hand, a student who has controlled motivation might attend classes and complete homework only to get good grades and to avoid feeling like a failure. Research has shown that with autonomous rather than controlled motivation, individuals are more likely to persist and finally succeed in their endeavors (Ryan and Deci 2000; Sheldon and Elliot 1998, 1999), in domains such as academic engagement and school satisfaction (Grolnick and Ryan 1987, 1989; Koestner and Losier 2002), adherence to health regimens and practices (Williams 2002; Williams et al. 2006; Zeldman et al. 2004), and job satisfaction (Deci et al. 1989; Gagné, and Deci 2005). In the realm of personal goals, when individuals approach their goals with autonomous motivation, they report greater effort, progress, and subjective well-being (Sheldon and Elliot 1998, 1999).

SDT's perceived locus of causality framework (PLOC; Ryan and Connell 1989) identifies varying types of motivation and locates them on an internalization continuum from external motivation (i.e., behavior driven by external pressure) to introjected motivation (i.e., behavior driven by self-pressure and ego-involvement) to identified motivation (i.e., behavior driven by the understanding that it is personally valuable and important). Internalization occurs as individuals progress from external motivation and introjected motivation (types of controlled motivation) to identified motivation (a type of autonomous motivation; Ryan 1995; Ryan and Connell 1989; Ryan and Deci 2000); such internalization appears to be an important developmental process (Sheldon and Kasser 2001). This research suggests that one way to enhance individuals' attainment of non enjoyable but necessary personal goals may be to foster their internalization of their goals—to help them fully identify with the goal at least, if not enjoy it.

According to SDT, one way in which internalization is fostered is when authority figures (e.g., parents, employers) in the social context support their subordinates' autonomy. By taking the subordinate's perspective, providing as much choice as possible, and/or providing meaningful rationales when choice is not possible, supportive authorities help

subordinates to connect a particular behavior to their sense of self. For instance, among children and students, autonomy support from parents and teachers promotes children's autonomous motivation towards learning (Black and Deci 2000; Grolnick and Ryan 1987, 1989; Grolnick et al. 1991; Guay et al. 2001; Joussemet et al. 2005; Soenens and Vansteenkiste 2005). In the realm of personal goals, however, sustained autonomy support from others is often unavailable or irrelevant. Many of us pursue goals that we have independently chosen ourselves, without direct input from others. For example, our decision to train for the marathon or to eat less red meat is not something others delegate to us. So the question becomes, when such goals are initially pursued with controlled motivation, is it possible for us to facilitate our own internalization without the intervention of others—or are we stuck with whatever initial motivation we started with? In this study, we investigated a new method for internalizing one's own goals, based on the assumption that individuals can accomplish this task through appropriate cognitive activity.

Optimality of the match between task difficulty and task representation

According to the action identification theory (Vallacher and Wegner 1987, 1989), effective behaviors are the result of an optimal match between task difficulty and the cognitive representation of the task. Individuals represent, or identify, behaviors along a continuum that ranges in level of meaningfulness. At a lower level of identification, individuals may perceive a behavior to be composed of a set of mechanistic, concrete steps (e.g., combining flour, sugar, eggs, and leavening together and then putting the mixture into a heated oven), what we might call the “how” of the behavior. The same set of acts could be laden with meaning and personal significance, construed in terms of the “why” of the behavior, at a higher level of identification (e.g., producing an award-winning cake for the baking competition). Action identification theory proposes that when a behavior or task is difficult, based on individuals' familiarity with the task or the complexity of the task, a lower level identification of the behavior results in greater performance (Vallacher and Wegner 1987; Vallacher et al. 1989). In contrast, if a behavior or task is easy, a higher level identification is more optimal for performance.

Action identification theory assumes that individuals will eventually arrive at a level of identification that optimally matches their task proficiency. However, contextual factors may often cue individuals to a certain level of task identification. A mismatch in identification and task difficulty will then result in a disruption in the engagement with the task, either due to identity inflation (when the level of

identification is high for difficult tasks) or to identity fragmentation (when the level of identification is low for easy tasks).

Consistent with action identification theory, control theory (Carver and Scheier 1981, 1998) also discusses the importance of an optimal match between the difficulty of the task and one's perception of the task. According to this hierarchical framework, attention should shift downwards within an action hierarchy once difficulties are encountered. Recent research shows that individuals who experience instances of failure as they pursue their goal especially benefit from a more proximal and concrete focus on their goal, compared to a distal and abstract focus (Houser-Marko and Sheldon 2008). In short, breaking down a daunting or difficult task or goal into smaller subcomponents may increase the likelihood that less skilled individuals will succeed, which, in turn, may engender greater identification with and enjoyment of (i.e. internalization of) the task or goal. This observation is also consistent with Csikszentmihalyi's (1997) model of flow, which proposes that an appropriate match between the level of challenge a task presents and the level of skill one possesses is crucial in producing flow states.

Internalization as an outcome of the optimal match

Whereas action identification theory focuses on the quality of performance, the current research examines whether individuals' quality of motivation is another outcome of an appropriate match between the task difficulty and level of identification of the task. Thus, instead of single-instance tasks and behaviors, the proposed research examines motivation towards personal goals that require sustained engagement. In particular, we examined important personal goals that are vulnerable to lapses in effort and concentration, such as health goals and academic goals.

In the realm of personal goals, the present research proposes that individuals' autonomous motivation towards their difficult or uninteresting goal is enhanced to the extent that their ability to pursue the goal or their level of skills to pursue the goal appropriately matches their level of identification of the goal. For individuals who are already sufficiently skilled in pursuing their goal, action identification theory would suggest that a high level of identification is optimal, because for these individuals, the problem is not planning the "how" of the goal but rather in realizing their goal's ultimate importance. The difficulty in pursuing their personal goals for these individuals perhaps lies in getting themselves to *want* to pursue the goals and to reduce inner conflict about pursuing the goals. To this end, reflecting on the meaning and long-term importance, that is, focusing on the high-level identity of the goal, may be a

source of inspiration that re-energizes individuals to pursue their goal.

In contrast, individuals without sufficient aptitude or skills may benefit more from concrete planning, that is, a focus on the low-level identity of the goal. Difficulties in persevering with one's goals may arise from a lack of an understanding of the concrete, mechanistic set of steps involved in pursuing the goals. Individuals may struggle to internalize their goals and experience low performance because they lack a clear strategy for approaching their goals. When people do not have plans or ways of approaching goals, the goals may be experienced as pressing obligations which cannot be satisfied—a classic example of controlled motivation. Because autonomous motivation and positive expectancies are related (Sheldon and Elliot 1998), this may negatively impact feelings of autonomous motivation. Furthermore, research demonstrates that when individuals create concrete plans, they are more likely to persist and eventually attain their goals (Brandstätter et al. 2001; Pham and Taylor 1999). When individuals experience progress on their goals as a result of a concrete plan-based goal initiation and engagement, they are more likely to experience increased self-efficacy (Tolli and Schmidt 2008), which may then provide the foundation to better internalize their goals (Sheldon and Houser-Marko 2001).

In sum, we expected that individuals with a higher level of competence or skills compared to individuals with a lower level of competence or skills would experience increased internalization if prompted to self-reflect about the meaning and value of the goal. On the other hand, individuals with a lower level of competence or skills would increase in internalization if they were prompted to make plans regarding the details of goal pursuit. We tested this interaction hypothesis in two studies, one experimental and one longitudinal.

Study 1

This experimental study focused on health goals, which we chose to examine because they are ubiquitous and commonly pursued out of self-pressure and guilt. Health goals were described as any goal for the purpose of becoming physically fit or healthy and included examples such as exercising three times a week or avoiding junk food. Within the domain of health goals, participants were asked to think of a health goal that they were currently pursuing or that they wished to adopt. Half of the participants were instructed to self-reflect about the value and importance of their health goal and why they were pursuing it (the high level writing condition) and the rest were instructed to provide a step-by-step guideline of how they might

implement their health goal the following day (the low level writing condition). Before and after their writing, participants' internalization of the goal was assessed. We predicted that individuals in the high level writing condition would increase their internalization of the health goal if they perceived their level of skills towards the goal to be high (versus low). In contrast, we expected that individuals in the low level condition would increase their internalization if they perceived their skill level to be low (versus high).

Method

Participants

Participants were 90 students (52 female, 36 male, two participants did not report their gender) from the University of Missouri-Columbia. The average age of the participants was 19.64 (SD = 1.23) and 4.5% identified themselves as Asian, 10.2% as Black, 3.4% as Hispanic, 78.4% as White, and 3.4% as other. Students were recruited from psychology courses and were given course credit for participating in the study.

Procedure and materials

Participants were told that this study examined individuals' motivation regarding health goals and all assessments were conducted via an on-line survey. After completing demographic measures, participants were asked to think of a health goal that they are currently pursuing or one that they are likely to pursue in the future. After participants listed their own health goal, their level of skill towards the health goal was assessed with the question (5 point scale ranging from "very low" to "very high"), "How would you rate your level of skills to successfully pursue this goal?" The level of internalization of participants' health goal was assessed using a measure of perceived locus of causality (PLOC; Ryan and Connell 1989) which examines participant's reasons for a personal goal. The PLOC measure lists four statements representing external ("You strive for this goal because somebody else wants you to, or because the situation seems to compel it"), introjected ("You strive for this goal because you would feel ashamed, guilty, or anxious if you did not"), identified ("You pursue this goal because you really believe that it's an important goal to have"), and intrinsic regulation ("You strive for this goal because of the enjoyment or stimulation it provides you"). Participants rated these statements using a 5 point scale (ranging from "very slightly or not at all" to "extremely") the extent to which these statement reflected their approach to the goal. To calculate the internalization score, ratings for external and intrinsic regulation were first double-

weighted and then entered into a formula in which external and introjected ratings were subtracted from intrinsic and identified ratings (i.e., $2 \times \text{intrinsic} + \text{identified} - \text{introjected} - 2 \times \text{external}$). This measurement and the method of calculating the internalization score has been used in previous studies involving the PLOC measure (e.g., Sheldon and Elliot 1999; Sheldon and Houser-Marko 2001; Sheldon and Kasser 1998).

The reliability ($\alpha = .41$ at T1, $\alpha = .49$ at T2) of the PLOC measure was unexpectedly low. These low alphas resulted because in these data we observed weak (but generally non-significant) positive correlations between introjected motivation and both intrinsic and identified motivation, reducing the reliability of the composite after introjected motivation was recoded. This may reflect the nature of the PLOC measure and its simplex structure (Ryan and Connell 1989), in which adjacent dimensions on the internalization continuum (here, introjected and identified motivation) are expected to be positively correlated; this can be a problem given that introjected and identified motivation are scored in opposite directions within the PLOC composite. This issue may have been exacerbated by the design of our studies, which focused specifically on health and academic goals that we believed are both important but also difficult to internalize. Goals such as "exercise more" or "eat less" (Study 1) or to "keep up with your schoolwork" (Study 2) may be furnished with strong autonomous and controlled reasons, inducing positive correlations among these motivations. Given the rather low reliability of the two PLOC measures (further discussed in the results section), the single-goal assessment used in this study may be less optimal compared to the multiple-goal assessments that have in the past employed the single item PLOC measures employed here (Sheldon and Elliot 1999; Sheldon and Houser-Marko 2001; Sheldon and Kasser 1998). Due to the concern regarding the low alphas, the results section provides a supplementary analysis in addition to the analysis using the internalization scores calculated as described above.

After rating their skill and their internalization, participants then engaged in a writing exercise (see below), after which their level of internalization was again assessed to allow us to examine changes in internalization due to the writing. To avoid confusion about why participants were asked to complete the PLOC again and to reduce demand effects that the researchers expected participants' ratings to change, the following instructions were given: "Past research suggests that writing about goals can change peoples' feelings about how they pursue them. In the following questions, please re-rate your goal. Your answers may or may not have changed; just let us know how you currently think and feel."

Inducing low versus high level thinking via a writing exercise A writing intervention seemed to be a promising method to elicit cognitive activity regarding their goals, as such interventions have been used in much previous research on health and well-being (King 2001; Petrie et al. 2004; Pennebaker 1997; Smyth 1998). We also chose to employ writing interventions, because they are relatively easy to perform and require minimal assistance from others.

Participants were randomly assigned to one of two writing exercises. The instructions for the writing exercises were modeled after the ones used in the expressive writing paradigm research (King 2001; Pennebaker 1997; Smyth 1998). Participants in the high level condition were asked to reflect on the importance and meaning of pursuing their health goal:

In this section, please write about your thoughts and feelings about the physical health goal that you listed above. Explore possible benefits of pursuing this goal. For example, if your goal is to run tomorrow morning, you might think of how running is a way to increase your body's immunities or to reduce everyday stress, rather than simply a physical activity. Essentially, we would like you to focus on how achieving this goal may be linked to broader life goals and personal values you may have. In your writing today, try to focus on your broader thoughts or feelings about the goal, rather than focusing objectively on your concrete action plans for tomorrow.

Participants assigned to the low level condition were asked to write about carrying out activities related to their goal:

In this section, please write about how you can specifically pursue your health goal tomorrow. Please be as detailed as you can in describing all of the behaviors associated with pursuing your goal. For example, if your goal is to run tomorrow morning, you might write about waking up early in the morning, getting out of bed, putting on your running clothes, and so on. Essentially, we would like you to describe all of the individual acts associated with keeping up with your goal for tomorrow.

In your writing today, try to focus objectively on your concrete action plans for tomorrow, rather than focusing on your broader thoughts or feelings about the goal.

In both conditions, participants were encouraged to write freely for approximately 15 min without worrying about grammar and spelling.

Table 1 Means and standard deviations of major study variables (Studies 1 and 2)

	Writing condition	
	Low level <i>M</i> (SD)	High level <i>M</i> (SD)
Study 1: Health goal		
Skill level	3.87 (.92)	3.87 (.97)
Pre-writing internalization	4.67 (4.18)	5.38 (4.25)
Post-writing internalization	5.31 (4.35)	5.62 (4.36)
Study 2: Academic goal		
ACT score	26.77 (3.70)	26.74 (3.99)
Expected GPA	3.52 (.35)	3.59 (.44)
Pre-writing internalization (T1)	.17 (4.33)	2.43 (4.04)
Post-writing internalization (T4)	1.71 (4.03)	2.23 (4.37)

Note: In Study 1, the low level $n = 45$, the high level $n = 45$; in Study 2, the low level n varies between 33 and 35, the high level n varies between 29 and 31, with the lower n associated with the expected GPA variable

Results and discussion

Preliminary analyses

Table 1 lists the means and standard deviations for all major variables in the study. At time 1, participants' mean rating of their level of skill to achieve their goal did not significantly differ between the two conditions ($t(88) = .00, p = 1.00$), nor did their level of internalization before ($t(88) = .59, p = .56$) or after ($t(88) = .11, p = .91$) the writing exercise. Between the two time points, internalization increased marginally significantly among participants overall ($M = 5.02, SD = 4.21$ for before, $M = 5.47, SD = 4.33$ for after, $t(89) = -1.93, p = .06$), although our hypotheses predicted change in internalization as a function of the interaction between skill level and writing level. There were no gender differences in skill or internalization (p 's $> .10$).

Interaction of level of writing by skill level

To test our primary hypothesis, we performed hierarchical linear regression analysis. In the first step, we regressed the post-writing internalization scores on the pre-writing internalization score, the main effects of condition, skill level (centered for this analysis), and gender (as a control variable).¹ At the second step, we entered the

¹ In Study 2, females and males differ in their level of internalization towards their academic goals at both times internalization was assessed. In Study 1, although internalization of the health goal did not vary by gender, we chose to include gender in the analyses to keep our analyses consistent. We note that results of Study 1 were essentially the same with or without the inclusion of gender as a control variable.

Table 2 Regression results predicting changes in the internalization of health goals (Study 1) and academic goal (Study 2)

	Study 1 Post-writing internalization β	Study 2 T4 internalization β	Study 2 Goal expectancy β
Step 1			
T1 internalization	.85***	.61***	–
Level of writing	.03	.08	–.09
Skill level	.08	.04	.54***
Step 2			
T1 internalization	.85***	.64***	–
Level of writing	.03	.08	–.09
Skill level	.08	–.06	.53***
Writing level \times skill	–.15**	–.23*	–.22*

Note: $\dagger p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. Study 1, $F(5, 82) = 59.97$, $p < .001$, $R^2 = .79$ at Step 2; Study 2 (internalization), Study 2 (internalization), $F(5, 62) = 9.93$, $p < .001$, $R^2 = .47$ at Step 2, Study 2 (goal expectancy), $F(3, 58) = 10.29$, $p < .001$, $R^2 = .35$ at Step 2

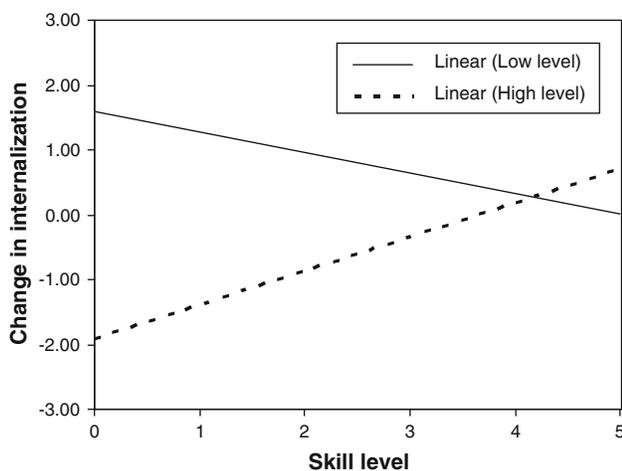


Fig. 1 Simple regression slopes of change in internalization (health goal) predicted by skill level for each writing condition (Study 1). Note: Although we used a hierarchical regression analysis to test the model, the figure displays data of the difference between pre- and post-writing internalization scores to better reflect the change in internalization over time

interaction term (condition \times skill level; $F(5, 82) = 59.97$, $p < .001$, $R^2 = .79$). Our results showed that the main effect variables were not significant (see Table 2), but that the interaction term was significant ($F(1, 82) = 8.66$, $\beta = -.15$, $p < .01$). Simple effects regression analyses supported our predicted pattern of relationships among the variables (see Fig. 1). In the high level writing condition, participants increased in internalization to the extent that their level of skill towards their health goal was high ($\beta = .23$, $p < .001$). Although skill level was not significantly predictive of change in internalization in the low level writing condition ($\beta = -.07$, $p = .43$), the relationship between the two variables is still negative, as we expected. Most importantly, the significant interaction

indicates that results were different in the two conditions, as a function of skill level.

Although this analysis supported the main hypothesis, the low reliability of the two internalization measures was a major concern in this research. Thus, a supplementary analysis was conducted to seek further support for the hypothesis. In this analysis, rather than using the internalization score computed based on the four motivation types (i.e., $2 \times$ intrinsic + identified – introjected – $2 \times$ external), we employed a measure of autonomous motivation, which comprised the mean of only the motivation types that represent the presence of autonomous motivation [i.e. (intrinsic + identified)/2]. Importantly, the reliability of the two-item measure of autonomous motivation ($\alpha = .62$ at T1, $\alpha = .77$ at T2) was superior to that of the initial measure.

The same hierarchical linear regression examining the original dependent measure was performed using this alternative measure of internalization, autonomous motivation ($F(5, 82) = 51.54$, $p < .001$, $R^2 = .76$ at the second step of the model). Consistent with the results of the original internalization measure, we found a significant effect of the interaction of level of writing by skill level on participants' autonomous motivation towards their health goal ($F(1, 82) = 4.47$, $\beta = -.12$, $p < .04$). Neither of the main effects were significant (p 's $> .98$). Furthermore, simple effects regression analyses of autonomous motivation yielded results consistent with the initial internalization measure. In the high level writing condition, participants' level of skill regarding their health goal predicted a marginal increased in autonomous motivation ($\beta = .11$, $p = .06$), while skill level among participants in the low level writing condition did not result in this trend ($\beta = -.11$, $p = .31$).

In sum, in Study 1, we examined health goals and found initial support for the idea that participants' level

of skill towards a goal interacts with the level at which they think about the goal. Thus, increasing internalization (or autonomous motivation) may require a proper match between the person's skill level and the type of cognition encouraged. Reflecting on the value and meaning of the goals may only benefit those who already feel competent and successful in pursuing their goals, whereas those who do not feel self-efficacious may benefit more from making a plan. Furthermore, we found evidence that individuals' level of internalization can be changed without the direct involvement of autonomy supportive figures.

Although this experiment provided tentative support for our predictions, we did not examine changes in internalization over a longer period of time. It is possible that the changes in internalization we observed in this study were relatively fleeting, as participants engaged in only one writing exercise and reported their internalization of the goal immediately following their writing. Furthermore, we only examined health goals and did not examine other types of goals. Thus, to increase the generalizability of our results and to replicate the findings of Study 1, in Study 2, we assessed individuals' internalization of their goal over almost 2 months. In this study, we followed the general protocol of studies that investigated the well-being and health benefits of expressive writing (King 2001; Pennebaker 1997; Smyth 1998) by having our participants write repeatedly over 3 weeks. We also investigated a different but still prominent and difficult personal goal that college students pursue—academic achievement.

Lastly, as an additional type of dependent measure, we examined participants' expectancies to succeed in their goal at the end of the study. Based on action identification theory's rationale for task performance, we reasoned that in a long-term pursuit of a goal, individuals' periodic assessments of their goal performance would be influenced by the match between their level of proficiency and level of goal focus. Specifically, individuals whose skill levels are mismatched to their level of goal focus would experience discomfort with their goal engagement, which may then lead to lower expectations about their success with the goal. Indeed, previous studies (e.g., Bandura and Schunk 1981; Houser-Marko and Sheldon 2008; Zimmerman and Kitsantas 1997) have demonstrated that when individuals are prompted to focus their attention on the appropriate level of the goal based on their concurrent level of skills, their positive expectancies about the goal increases. To measure this outcome, at the end of the study, we assessed participants' expected grades in their courses. Do they expect higher grades to the extent their assigned goal-cognition matches their aptitude level?

Study 2

In Study 2, all participants were asked to pursue the academic goal of “keeping up with schoolwork” because this is a goal that was relevant to all of our college student participants. As such, we expected that participation in this study would not present any additional complications or burdens to participants.

As noted above, Study 2 was a longitudinal experimental study investigating internalization of the goal over several weeks. This allowed us to examine temporal change in internalization over a more realistic frame of time, i.e., an academic semester. Participants completed three writing exercises over the first 3 weeks of the study, similar to studies on the expressive writing paradigm (see Pennebaker 1997). Near the end of the semester, we reassessed participants' internalization of their goal to determine whether any change occurred. Our hypotheses regarding change in internalization remained the same as in Study 1. Additionally, we hypothesized that an interaction of skill level and writing level would predict participants' expectancies about their semester grades, such that participants with lower skill would be more likely to report higher expected GPA after low level writing, whereas participants with higher skill would report greater expected GPA when matched with the high level writing condition.

Method

Participants

A total of 66 students (50 female, 16 male) from the University of Missouri-Columbia participated in the study (seven students were excluded due to missing ACT score). Of these students, 7.6% identified themselves as Black, 4.5% as Asian, 81.8% as White, and 6.1% as other. For participation, students received either a \$20 gift certificate to the university bookstore if they were recruited via a campus-wide email or course credit if they were recruited from psychology courses. The mean age of the participants was 19.80 (SD = 3.36).

Procedure

This study was longitudinal, with four time points (T1 – T4) of data collection, over a period of seven to 8 weeks. Similar to Study 1, all data collection was completed using on-line surveys emailed to participants at regular intervals throughout the semester. At T1, participants were first introduced to their goal for the semester (“keeping up with schoolwork”), which was followed by the PLOC measure to assess goal internalization. They then completed their first writing exercise, followed by

manipulation check items to ensure that participants followed the instructions for their writing. For two consecutive weeks after this initial survey (T2 and T3), participants repeated the 15-min writing exercise on the same topic. Four or 5 weeks later (T4), participants' level of internalization of the goal "keeping up with schoolwork" was measured again to examine changes since T1.

Measures

Skill level Participants were asked to report their ACT score to assess their academic aptitude. Unlike Study 1, in which participants' self-reported opinions about their skill level were employed, we chose to use participants' ACT score as a relatively objective measure of academic aptitude. Research shows that standardized college entrance exams, such as the SAT and ACT predict college performance even after controlling for socioeconomic status (Sackett et al. 2009) and general intelligence (Coyle and Pillow 2008).

Internalization To measure internalization of the academic goal, we employed the same PLOC procedure using the same items and calculation method as in Study 1. Participants were asked to consider why they pursued their academic goal by rating various reasons that reflect levels of internalization (i.e., external, introjected, identified, and intrinsic). Again, a score of internalization before (T1; $\alpha = .41$) and after (T4; $\alpha = .03$; see the "Method" section of Study 1 for an explanation about the low alphas) the writing exercises was obtained by subtracting ratings for external (double-weighted) and introjected motivation from ratings for identified and intrinsic (double-weighted) motivation. We again planned to examine autonomous motivation by itself. In our analyses, we examined the change in internalization and autonomous motivation between T1 and T4, similar to Study 1.

Goal expectancy At T4, participants were asked to list all of their current courses. For each course, participants reported the expected letter grade. These letter grades were converted into their respective point value, ranging from 0.0 (letter grade F) to 4.0 (letter grade A), according to the university's grade system. We then obtained participants' expected semester grade point average (GPA) by averaging across all of the courses for each participant.

The writing exercises To encourage engagement in the study, participants in both conditions were told that the writing exercises are designed to help them pursue their academic goal throughout the study period. Participants were asked to write for 15 min about their goal, once a week for 3 consecutive weeks. The instructions of the writing exercises were adapted from the traditional expressive writing paradigm instructions (Pennebaker 1997) and were conceptually similar to the instructions given in Study 1.

High level condition:

For today and once each week for the next 2 weeks, I would like you to write about your thoughts and feelings about your goal of keeping up with your class work. Doing your class work and other related coursework is not always enjoyable or meaningful, and often you must pressure yourself to do so. Even though class work can be difficult to keep up with, completing it is important. Explore possible benefits of completing your class work on time. Try focusing on how keeping up with your class work may be linked to broader life goals and personal values you may have.

Low level condition:

For today and once each week for the next 2 weeks, I would like you to write about your plans for the following day. For example, today, you are asked to write about your plans tomorrow. In your writing exercise next week, you will be asked to write about your plans for the following day, and so on. In your writing today, try to focus objectively on your plans, rather than focusing on any thoughts or feelings about tomorrow. Please be as detailed as you can.

Manipulation check After the first writing manipulation, to ensure that participants understood the instructions for the writing exercise, they were asked to rate two statements that probed the extent to which they wrote about the assigned topics. They included "I wrote about how meaningful and/or valuable the goal is" and "I wrote about my plans for the following day" (both on a 5 pt. scale, 1 = strongly disagree and 5 = strongly agree). As expected, participants in the high level condition reported significantly higher ratings for the first statement ($M = 3.94$, $SD = 1.03$ versus $M = 2.00$, $SD = 1.00$ for participants in the low level condition, $t(64) = -7.74$, $p < .001$), and participants in the low level condition reported significantly higher ratings for writing about their daily plans ($M = 4.77$, $SD = .43$, versus $M = 1.87$, $SD = 1.02$ for participants in the high level condition $t(64) = 14.68$, $p < .001$).

Results and discussion

Preliminary analyses

Table 1 lists the means and standard deviations for all major variables in the study. ACT score (i.e. academic skill) did not differ significantly between the two conditions ($t(64) = .03$, $p = .98$), nor did grade expectancies ($t(60) = .67$, $p = .51$). The mean level of internalization towards the academic goal, however, was unexpectedly

significantly different between the two groups at T1 ($t(63) = -2.28, p = .03$). Despite this apparent failure of random assignment, what matters for our hypotheses is change in internalization, not mean differences at any particular time. Between the two time points, internalization did not significantly increase among participants overall ($M = 1.11, SD = 2.70$ for T1, $M = 1.46, SD = 2.44$ for T4, $t(62) = -1.20, p = .23$); again, however, our hypotheses focused on change as predicted by the combination of skill level and writing level. We also investigated whether female and male participants differed in their ratings of the variables. Means for skill level ($M = 26.81, SD = 4.45$, for males; $M = 26.74, SD = 3.63$, for females) and the goal expectancy ($M = 3.59, SD = .36$, for males; $M = 3.54, SD = .40$, for females) did not vary by gender ($t(64) = .07, p = .95, t(60) = .39, p = .70$, respectively); however, internalization did differ. At T4, female students ($M = 1.78, SD = 2.33$) reported a significantly higher level of internalization ($t(62) = -2.06, p = .04$) compared to male students ($M = .33, SD = 2.50$). Although female students reported higher internalization at T1 ($M = 1.33, SD = 2.33$ versus $M = .13, SD = 3.87$ for male students), as well, the difference was not significant ($t(63) = -1.13, p = .28$). Due to this finding, we chose to control for gender in our subsequent analyses of change in internalization.

Interaction of level of writing by skill level

Internalization We followed a similar data analytic procedure for Study 2 as in Study 1. We performed a hierarchical linear regression in which we regressed internalization at T4 on internalization at T1, skill level, condition (level of writing) and gender (as a control variable) at the first step. Skill level, condition, and gender were all centered for the analyses. At the second step ($F(5, 62) = 9.93, p < .001, R^2 = .47$), we added the interaction term (condition \times skill level). As can be seen in Table 2, our hypothesis was again supported. The main effect variables at the first step were not significant at $p < .05$, but there was a significant interaction effect of skill level and condition (level of writing) on change in internalization ($F(1, 62) = 5.20, \beta = -.23, p = .03$). Simple effects regression analyses showed that for participants in the low level writing condition, skill level negatively predicted increase in internalization ($\beta = -.25, p = .11$), while it positively predicted an increase in internalization for participants in the high level writing condition ($\beta = .18, p = .20$), although both effects were non-significant (see Fig. 2).

Similar to Study 1, the reliability of the dependent measure of internalization in Study 2 was quite low. Thus, a supplementary analysis is again presented using autonomous motivation [i.e. (intrinsic + identified)/2], which

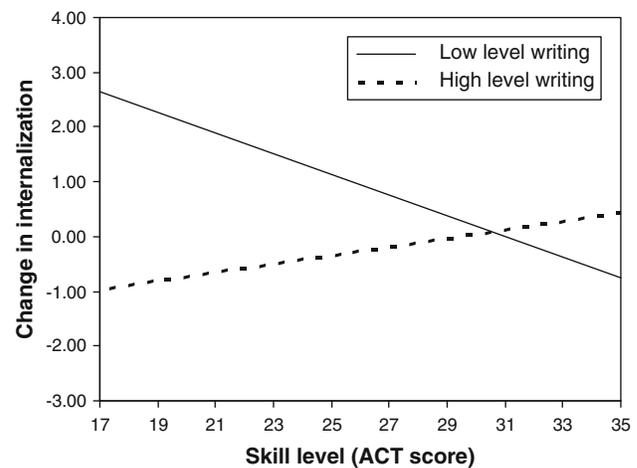


Fig. 2 Simple regression slopes of change in internalization (academic goal) predicted by skill level (ACT score) for each writing condition (Study 2). *Note:* Although we used a hierarchical regression analysis to test the model, the figure displays data of the difference between pre- and post-writing internalization scores to better reflect the change in internalization over time

demonstrated greater reliability (T1 $\alpha = .61, T4 \alpha = .72$) compared to the initial measure of internalization. The same hierarchical linear regression examining the original dependent measure was performed on autonomous motivation ($F(5, 62) = 8.16, p < .001, R^2 = .42$ at the second step of the model). Consistent with previous results, the interaction term of level of writing by skill level on participants' significantly predicted participants' autonomous motivation towards their academic goal ($F(1, 62) = 7.10, \beta = -.28, p = .01$) while the main effects were not significant (p 's $> .41$). Simple effects regression analyses showed that in the high level writing condition, participants' level of skill positively, although not significantly, predicted an increased in autonomous motivation ($\beta = .28, p = .18$), while skill level among participants in the low level writing condition negatively predicted autonomous motivation across time ($\beta = -.33, p = .03$).

Goal expectancy To test our hypothesis that the interaction of skill level and condition predicts expected GPA, we performed another hierarchical regression analysis in a similar fashion to the previous regression analyses. Expected semester GPA was regressed on the main effects of skill level (ACT score) and condition (level of writing) in the first step. Then the interaction term (condition \times skill level) was added in the second step ($F(3, 58) = 10.29, p < .001, R^2 = .35$; see Table 2). Although the main effect of skill level significantly predicted expected semester GPA, it was qualified by the significant interaction term ($F(1, 58) = 4.10, \beta = -.22, p = .05$). Simple effects regression analyses examined the relationship between skill level and expected GPA for each condition separately. We found that for both groups of

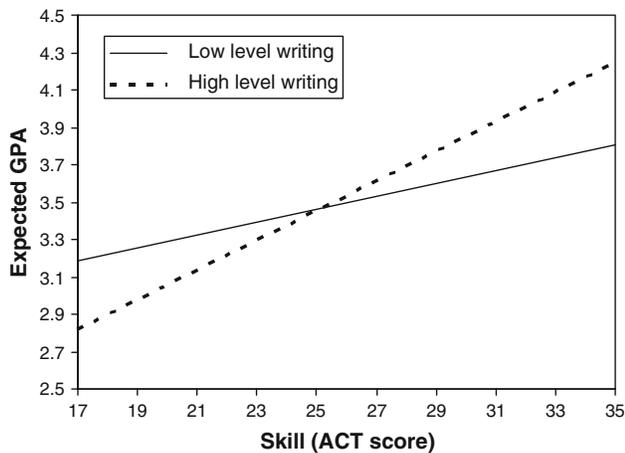


Fig. 3 Simple regression slopes of goal expectancy (expected semester GPA) predicted by skill level (ACT score) for each writing condition (Study 2)

participants, skill level (ACT score) significantly and positively predicted participants' expected GPA ($\beta = .36$, $p = .04$, for low level writing; $\beta = .71$, $p < .001$, for high level writing); thus, academically proficient students generally expect to receive higher grades. However, as shown in Fig. 3, it appears that participants with low skill level reported higher grade expectancies if they were in the low level writing condition versus the high level writing condition. In contrast, participants with high skill level reported higher grade expectancies if they were in the high level writing condition versus the low level writing condition.

To summarize, Study 2, which focused on academic goals, found results consistent with Study 1, which examined health goals. In Study 2, participants who are less academically proficient were more likely to benefit, in terms of autonomous motivation and positive expectancies, from lower level writing about their academic goal; that is, it may be better for these individuals to focus on the technical details of carrying out their goal. Attempting to increase internalization by actively encouraging these individuals to think about the goal at a higher level may backfire. Simultaneously, our results suggest that individuals who are more academically competent may not internalize their academic goal if they are instructed to think about their goal at a lower level.

General discussion

At times, it is impossible, or at least very difficult, to abandon an important goal, however, tedious or unpleasant it may be. A college student might prefer to socialize with friends on a weekday evening rather than go to the library to study for an exam, but she has to “hit the books” if she

wants to maintain her GPA. Similarly, an individual with a weight loss goal cannot afford to give into his bingeing impulses. In such situations, how can individuals better cope with their difficult, but ultimately personally beneficial, goals?

We attempted to answer this question by examining how individuals' motivation may be improved by matching an appropriate level of goal focus to their initial level of skill. The logic of our investigation was based on two distinct perspectives on self-regulation—self-determination theory and action identification theory—allowing us to better understand how level of goal focus and level of skill interact. According to our data, increasing internalization of difficult goals depends on at least two important factors: the level at which individuals think about their goals (i.e., high and abstract vs. low and concrete) and the skill proficiency level and aptitude that individuals possess. When individuals have adequate skills to carry out a goal and are encouraged to focus on their goal at a more abstract, meaningful level, rather than at a concrete, detailed level, their motivation receives a boost. In contrast, when individuals are not sufficiently prepared to carry out the tasks associated with the goal, they benefit when they focus on the technical aspects of accomplishing the associated tasks. Thus, in order to enhance one's goal pursuits, it is not as simple as concentrating on the big picture, or merely concentrating on the small, concrete steps needed to achieve the goal. It depends on the person's current level of competence.

Applying action identification theory to autonomous motivation

Why do individuals fail to benefit when their level of writing and skills are mismatched? According to action identification theory (Vallacher and Wegner 1987) how individuals cognitively represent their behavior influences how they engage in that behavior. Individuals' level of skill in performing the given behavior plays a moderating role in the relationship between the cognitive representation and the subsequent behavior engagement and performance. Experimental research on the optimality hypothesis (Vallacher et al. 1989) of action identification theory suggests that a mismatch in level of identification and the difficulty of the task interferes with effective engagement with the task. When the level of identification is high for difficult tasks, individuals are distracted from attending to the concrete steps that enable them to complete the task. On the other hand, when the task at hand is familiar and easy, a low level identification engenders unnecessary focus on the technical and concrete details and ultimately disrupts a smooth flow of action.

The current set of results is consistent with action identification theory's view on the association between identification and behavior. Individuals who are already skilled at pursuing their goal are likely already proficient at managing the small sets of tasks associated with their goal. Thus, reflecting on aspects of their goal that they are successful in managing may be inappropriate and may present distractions from an otherwise easy task. They are better off moving their attention "up" the action hierarchy, to the "why" of goals. In so doing, they can better appreciate and consolidate their own motivations for striving, which may then re-energize them towards the goal. In contrast, for individuals who lack the appropriate skills, a focus on the broader implications of their goal and its value and importance may distract them from attending to the subsets of activities that are smaller in scale and more manageable. They are better off keeping their attention "down" in the action hierarchy, at the "how" of goals. In so doing, they may also better appreciate and consolidate their motivations for striving, leading to a more coordinated and fluid set of actions in maintaining the goal. Stated differently, low-skill individuals may be better off "keeping their nose to the grindstone" and high-skill individuals may be better off "keeping their eye on the prize" (Houser-Marko and Sheldon 2008).

In sum, the results suggested that there is no "one-size-fits-all" intervention that all individuals can apply to their goals to reap motivational benefits. Furthermore, it may be possible for individuals to reaffirm the importance and value of their personal goals on their own, without the intervention of autonomy supportive figures. In previous research, individuals' experience of autonomy has been viewed as a result of the presence of caring and knowledgeable others who communicated the importance of tasks or behaviors in multiple domains (health, sports, school, work; Assor et al. 2002; Black and Deci 2000; Guay et al. 2001; Joussemet et al. 2005; Reeve et al. 2002; Soenens and Vansteenkiste 2005; Williams et al. 2002; Williams et al. 2006; Zeldman et al. 2004). While not denying the importance of autonomy support, the results of this study suggest that individuals also have the capacity to self-catalyze the internalization of their own motivations. Thus, our study adds to the existing information about the facilitation of autonomous motivation by demonstrating that individuals may have also the capacity to facilitate their autonomous motivation through an internal cognitive process. Our results also demonstrated that participants whose writing level matched their skill level reported higher expected grades for the semester compared to participants whose writing levels were not matched with their skill level. These results are consistent with previous research examining goal level focus and expectancy. Studies show that students who are given a novel or

difficult task express higher expectations that they will succeed when their concrete and proximal focus, rather than an abstract and distal focus, is facilitated (Bandura and Schunk 1981; Zimmerman and Kitsantas 1997). Thus, in addition to influencing internalization of one's personal goal, an appropriate match of writing level with skill level may increase one's optimism about successfully accomplishing personal goals. Hopefully, future studies can corroborate this finding with objective performance data, as well.

Limitations and future directions

The studies were advertised to participants as examining how individuals pursue goals and become more motivated. Also, participants were asked to rate their motivation before and after the writing manipulations. For these reasons, it is possible that demand characteristics were present in the studies, particularly in Study 1, in which participants made ratings immediately prior and after their writing exercise. However, the results demonstrated an interaction, which cannot be explained solely by the demand characteristics which were the same for all participants. Nonetheless, the possibility of demand characteristics is important to note, especially for studies examining self-reported changes in perception and motivation.

Additionally, the fact that skill in each study was assessed using previously untested single-item measures should be noted. Although these items were chosen for their face validity in assessing skill, reliability and construct validity are unknown. Also, participants' responses to a question about their skill could reflect general personality tendencies, such as general optimism or constructs related to self-regulation, such as impulse control or will-power. Future research should consider assessing measuring skill with improved specificity to avoid these limitations. For example, a measure of participants' skill level towards their personal goals could be adapted from the measurement of task difficulty used in research on the action identification theory (Vallacher and Wegner 1987) and assess goal difficulty, goal familiarity, and goal complexity. Another measurement limitation concerns the PLOC assessment, which yielded unusually low alphas due to the positive correlations between identified and introjected motivation. We suggest this resulted from our study design which focused on goals thought to arouse ambivalence. Goals such as "exercise more" or "eat less" (Study 1) or to "keep up with your schoolwork" (Study 2) may be characterized by strong autonomous *and* controlled reasons, attenuating the typical negative correlation and reducing reliability. Additionally, the low alphas may have resulted from our reliance on a single item to tap each PLOC dimension, in contrast to previous research that

assessed PLOC across multiple goals (Sheldon and Elliot 1999; Sheldon and Houser-Marko 2001; Sheldon and Kasser 1998). Although the measure still yielded predicted results, future research on this topic should consider using more reliable scales of motivation (see Grolnick et al. 1991; Ryan and Connell 1989; Ryan et al. 1995).

Finally, we did not examine concrete performance outcomes in these studies; instead, we focused on changes in internalization, which have been shown in the past to predict goal performance (Sheldon and Houser-Marko 2001). Because action identification theory specifically examines performance as a result of the optimal match between task difficulty and level of identification (Vallacher et al. 1989), further research can examine whether internalization or autonomous motivation mediates the optimal match in difficulty and identification to performance outcomes. Thus, future studies could broaden the range of dependent measures examined within our writing intervention paradigm to test such a model. Adding performance outcomes that are relevant to the goal domain, such as GPA and other indicators of academic achievement for academic goals or improved health, weight loss, improved diet for health goals, would enhance our understanding of the extent to which changes in internalization would further result in changes in performance.

Conclusion

These studies provide a new type of support for hierarchical models of action control, by showing how important it is to focus one's goal attention at the right level of abstraction, given one's current abilities. Doing so can boost the quality of one's goal-motivation, as well as the quality of one's goal-expectancies. To return to the title of this article: Should goal-strivers think about "why" or "how" to strive? It depends on their skill level; that is, individuals who are highly skilled may benefit more to the extent they focus on the "why" of the goal, whereas those lacking skill may be better off attempting to master the "how" of the goal.

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