

INTERNALIZING INTROJECTED GOALS THROUGH
REFLECTIVE WRITING

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ABSTRACT

How do individuals internalize goals that are self-set? Research on this topic is rather limited, and this study examined whether writing exercises that encourage self-reflection about an academic goal would increase internalization towards the goal, as compared to writing about a control topic (daily plans). Participants ($n = 104$) were assigned to write about one of the topics once a week for three weeks, but results show no main effect differences between the two writing conditions in increase in internalization or other goal outcomes. Further analyses revealed that the self-reflective writing may be beneficial to individuals with higher ACT scores. The importance of the match between goal level and skill level is discussed.

Internalizing introjected goals through reflective writing

Humans are goal-driven. Almost any conscious behavior can be described in terms of goals. For example, many of us start out each workday with set goals for taking care of our hygiene, going to work on time, accomplishing work tasks, eating food, and so forth. Without specific goals to guide our actions throughout the day, we are less likely to be motivated towards these behaviors (Locke & Latham, 1990). In addition to generating motivation, goals also influence our psychological well-being (Emmons, 1986).

Successful pursuit of personal goals can lead to a variety of psychological benefits, such as greater positive affect and life satisfaction (Emmons, 1986). Because goals guide our behavior and have implications for our psychological functioning, much research has focused on aspects of goal pursuit, such as implementation intentions (Gollwitzer, 1999), level of goal focus (Emmons, 1992; Vallacher & Wegner, 1987), goal specificity (Locke, Shaw, Saari, & Latham, 1981), and goal ambivalence or conflict (Emmons, 1986; Emmons & King, 1988) that predict goal success and other positive outcomes.

In addition to goal attributes and strategies for successful goal pursuit, the quality or type of motivation that individuals expend towards their goals is also thought to be critical, according to self-determination theory (SDT; Ryan & Deci, 2000). Self-determination theory 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 & Deci, 2000). For example, a student is autonomously motivated in pursuing academic excellence when she has a 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.

Self-determination theory (Ryan & Deci, 2000) proposes that to advance from controlled to autonomous motivation, individuals must internalize the particular task, behavior, or goal. Internalization is defined by SDT as the process of incorporating previously external beliefs or externally motivated behaviors into one's own endorsed set of beliefs and behaviors (Ryan, 1995). Internalization lies along a continuum and varies with controlled and autonomous motivation (Ryan, 1995; Ryan & Deci, 2000; 2002). At one end of the internalization continuum is external regulation, which characterizes motivation that is solely responding to external demands and rewards. Introjected motivation involves more internalization than external motivation and is marked by self-pressured control, ego-involvement, and an internal reward and punishment system. When the individual sees the positive attributes of goals or tasks and begins to be motivated by the tasks' importance or personal relevance, identified motivation is at work. The individual may still perceive the tasks as difficult, but he is encouraged by the value of the goal rather than compelled by guilt or threats to self-esteem. Beyond these three subtypes of extrinsic motivation is intrinsic motivation, which does not require internalization. Rather, intrinsic motivation occurs as a result of inherent interest, enjoyment, and satisfaction derived from the target behavior.

Research to date supports SDT's view that autonomous, or more internalized motivation is linked to a variety of benefits. With autonomous, rather than controlled, motivation, individuals are more likely to persist in their efforts, succeed in their activities, and as a result, experience greater subjective well-being (Ryan & Deci, 2000).

Consistent findings have been reported in other domains, such as the school setting (Grolnick & Ryan, 1987; 1989), regarding health behaviors (Williams, 2002), and the workplace (Deci, Connell, & Ryan, 1989). In the area of personal goals, positive outcomes have also been reported for those who approach their goals with autonomous motivation. Those who are autonomously motivated report greater effort, progress, and subjective well-being (Sheldon & Elliot, 1998; Sheldon & Elliot, 1999).

Taking these perspectives on goals and motivation, the current study investigated the problem of personal goals that are difficult to work toward. Obviously, not all goals are easy to pursue—regular exercise and strict diet goals are notorious examples of difficult goals. We often have to deal with goals that are not naturally fun, such as completing tax returns, cleaning the house, and even going to work. Many of these goals are practical or otherwise important, and simply discarding these goals may not be an option. Although individuals often resort to controlled motivation, such as guilt or self-pressures to accomplish these tasks, SDT argues that more autonomous forms of motivation, such as identified motivation, will result in greater goal success and other psychological benefits (Sheldon & Elliot, 1998; 1999). As mentioned above, individuals who pursue their goals for autonomous, rather than controlled reasons are more likely to persist in the face of obstacles (Sheldon & Elliot, 1999). Given the importance of autonomous motivation to goal attainment, it follows that research should focus on factors that encourage autonomous motivation in individuals. To this endeavor, SDT has mainly focused on environmental support of individuals' autonomy. An impressive array of studies demonstrates the significance of important figures in one's social atmosphere, such as parents, teachers, significant others, and so on, on individuals' experience of autonomy

(Deci, Driver, Hotchkiss, Robbins, & Wilson, 1993; Deci, Eghrari, & Leone, 1994; Koestner, Ryan, Bernieri, & Holt, 1984; Grolnick, & Ryan, 1989; Reeve, Jang, Hardré, & Omura, 2002; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004).

A common theme that runs through these studies is that autonomy support is integral to increasing individuals' autonomous motivation towards any type of behavior.

According to SDT, autonomy support is crucial in individuals' psychologically healthy development. Autonomy support is what allows individuals to internalize a multitude of behaviors that are originally uninteresting or undesirable (Ryan, 1995).

Developmentally, many behaviors that are now familiar to us, such as taking care of personal hygiene or obeying traffic laws, once began as societal expectations that some authority, such as parents or law enforcement, prescribed to us. Although many behaviors that we engage in everyday probably began as societal prescriptions, we also engage in behaviors that we ourselves have chosen. As much as we obey laws, we also formulate personal endeavors, such as meeting new friends, learning about new hobbies, recycling, and so forth that we spend much of our energy accomplishing.

So what about goals that are initiated by individuals themselves, i.e., personal goals? How do individuals increase internalization for goals that are self-set? For these goals, autonomy support is less relevant, because these goals are not necessarily prescribed by some authority. If autonomy support is not available to foster individuals' feelings of autonomy towards these behaviors, what method can individuals use to increase their autonomous motivation towards their difficult-to-pursue goals, assuming that these are important goals that cannot be easily discarded? According to SDT, the difference between an autonomously motivated activity and a control-motivated activity is the

individual's perception of it (Ryan & Deci, 2000). If autonomous motivation hinges on individuals' perception of their goal or behavior, it follows that change in perception should lead to change in internalization of the goal or behavior. Thus, in the current study, I examined whether participants' perceptions about their goals can be changed by encouraging them to think more deeply about their goals. Particularly, the main purpose of this study was to increase internalization of participants' goals by having them generate reasons why their difficult goal is meaningful and valuable. One way to foster a more autonomous reframing of goals or tasks is by emphasizing these goals' importance and relevance to one's core values and life goals. Research shows that when individuals understand the importance of a goal, even when the goal is inherently unappealing, they approach the goal with more effort and engagement (Assor, Kaplan, & Roth, 2002; Reeve, Jang, Hardré, & Omura, 2002).

A couple of studies support the logic of an intervention in which participants are encouraged to produce more autonomous reasons for a difficult personal goal. Sheldon, Kasser, Smith, and Share (2002) examined an intervention geared to increase individuals' success on their personal goals. In the study, participants focused on important but difficult to implement personal goals. In the experimental condition, participants were asked to use specific strategies to increase their internalization of their goals, such as thinking about the meaningfulness of the goals and the goals' links to the "big picture" of what was ultimately important to the participants. Results showed that individuals who began the study with greater personality integration and coherence benefited the most from the intervention by making progress on their goals. The idea of "owning" one's goals was also examined in a study in which participants were asked to generate a list of

reasons why they would *want* to perform obligations that are typically characterized by feelings that they *should* or *ought* to fulfill these obligations (Berg, Janoff-Bulman, & Cotter, 2001), similar to behavior that is performed with introjected motivation. Findings revealed that the extent to which individuals spontaneously provided more autonomous reasons for “should” goals predicted well-being measures such as life satisfaction. More importantly, this study highlights the possibility that individuals are able to generate autonomous reasons for typically undesirable obligations. This is crucial, because internalizing a goal first requires the ability to generate autonomous reasons for typically undesirable tasks. Furthermore, coming up with autonomous reasons in this study did not require autonomy support from another person.

In addition to encouraging individuals to “own” their goals, the proposed process supposes that providing rationales for one’s goals by considering the importance and the value of the goals fosters internalization. Past SDT research suggests that understanding the rationale behind a task or behavior is one of the components of experiencing autonomy (Deci, Eghrari, Patrick, & Leone, 1994; Assor, Kaplan & Roth, 2002). For example, in a study of school children, Assor et al. (2002) showed that teachers who explained the relevance of school activities were also more likely to report positive feelings towards schoolwork as well as greater behavioral and cognitive engagement with their work. In fact, explaining relevance of schoolwork, rather than providing choice or being sensitive, uniquely predicted behavioral and cognitive engagement with schoolwork, supporting the authors’ hypothesis that “choice is good, but relevance is excellent” (2002; title, p.261).

The Intervention: Adapting the Expressive Writing Paradigm

In conceptualizing an intervention for this study to test the idea that a reflection of the goal's importance and value would lead to greater internalization, I focused on three important aspects that would facilitate internalizing goals while being practical, given the limitations of the study. First, the intervention had to be shorter and more manageable compared to an intervention such as the one Sheldon et al. (2002) used. In Sheldon et al.'s study, participants met with counselors in a focus group as well as individually. I aimed to implement an intervention that didn't require participants to meet with goal counselors and is less time-consuming. Second, the intervention had to encourage students to *really think about their goals*. If changes in perceptions lead to changes in internalization, the intervention should require participants to reflect deeply about their goals. The third aspect of the intervention is closely tied to the second aspect. While participants thought about their goals, the intervention had to allow participants to integrate their thoughts about the goals in a coherent, meaningful way. Through self-organizing thoughts about their goals, the participants could arrive at discovering the importance, self-relevance, and value of their goals.

An experimental manipulation that captured these aspects of the ideal intervention is the expressive writing paradigm (Pennebaker, 1997). In this paradigm, individuals write about a personally important topic (i.e., traumatic experiences, best possible self, intensely positive experiences; Burton & King, 2004; King, 2001; Lumley & Provenzano, 2003; Pennebaker, 1997; Smyth, 1998; Stone, Smyth, Kaell, & Hurewitz, 2000) repeatedly over a period of time, typically for 15-20 minutes at a time. Studies of expressive writing have found that positive outcomes, such as greater physical health, as

well as greater psychological well-being, have been associated with writing about these topics. Reduced distress, for example, is one such outcome of expressive writing (Smyth, 1998). In addition to health benefits, higher GPA has also been shown to result from writing about stressful events among college students (Lumley & Provenzano, 2003).

Pennebaker (1997) speculates that writing changes an individual's cognition about the essay topic. Furthermore, these changes are thought to result from constructing coherent narratives about oneself. Writing in a narrative format rather than writing in a fragmented style may be necessary for benefits (Smyth, True, & Souto, 2001). A previously fragmented and disorganized memory about a traumatic experience may become more coherent and less disorganized. Writing about a personal topic may be a way to self-organize and gain insights about the self, possibly in many other domains where self-organization is important, such as goal setting (King, 2001). These aspects of expressive writing provide an excellent opportunity for individuals to self-organize and integrate thoughts about their difficult goals as well as about the traditional expressive writing topics. Having goals that are concordant with one's self and values is a hallmark of more autonomous behavior regarding the goal (Ryan & Deci, 2000; Sheldon, 2002). Thinking about why one exercises or goes to church is way to sort out priorities and rediscover the value of keeping up with goals that are often marked by inner conflict.

Besides promoting self-organization, the writing exercise is a promising method to study internalization for a practical reason, as well. Constructive *reflection*, or thinking deeply about the importance and relevance goals or tasks, can foster internalization, but such reflection may be difficult in a lab setting. Writing is a concrete way to keep participants focused on their reflection, because it requires some degree of concentration

on a given topic and also gives a final “product” or a record of the content of what the participant thought about. Writing is a “thoughtful” activity, and because it requires focused concentration, using writing exercises seems to be a promising way to investigate the possibility of internalization without direct autonomy-support.

Testing the Intervention: The Three Writing Conditions

To test the idea that reflecting on the relevance and importance of difficult, self-pressured goals leads to the internalization of those goals, three writing conditions were compared. The first condition tested the relationship between self-reflective writing and internalization. The remaining two conditions, the daily plans condition and the goal implementation condition, served as controls and to rule out possible confounds associated with the first condition.

The experimental condition, the values/meaning reflection condition, asked participants to write about why they are pursuing a self-pressured goal, particularly focusing on how the goal is beneficial for the participants in the long run. Participants were asked to reflect on how their difficult goals express their core values, and how they are connected to greater life-goals. Literature on goals (Carver & Scheier, 1990; King, 1998; King, Richards, & Stemmerich, 1998) suggest that to some extent, the meaning and value of mundane, everyday goals or tasks increased when examined in the context of larger, broader goals that are connected to these lower-level goals.

The daily plans condition asked participants to write about a neutral topic, such as their plans for the following day, thereby controlling for writing or thinking about goals in general. This is a common control topic that has been used in studies of expressive writing (King & Miner, 2000; Pennebaker, 1989). In this condition, participants were

instructed to only write about their plans; thus excluding the possibility that they wrote extensively about their goals. Thus, participants in this condition were not expected to change their thoughts about their goal or their perceived reasons for being motivated towards the goal throughout the study.

The goal implementation condition contrasted the experimental condition by having participants think constructively about their goal in a way that is not expected to foster internalization. This condition tested the possibility that internalization occurs with any constructive thoughts about the goal, rather than specific thoughts on the goal's importance, meaning, and value. In this condition, participants were asked to think about the "how," rather than the "why" of their goal by focusing on implementation intentions of the goal. Gollwitzer's (1999) studies on implementation intentions show that when individuals form action plans of their goal by thinking of situations where they might pursue the goal, individuals' success rate is greater compared to simply having an intention to pursue the goal. Implementation intentions work by increasing action initiation towards goal pursuit when the situation cues are appropriate (Gollwitzer & Brandstaetter, 1997). Given the right cues from the environment, individuals will automatically act. This kind of a process is fundamentally different from the values/meaning reflection condition, which is inherently based on thinking about what the goal means to the individual. In sum, the goal implementation condition as a control to the experimental condition allows a test of values/meaning reflection as the appropriate proactive type of thinking involved in internalization.

Assigned academic goal. All participants were asked to pursue the academic goal of "keeping up with schoolwork." This goal was chosen, because a) it is a goal that is

relevant to all participants, who are college students, and b) controlled motivation is thought to be more common with academic goals, compared to other personal goals, as implied by the abundance of research on motivating students to perform in schools (e.g. d'Ailly, 2003; Ryan & Grolnick, 1986; Skinner & Belmont, 1993; Vallerand, Fortier, & Guay, 1997). Moreover, pilot data confirmed that students report significantly lower internalization of academic goals than relationship or self-growth goals (Ferguson, 2005; unpublished data), suggesting the possibility that it could be further internalized.

Furthermore, “keeping up with schoolwork” is a concrete *program-level goal* that is appropriate for the relatively short-term nature of this study. Program goals are “do” goals that keep up principle goals (Carver, 2003; Carver & Scheier, 1990). Principle goals represent broad, personal striving goals, such as “be kind to others,” and are not specific enough for the current study. Rather, goals that are manageable and clear, such as program level goals, are better suited for the current study.

Possible Moderators and Mediators

As demonstrated in Sheldon et al. (2002), certain individual traits, such as a person’s general level of personality integration, affects the benefits associated with interventions. Possibly, interventions are only effective to the extent that individuals are “ready” for them. For this reason, in the current study, the influence of three moderators and two mediators on internalization will be tested in this study. The three moderators include individual differences in functioning autonomously (trait self-determination), general test anxiety, and trait perfectionism. The two mediators include ratings of meaningfulness of and engagement in the writing exercises.

Trait self-determination, which represents individuals' autonomous orientation, was chosen because it could influence the process of internalization. As mentioned earlier, those with greater personality integration were more responsive to the resources provided the intervention to pursue their goals in the study conducted by Sheldon et al. (2002). The current study predicts that those who are higher in autonomy orientation are more likely to internalize their academic goal, particularly those in the self-reflection condition.

The second moderator, perfectionism, is thought to influence how individuals internalize and accomplish goals, because individuals who strive towards perfectionism are more likely to be achievement oriented in general and to take the intervention more seriously. Two dimensions of perfectionism in particular, Personal Standards and Organization, are thought to be associated with positive achievement striving (Frost, Marten, Lahart, & Rosenblate, 1990). Personal Standards involves setting very high standards for oneself and using these high standards to self-evaluate. Organization involves preference for order in general. Both Personal Standards and Organization are correlated with conscientiousness (Cox, Enns, & Clara, 2002), suggesting that these two dimensions may be important in achievement settings. Although individuals who have high expectations of themselves and are purposeful and organized might be better suited to achieve academic goals, only those who are offered constructive ways to pursue goals by being placed in the self-reflection condition and goal implementation condition may benefit. Participants who are high in these two perfectionism dimensions were predicted to take advantage of writing topics of these two conditions. They are more likely to take the study and the intervention seriously than those who are low in these dimensions. Also, these participants in the goal implementation condition are not predicted to

internalize their goal, although it is possible that these participants may report greater success in their goal.

The two mediators that I wish to investigate are the meaningfulness of the writing exercise and participants' engagement in the writing exercise. First, *engagement* in the writing exercise must occur for participants to truly explore their thoughts about the goal. Second, akin to engagement, perceived *meaningfulness* of the writing task should be important in how participants incorporate the writing task into their lives. An exercise that is not meaningful should not change how individuals think about the writing topic. The idea that engagement and meaningfulness of writing tasks would mediate between writing and benefits is not new. These factors are thought to be important for benefits resulting from expressive writing (King, 2001); thus, in the current study, they are expected to be positively related to internalization.

Other Relevant Variables

In addition to these mediators, I examined the content of the essays. Pennebaker, Mayne, and Francis (1997) found that the use of certain types of words is associated with greater physical health. High use of positive words and moderate use of negative words, for example were found to increase health. Other types of words that are relevant to this study are causal, insight, and optimistic words. Because the relationships between these types of words and internalization have not been examined in any previous study, exploratory analyses examined whether the content of the goal essays mediate the relationship between the writing conditions and internalization. No specific hypotheses about content and internalization were made in this study.

Another variable relevant to this study is general test anxiety. In this study, improvement in grades is one important indicator of success and progress of the introjected goal. One variable that is pertinent to this indicator is test anxiety, which has been shown to predict lower grades among students (McIlroy, Bunting, & Adamson, 2000). Goal-rating variables such as progress and success provide other indications that focused reflection is helpful in pursuing goals in general. For students with high test anxiety, this relationship may not be detected, if their lower performance in grades is due to anxiety. Thus, test anxiety was measured so that this factor can be controlled for in the data analyses. Along with essay content, no specific hypotheses were made regarding test anxiety.

Predictions

The main hypothesis predicted that students asked to self-reflect by writing about the relevance, importance, value, and meaning of the goal, will show a greater level of internalization and autonomous regulation towards the goal, compared to students who write about implementation strategies or about daily plans. Participants in the self-reflection condition were also predicted to report greater levels of positive outcomes regarding goal progress, mood associated with goal, meaningfulness of the goal, and expectation of attaining the goal (i.e., goal expectancy). There were no specific hypothesis comparing the goal implementation condition to the daily plans condition regarding internalization; however, I expected that participants in the goal implementations condition might report more positive outcomes, such as goal progress, compared to the control condition.

In addition to the main hypotheses, I also predicted that some factors would interact with condition in predicting internalization of the goal and other goal ratings. First, self-determination level was predicted to interact with condition such that those high in self-determination will be especially likely to internalize goals when they were also in the self-reflection condition. This is a further test of the finding that those who are more prepared to benefit from interventions are more likely to further internalize their goals (Sheldon et al., 2002). Second, dimensions of perfectionism, specifically Personal Standards and Organization, were also predicted to interact with condition. Those high in both dimensions of perfectionism will be more likely to be successful in their goal pursuit when they are also in the self-reflection and goal implementation conditions, not the daily plans condition. Also, those high in the dimensions are more likely to internalize their goals if they are also in the self-reflection condition. The last hypotheses predicted that the meaningfulness of the writing exercise and the degree of engagement in the exercise will mediate the relationship between condition and internalization of the self-pressured goal. Specifically, those in the self-reflection condition will find their writing exercise to be more meaningful and more engaging than those in the control conditions. Meaningfulness and engagement, in turn, will both be positively related to internalization of the self-pressured goal.

Method

Participants

A total of 110 students from the University of Missouri-Columbia participated in the study. Out of these, data from 104 (74 female, 30 male) students who completed all parts of the study were examined. Of these students, 6.7 percent identified themselves as

Black, 6.7 percent as Asian, 1.0 percent as Hispanic, 79.8 percent as White, and 5.8 percent as “Other.” Seventy-eight students in the sample were recruited through a campus-wide email and were offered \$20 gift certificates to the university bookstore. The remaining 26 students were recruited from the introductory psychology course participant pool and received course credit for participation. The mean age of the participants is 19.82 ($SD = 2.92$).

Procedure

This study was longitudinal, with four time points (T1 – T4) of data collection, over a period of seven to eight weeks. At T1, participants completed some baseline measures of well-being, mood, and trait self-determination. They were then introduced to their goal for the semester, “keeping up with schoolwork,” and their initial level of autonomous regulation towards this goal was measured. The participants then wrote for 15 minutes on one of three topics: self-reflection of the goal, goal implementation strategies, or plans for the following day. Lastly, mood was measured again, along with some manipulation check items. For two weeks after this initial survey (T2 and T3), participants repeated the 15-minute writing exercise on the same topic, along with the same mood items before and after the writing. Four or five weeks later (T4), participants’ level of autonomous motivation towards “keeping up with schoolwork” was measured, as well as well-being, mood, and progress and attainment ratings of goals.

Measures

Baseline measures. These measures include the Positive and Negative Affective Scale (PANAS; Watson, Tellegen & Clark, 1988), the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffith, 1985), and the 4-item Subjective Happiness Scale

(Lyubomirsky & Lepper, 1999) that assesses dispositional happiness. For all of these measures, participants were asked to reflect back on their past month for their ratings, which were all on a 5-point Likert scale format (1=Strongly disagree to 5=Strongly agree).

The writing exercises. To encourage engagement in the study, participants in all three 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 minutes 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). All participants were asked to focus on writing continuously for 15 minutes. Below are the writing prompts for each condition. Only parts of the instructions that are distinctive about each condition are presented.

Self-reflection condition:

For today and once each week for the next two 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.

Daily plan (control) condition:

For today and once each week for the next two 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.

Goal implementation condition:

For today and once each week for the next two weeks, I would like you to write about your goal of keeping up with your class work. Doing your homework, taking exams, writing lengthy papers 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. In this writing exercise, discuss how, when, and where you will be pursuing your goal of keeping up with your class work.

Focus on 3 aspects of pursuing your goal. First, how, or in what way, will you try to keep up with class work? Second, when or how often will you be doing something keep up with class work? Third, where will you be keeping up with class work?

For the next two weeks, you may write the same things you have written today, or you may explore new ways you could approach your goal of keeping up with your homework.

Manipulation checks. Several questions followed each writing exercise which probed the extent to which participants followed directions and wrote about the assigned topics (e.g., “To what extent did you write about plans for the following day?”). Participants were also asked to rate whether the writing was meaningful and engaging. All of the ratings were on a 5-point rating scale (“Strongly disagree” to “Strongly agree”).

Trait self-determination level. To determine the extent to which participants are naturally inclined to seek out ways to promote one’s autonomy in any situation, or the extent to which individuals interpret factors in their environments as controlling, the General Causality Orientation Scale (GCOS; Deci & Ryan, 1985; see Appendix 1) and the Self-Determination Scale (SDS; Sheldon, Ryan & Reis, 1996; see Appendix 2) were administered. The GCOS presents 12 vignettes describing situations at work, with friends and with children, and asks how the participant might respond to each situation. Three responses, each reflecting a different level of autonomy and control, are given with each vignette, and participants rate how likely they would respond in that manner. The GCOS is scored by averaging the ratings on a 5-point scale (1 = Strongly disagree to 5 = Strongly agree) for the three types of orientations: autonomy orientation, control orientation, and impersonal orientation. Instead of providing vignettes, the SDS asks participants to report how they generally feel and behave by choosing from two opposing statements. For example, participants would be presented with the following statements: “A. I always feel like I choose the things I do” and “B. I sometimes feel that it's not really

me choosing the things I do.” Given these statements, participants then indicate where they lie between the two statements, ranging from “only statement A feels true” or “only statement B feels true.” The SDS is also scored by averaging the ratings on a 5-point scale (1 = Strongly disagree to 5 = Strongly agree) across the items to reflect the degree to which a person feels more autonomous than controlled in situations.

Perfectionism dimensions. A brief version of Frost et al.’s (1990; Cox et al, 2002) Multidimensional Perfectionism Scale (MPS) were used to measure Personal Standards and Organization (see Appendix 3). The brief MPS measures 5 dimensions: Concern over Mistakes, Doubts about Actions, Personal Standards, Parental Perceptions, and Organization. Because only Personal Standards and Organization are proposed to be relevant to the study, items tapping other dimensions were not used. The MPS includes sets of statements that participants will rate their agreement with, using a scale. Example Personal Standards items include, “It is important to me that I be thoroughly competent in everything I do” and “I expect higher performance in my daily tasks than most people.” Example Organization items include, “I am a neat person” and “I am an organized person.” Separate scores for Personal Standards and Organization were calculated by averaging the ratings on a 5-point scale (1 = Strongly disagree to 5 = Strongly agree) for items in each dimension.

Internalization of the goal. Two measures assessed internalization. First, the perceived locus of causality (PLOC; Ryan & Connell, 1989) assessed participant’s reasons for pursuing the academic goal. The PLOC measure lists statements representing external, introjected, identified, and intrinsic regulation, and participants rated how true each statement is of their approach to the goal. Ratings for external and introjected

regulation can then be subtracted from ratings for introjected and identified to obtain a score of internalization of the goal. The second measure is a more extensive assessment of perceived locus of causality. The Academic Self-Regulation Questionnaire (SRQ-A; Ryan & Connell, 1989; see Appendix 4) is an extended version of the PLOC measure, and asks four questions regarding the academic domain, such as, “Why do I do my homework?” and “Why do I try to do well in school?” followed by items of various reasons that represent the motivation dimensions. The SRQ-A was scored by averaging participants’ ratings on a 5-point scale (1 = Strongly disagree to 5 = Strongly agree) of these items. Similar to the PLOC measure above, an overall internalization score will be calculated by subtracting mean ratings for introjected and external motivation from identified and intrinsic motivation. Internalization will be measured at T1 and T4 of the study.

Test anxiety. Hong and Karstensson’s (2002) brief measure of test anxiety will be used. Participants will be asked to rate statements such as, “I am concerned about what would happen if I did poorly on a test” and “I feel very panicky when I take tests” on a scale ranging from “not at all” to “very much so.” Test anxiety means for participants will be calculated by averaging the all of the ratings on a 5-point scale (1 = Strongly disagree to 5 = Strongly agree).

Other dependent measures. At T1 and T4, participants will be asked to rate the goal’s current progress (goal progress), how likely the goal will be attained (goal expectancy), how meaningful the goal is (goal meaning), mood associated with the goal (goal mood), and how important the goal is (goal importance). All ratings were made on a 5-point scale (1 = Strongly disagree to 5 = Strongly agree).

Results

Preliminary Data Analyses

Before examining findings regarding the hypotheses, I first examined possible preexisting mean differences between participants in the three conditions. A series of one-way ANOVAs were conducted on variables involved in the hypotheses in this study. As would be expected, there were no significant differences among the three groups on these variables, except for goal importance ($F(2, 101) = 3.87, p = .02$). A post hoc test (Student-Newman-Keuls) revealed that the significant difference lies between the self-reflection condition ($M = 4.66, SD = .55$) and the goal implementation condition ($M = 4.94, SD = .43$). This single significant mean difference may be simply due to chance, because in the remaining 21 variables, the smallest p-value was .13 (see Table 1). I also examined mean differences for 15 variables from the T1 data set between samples recruited from different methods (introductory psychology students versus email recruitment). There were four mean differences that were significant under $p < .05$, including overall internalization (PLOC), perfectionism (standards and organization), and general autonomous orientation (GCOSA). Because these participants were distributed evenly in each condition, we conducted the remaining analyses with the data from the two sub-samples combined.

To ensure that participants understood the directions for the writing exercise, one-way ANOVAs were conducted using the Time 1 data to detect mean differences in three manipulation check items that followed the writing [i.e., “I wrote about how meaningful and/or valuable the goal is” (self-reflection condition), “I wrote about how I would accomplish the goal” (goal implementations condition), “I wrote about my plans for the

following day” (control condition)]. The ANOVAs and the follow-up SNK tests show that participants did in fact follow directions and wrote about appropriate topics (see Table 2).

In addition to examining initial differences with major variables among participants in the three conditions, I also examined correlations among selected variables. Because the hypotheses involve assumptions within SDT, these correlations were examined to verify that previous findings in SDT research regarding motivation types and goal outcomes (e.g., Sheldon & Elliot, 1999; Ryan, Sheldon, Kasser, & Deci, 1996; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004) are also reflected in this data. Specifically, I examined whether participants’ perceived locus of causality for completing schoolwork, as well as academic regulation, correlated with goal variables such as progress, expectancy, meaning, mood, and importance. As shown in Table 3, the correlations generally conform to past findings in SDT research. These expected patterns in the correlations show that the data are not just random and are appropriate to use in testing the study’s hypotheses.

Primary Data Analyses

Hypothesis 1: Participants in the self-reflection condition will report greater increase in internalization of the academic goal. To examine this hypothesis, an ANOVA was conducted. No significant difference was found among the three conditions in internalization ($F(2, 100) = .67, p = .52$), as measured by PLOC (Ryan & Connell, 1989). No significant main effect emerged for academic regulation as well ($F(2, 102) = .14, p = .87$). Refer to Table 4 for means and standard deviations.

Hypothesis 2: Participants in the self-reflection condition will report more positive outcomes related to goal pursuit. For this hypothesis, I examined five goal-related variables measured at T4: goal progress, goal expectancy (the likelihood of attaining the goal), goal meaning (how meaningful the goal is), goal mood (valence of mood associated with the goal), and goal importance. Similar to the first hypothesis, no significant difference was found among the three conditions for any of these variables (see Table 4).

Hypotheses regarding moderators and mediators. Hierarchical regression analyses were conducted to examine whether certain factors, such as trait self-determination, perfectionism, and test anxiety, interacted with the writing condition to predict differences in internalization and other goal-related variables. All predictor variables were first centered before conducting the regression analyses. In all analyses, at the first step, condition, moderator, and gender variables (to control for gender differences) were entered. At the second step, the product of the moderator and condition was entered. Overall, the analyses suggest that the interactions were not statistically significant. Out of a total of 42 regressions involving trait self-determination, only 1 model reached significance at $p < .05$ and 2 reached marginal significance. Similarly, out of 42 regressions examining perfectionism, 6 reached significance and 3 reached marginal significance. Because only a few interaction effects are significant, the moderators do not seem to predict the outcome variables in a meaningful pattern. Thus, the data does not support the hypothesis that these moderators interact with condition to predict differences in the dependent variables.

Because no significant differences exist among the conditions on any of the dependent variables, requirements for a test of mediation are not satisfied (Baron & Kenny, 1986). Thus, these predicted mediators (i.e. meaningfulness and engagement) will not be further discussed.

Exploratory analyses of essay content. Essay content was coded using the Linguistic Inquiry and Word Count (LIWC; Pennebaker & Francis, 1996), a computer program developed to analyze essay content. For each participant, a mean score for each type of word was calculated after all three essays were analyzed by LIWC (Pennebaker & Francis, 1996). ANOVA analyses and post-hoc mean comparison analyses (SNK) were conducted to examine mean differences in type of words used by participants in each condition. As can be seen in Table 5, participants in the self-reflection condition used more of both positive (e.g., “happy”) and negative (e.g., “hate”) words than participants in the other conditions. Participants in the self-reflection condition also used more words associated with cognitive processes (e.g., “cause,” “know,” “think”). These results suggest that participants in the self-reflection condition were more emotionally and cognitively expressive in general.

The Unexpected Importance of Academic Aptitude

Very few significant findings emerged among the conditions that support the hypotheses, even when taking moderators and mediators into account. However, correlations among the variables in the data set show that some sensible patterns do exist within the data. Specifically, the correlations replicate past research on SDT as discussed above (see Table 3). Given that the data includes some meaningful associations among variables, I further explored the data for other possible moderators. From this

exploration, I found one moderator that explained the data fairly consistently, particularly when comparing the self-reflection condition to the daily plan (control) condition. Table 6 shows that the direction and/or the magnitude of the correlations between ACT scores and the dependent variables are different across the two conditions. The correlations suggest that ACT scores are generally positively related to the dependent variables in the self-reflection condition. Although the correlations are not significant, notably, the direction of the correlations is mostly negative in the daily plan condition. The direction of the correlations of ACT scores and the dependent variables in the goal implementation condition seem rather mixed, in contrast to the self-reflection and daily plan conditions. ACT is negatively related to goal expectancy and goal importance, but the correlations between ACT and internalization, progress, and meaning are all in the positive direction.

Further analyses examining the goal implementation condition's role in predicting internalization and goal outcomes revealed that ACT does not reliably and consistently predict the dependent variables within the goal implementation condition, when compared against self-reflection and daily plan. Because it did not fit with the emerging interpretation of the data regarding ACT as a moderator and the two other writing conditions, analyses involving the goal implementation will be dropped from the remainder of this section. Possible reasons as to why goal implementation condition does not fit with the exploratory analyses will be proposed in the discussion section.

Below are analyses using participants' ACT score as a moderator when examining differences between the self-reflection and daily plan conditions. Potential explanations for why ACT scores predict the outcome variables can be found in the discussion section.

ACT Score as a Moderator

Hierarchical regression analyses following guidelines by Aiken and West (1990) were conducted to test whether participants' ACT scores interact with condition in predicting change in internalization from T1 to T4 (PLOC and ASR), and goal outcome measures from T4, including goal progress, expectancy, meaning, mood, and importance. In each analysis, condition, ACT score, and gender were entered at the first step, as well as the T1 measure of the dependent variable. Gender and the T1 variables were thus controlled. In the second step, the interaction term was added (see Table 7). The interaction did not significantly predict goal progress or goal importance, and analyses with these variables are omitted from further discussion.

Change in internalization. The interaction term of ACT and condition is marginally significant in predicting change in PLOC ($B = .34, p = .03$) but not change in academic self-regulation ($B = .02, p = .69$). Because ASRQ measures overall academic regulation and is broader in focus than PLOC, ASRQ is less likely change from an intervention. In contrast, change in PLOC, which measures the autonomous motivation towards the goal of “keeping up with class work” specifically, is predicted by an interaction between ACT score and condition (see Figure 1). Given that the writing exercises prompted students to focus specifically on their assigned goal of “keeping up with class work,” it makes sense that changes in PLOC are more likely than changes in academic regulation.

Simple slope tests of the PLOC interaction effect shows that ACT scores marginally predicted reduced PLOC for students in the daily plan condition ($B = -.22, p = .07$) but not for students in the self-reflection condition ($\beta = .12, p = .29$). This suggests that students with low ACT scores in the daily plan condition may have benefited from their

writing exercises, whereas students with high ACT scores in this condition did not experience increase in internalization. Although the plot of the interaction suggests a main effect of condition in PLOC, this effect is not significant ($t(67) = 1.24, p = .22$).

Goal expectancy. The interaction between ACT score and condition significantly predicted participants' expectation of how well they will do in their goals for the remainder of the semester ($B = .14, p = .03$). Simple slope tests show that ACT scores significantly predicted goal expectancy among students in the self-reflection condition ($B = .10, p = .02$) but not among students in the daily plan condition ($\beta = -.04, p = .37$). Thus, it seems that participants with low ACT scores in the self-reflection condition reported lower expectations of doing well, whereas students with high ACT scores in the self-reflection condition had high expectations of success in their academic goal (see Figure 2).

Goal meaning. Again, a significant interaction effect emerged ($B = .23, p = .01$). Simple slope tests reveal that high ACT scores predicted participants' report that the academic goal is less meaningful in the daily plan condition ($B = -.12, p = .05$) but more meaningful in the self-reflection condition ($B = .11, p = .04$). Conversely, participants with lower ACT scores reported greater goal meaning in the daily plan condition, whereas participants with lower ACT scores found the goal to be less meaningful (see Figure 3).

Goal mood. A similar interaction is also significant for goal mood ($B = .14, p = .03$). ACT scores predicted more positive mood in the self-reflection condition ($B = .09, p = .03$) but not in the daily plan condition ($\beta = -.05, p = .34$) (see Figure 4). Participants with high ACT scores in the self-reflection condition reported more positive mood

towards their academic goal, but participants with low ACT scores in this condition associated their goal with more negative mood. The significant simple slope tests with goal mood, as well as with expectancy and meaning, suggest that the self-reflection manipulation did have a positive effect on participants, particularly those with high ACT scores.

Discussion

This study investigated the effectiveness of self-reflective writing on difficult, self-pressured goals. Participants were assigned to write about one of three topics, once a week for three weeks. ANOVAs showed that there were no significant differences among participants in the self-reflection, daily plan, or goal implementation writing conditions. The data also did not support the moderators and mediators proposed to influence the relationship between writing condition and internalization or other goal outcome variables (i.e., progress, meaning, expectancy, importance, and mood). Thus, these findings do not support the main hypothesis that self-reflecting on the meaning, value, and personal importance of goals, particularly academic goals, helps individuals internalize their goals.

Although the original hypotheses were not supported by the data, further examination of the data led to unexpected and interesting findings that provide some support for the hypotheses, after all. Participants' ACT scores were found to interact with writing condition to predict changes in internalization and differences in goal outcome variables. Specifically, a comparison of the self-reflection and the daily plan conditions showed that participants with lower ACT scores may have achieved greater internalization and greater expectancy in succeeding in the goal from the daily plan condition but not in the self-

reflection condition. Additionally, students with high ACT scores in the self-reflection condition reported higher goal expectancy, meaning, and mood, suggesting that the experimental manipulation did work, albeit with participants with greater academic aptitude.

These findings suggest that ACT scores matter for interventions that attempt to improve how students view their academic goals. These findings also explain why the data showed no main effects predicted by condition. Because students with low ACT scores may have benefited from the daily plan condition but not from the self-reflection condition, and because students with high ACT scores may have benefited from the self-reflection condition but not from the daily plan condition, any effect of condition on the dependent variables was probably cancelled out.

Why was writing about the academic goal's importance, value, and meaning not beneficial for students with lower ACT scores in the self-reflection condition? Furthermore, why did writing about daily plans help students with lower ACT scores internalize their academic goal? To understand the pattern of interactions involving ACT scores and writing topic, we must also understand how exactly the writing prompts differed from one another. Apart from the topic of writing (i.e., meaning and importance of academics vs. daily schedules), the two conditions also differed in the level of goal each represented. The self-reflection condition encouraged participants to focus on the importance and implications of their academic goal, whereas the daily plan condition encouraged participants to attend to their academic goal in a more technical and detail-oriented way. This difference between the two conditions can be interpreted in terms of action identification theory (Vallacher & Wegner, 1987; 1989). According to action

identification theory, behavior can vary in its level of identification along a hierarchy. When behavior is represented at a low level of identification, individuals attend to the concreteness, details, mechanics, and the “how” of the behavior. In contrast, behavior at a high level of identification are thought of more abstractly and in terms of its meaning and implications. For example, going to class on a given day may be thought of as “sitting in class to get a good grade on the exams” (low level of identification) or as “becoming an educated and well-rounded person” (high level of identification). Although individuals generally attempt to identify their actions at a higher, more personally meaningful level, level of identification is also determined by the difficulty of the goal itself. If the behavior is difficult, or if individuals lack the skills to complete it successfully, individuals will step down to a more concrete and technical identification of the action (Wegner, Connally, Shearer, & Vallacher, 1983; Wegner, Vallacher, Kierstad, & Dizadji, 1986). Such attention to detail can be seen with individuals who have little experience in technology or in culinary arts, for example, when they carefully follow directions to set up a new computer program or follow recipes step-by-step. Action identification theory (Vallacher & Wegner, 1987; 1989) does not propose that either level of identification is necessarily better. Instead, what is important is that the level of identification is appropriate given the difficulty of the action for the individual. Although action identification theory focuses specifically on action or behavior, the theory applies to goals as well. Goals share an inherent relationship with action, in that goals guide our actions.

Action identification theory’s perspective may explain the interaction between ACT scores (which presumably determines goal difficulty) and goal level found in the results.

Basically, the participants who did not benefit from the study are thought to have focused on an inappropriate level of identification with their academic goal given their academic aptitude. Participants in the self-reflection condition with higher ACT scores matched on goal level focus and skill level. In turn, the match led to greater goal expectancy, meaning, and mood. Participants in the self-reflection condition with lower ACT scores, however, were prevented from making a lower level identification of their academic goal. Because broad, long term goals are more difficult than short-term goals and are harder to evaluate for success or failure (Emmons, 1992), participants with lower ACT scores in the self-reflection condition experienced lower expectancy, mood, and meaning regarding their academic goal. These participants were, in a sense, forced to focus on their academic goals as a whole, rather than as a set of sub-goals they could accomplish every day. In contrast, individuals with lower ACT scores in the daily plan condition were able to attend to concrete forms of their academic goal (i.e., go to class, study for the exam, and do homework, etc.). Thus, both goal level focus and academic aptitude matter when examining changes in internalization and other goal outcomes.

Furthermore, the idea that participants with lower ACT scores in the self-reflection condition experienced difficulties due to a mismatch with their level of goal focus can be detected in the writing by students from the self-reflection and daily plan conditions. Consider the difference in tone and mood of the essays written by a student in the self-reflection condition to the one written by a student in the daily plans condition. These two students both reported ACT scores below the mean among participants in this study (21 and 23, respectively).

Self-reflection condition:

All I can say is that for myself, it is fairly hard for me to get the focus to stay on task. I have a habit of procrastinating and then sooner or later all of my assignments and tests pile up to be due that same week before I even realize that I was behind. I'm in that boat right now and to add to my stress, that I caused myself, is that I also have started work the same week. I'm am going to try my best to complete all of my assignments in a timely manner or end up having to sacrifice some for others. I hate that I do this to myself. And I have a tendency to give in under stress. I hate to feel stressed out so I tend to give up and say that I try harder next time....

Daily plans condition:

Tuesdays are my harder class days. I will wake up at 6:50am to get ready. I will leave my dorm room around 7:40am and head to spanish class which starts at 8:00am. Then I need to study some more before my Psychology class. Around 10:30am I will leave my room and head to history class which starts at 11:00am. Once history is over, I will then study a little more for Psychology which starts at 12:30pm. Tomorrow I have a fifty multiple choice exam. I really hope I do well, but it's my first test in that class so I have no idea how it is going to go. Then I have my last class for the day, chemistry which starts at 2:00pm. Once that class is over at 2:50pm I will head to the rec center. This is a great time to workout and also gets my mind clear and I'm not as stressed after classes.... I will come back and see what all homework I have to do for Wednesday. I will probably have to read for Philosophy class. At 6:30pm I have a pre-med club meeting which will last about an hour. I will come back and work some more on my homework....Then Wednesday morning my schedule starts again.

The student in the daily plans condition sets a structured, proactive schedule for the next day. In this condition, the student does not focus on her emotions towards her academics; rather, the writing is encouraging her to attend to activities she must accomplish the following day. The student in the self-reflection condition, on the other hand, complains that she is overwhelmed with stress and notes that the accumulating stress with her academic work is resulting in even greater failure to keep up with her work. Below is another essay, written by a student in the self-reflection condition with an ACT score of 31. As would be expected, this student mentions that experiencing success in his studies

so far allows him to build confidence in himself that he will be able to ultimately reach his overarching goal of a “brighter future.”

After completing my first six weeks of college, I am very please with how I have made the transition from high school to college. When I first arrived I thought I would be overwhelmed by my courses, but I have taken an approach that has made the workload manageable. I now find myself trying to complete homework assignments at least one day before they are due in order to make sure that the work does not pile up on me. So far, I have been extremely successful in sticking to this plan and I have seen good results in my school work. I feel that if I keep this strategy up, that my work will continue to be at the level I know it should be at. I just completed my first round of tests and papers and I feel confident that my grades will be what I expect them to be. This in turn will give me more confidence in myself and will make me feel better about myself and allow me to continue working at the high level I am currently at. Even if I do not do as well on one assignment as I might wish, I will not let it deter me from working hard and trying to earn the best possible grades that I can. If I have a tough mentality, I will succeed in completing my school work at the highest level possible and achieve my goal.

If it is true that the self-reflective writing posed an additional and unwelcome challenge for students with low ACT scores, this should be also evident in participants’ mood following the writing exercises. Indeed, regression analyses using the Time 2 data show that increases in frustration and worry are predicted by an interaction of ACT scores and condition ($\beta = -.27, p = .04$; $\beta = -.23, p = .09$; frustration and worry, respectively). Simple slope tests further reveal that ACT scores significantly predicted increase in frustration ($\beta = -.50, p = .01$) and worry ($\beta = -.44, p = .03$) only among participants in the self-reflection condition. Students in the self-reflection condition with low ACT scores reported a higher increase in these negative emotions compared to students with high ACT scores. Students in the daily plan condition did not report such a change in mood after their writing, regardless of their ACT scores, as shown by the simple slope tests with frustration ($\beta = .03, p = .86$) and worry ($\beta = .02, p = .92$).

Other Research Findings that are Consistent with the Action Identification Perspective

Some other experimental studies have also found support for the action identification perspective and are consistent with the results of this study. Bandura and Schunk (1981) studied elementary school children who lacked competence and interest in math. In a program intended to increase these children's intrinsic motivation and self-efficacy towards solving math problems, Bandura and Schunk (1981) placed children in conditions that varied in the level of goal focus. Children who were placed in the proximal subgoal setting, where the focus was on completing a few problems at a time, later reported greater self-efficacy as well as showed greater intrinsic motivation and mastery towards math problems. Children in the distal goal setting, on the other hand, were instructed to complete the entire 42-page math problem packet by the end of the program. These children did not demonstrate any increase in self-efficacy, mastery, or intrinsic motivation.

Additionally, Zimmerman and Kitsantas (1997) found that it is important to begin with process, or concrete, goals, rather than with outcome, or abstract, goals, when learning a new skill. In their study, high school girls were taught to throw darts and were given instructions focusing on process goals (i.e. accomplish the basic techniques) and on outcome goals (i.e. try to get the most hits and the highest score). Their results show that the most beneficial outcomes occurred for participants who began with process goals and then shifted to outcome goals. Participants who focused on only the outcome goals displayed the lowest dart-throwing skill, self-efficacy, and intrinsic interest, except when compared to the control condition. These results highlight that focusing on outcome goals may be premature for individuals who lack skills in the domain of interest. Thus,

writing about the importance, value, and meaning of goals may not be ideal or appropriate for increasing internalization towards goals, particularly when the goals are difficult or when the individuals lack the necessary skills to pursue the goals.

Finally, the finding that participants with lower ACT scores experienced an increase in negative mood if they were in the self-reflection condition fits with findings from another experiment involving goal level focus (Houser-Marko, unpublished). In this experiment, participants completed several word puzzles, and these puzzle tasks were framed at a distal level (i.e. “get the best letter grade on these puzzles as a whole”) or at a proximal level (i.e., “try your best on one task at a time”). Among participants who were given failure feedback on these puzzles, participants with the distal framing reported lower moods and lower expectations of doing well on the following task compared to participants with the proximal framing of these tasks.

Why Does the Goal Implementation Condition Not Fit with the Current Findings?

According to Gollwitzer (1999), implementation intentions help individuals to accomplish their goals by automatically cuing previously formed goal intentions when the relevant situations arise. In this study, it was hypothesized that forming goal implementation intentions would encourage students to carry out their schoolwork intentions throughout the semester. At first glance, forming implementation intentions for goals seems to represent a concrete, detailed, and focused view of goals, similar to the daily plan condition. However, setting up implementation intentions in the current study differed from listing daily activities, because the former type of intervention required students to think of their academic goals in a long-term perspective. Students in the implementations intentions condition were asked to focus on how, when, and where they

would keep up with their schoolwork for the semester. This probably encouraged students to keep a distal mindset of their academic goal, rather than encouraging a day-by-day perspective as in the daily plan condition.

It is also possible that this intervention did not appropriately test the effectiveness of implementation intentions. The implementation intentions manipulations in this study differed from the manipulations that other researchers have used (see Gollwitzer, 1999; Gollwitzer & Brandstatter, 1997; Koestner, Lekes, Powers, & Chicoine, 2002) in two important aspects. First, in addition to listing when and where the goal will be pursued, previous experiments of implementation intentions have instructed individuals to think of possible distractions preventing the completion of given goal and strategies to avoid these distractions. Participants in this study were not asked to think of such distractions. Second, whereas implementation intention studies typically examine goals that are pursued within a relatively short period of time, such as the following weekend, the participants in this study were asked to apply their implementation intentions to weeks in the future. It is possible that by the time participants completed the T4 measures (4-5 weeks after the last writing exercise), the implementation intentions they previously formed were less remembered and less applied to managing schoolwork.

Limitations and future directions

Certain limitations associated with this study and the interpretation of this data should be noted. First, the finding that ACT scores interact with writing topic is unexpected and should undergo a more formal test. Replications of this finding are needed to provide more conclusive support for the interaction. Second, other measures of aptitude besides ACT scores can be included in further tests of this idea. By using other measures of

aptitude, such as course grades and in-lab aptitude tests, we can evaluate whether the current study's findings can be generalized to these measures of aptitude, as well. In this study, participants were asked to list their current GPA, but this information was not used in the analyses. Many participants were in their first semester of college, and these students listed their high school GPA, whereas the older students listed their college GPA. Lastly, this study examined an academic goal as an example of personal goals. Further tests of other types of personal goals, such as relationship goals, self-growth goals, and improvement goals should be conducted to see if the interaction between skill level and goal focus is relevant in only certain domains or across all domains of personal goals.

Conclusions

In sum, the current study supported the action identification perspective that the level of aptitude for a certain behavior should determine the level at which individuals identify the behavior. The results suggested that there is no "one-size-fits-all" intervention that all individuals can apply to their goals to reap motivational benefits. The road to successful goal pursuit includes an appropriate framing of the goal to match the level of skill one possesses regarding the goal. These findings are somewhat inconsistent with self-determination theory's perspective (Assor et al., 2002; Ryan, 1995; Ryan & Deci, 2002) that internalization occurs when individuals are encouraged to think about the goal's importance and meaning. Instead, individuals who lack the necessary skills to pursue the goal may be better off concentrating on the day-to-day activities associated with the goal, rather than focusing on the "big picture" of the goal. Once these individuals master the

smaller components of the goal, they may then be ready to identify with their goal by focusing on the more abstract meaning of the goal.

Table 1

Mean difference tests for variables regarding the hypotheses using TI data

Variable	Condition	n	Mean (Min. - Max.)	SD	df	F	p
ACT	SR	30	26.90 (21 – 33)	3.96	2, 94	0.58	0.56
	DP	34	26.65 (18 – 32)	3.68			
	GI	33	25.94 (20 – 32)	3.44			
Perfectionism (Standards)	SR	32	3.84 (2.20 – 5.00)	0.77	2, 100	0.50	0.61
	DP	38	3.94 (2.60 – 5.00)	0.72			
	GI	33	4.02 (2.80 – 5.00)	0.61			
Perfectionism (Organization)	SR	32	3.97 (1.50 – 5.00)	0.84	2, 100	0.64	0.53
	DP	38	3.74 (1.75 – 5.00)	0.84			
	GI	33	3.89 (1.75 – 5.00)	0.87			
Test anxiety	SR	32	2.14 (1.13 – 4.00)	0.75	2, 101	1.17	0.31
	DP	38	2.37 (1.00 – 4.00)	0.76			
	GI	34	2.40 (1.13 – 4.00)	0.74			
GCOS (Autonomy orientation)	SR	32	4.25 (3.25 – 5.00)	0.46	2, 101	1.02	0.37
	DP	38	4.17 (3.00 – 4.92)	0.43			
	GI	34	4.32 (2.75 – 4.75)	0.43			
GCOS (Control orientation)	SR	32	3.29 (1.42 – 4.08)	0.56	2, 101	2.12	0.12
	DP	38	3.53 (2.67 – 4.25)	0.36			
	GI	34	3.40 (2.08 – 4.42)	0.53			
GCOS (Impersonal orientation)	SR	32	2.76 (1.67 – 4.00)	0.62	2, 101	0.61	0.54
	DP	38	2.92 (1.33 – 4.33)	0.72			
	GI	34	2.92 (1.42 – 4.42)	0.68			
Self- determination	SR	32	3.82 (2.50 – 4.80)	0.59	2, 101	0.79	0.46
	DP	38	3.69 (1.90 – 4.90)	0.67			
	GI	34	3.87 (2.50 – 5.00)	0.68			

Note: SR = self-reflection condition, DP = daily plans condition, GI = goal implementation.

(Table 1 continued on the next page.)

Table 1 (continued)

Mean difference tests for variables regarding the hypotheses using T1 data

Variable	Condition	n	Mean (Min. – Max.)	SD	df	F	p
PLOC: External motivation	SR	31	3.16 (1 – 5)	1.27	2, 100	0.10	0.90
	DP	38	3.08 (1 – 5)	1.15			
	GI	34	3.03 (1 – 5)	1.17			
PLOC: Introjected motivation	SR	31	2.90 (1 – 5)	1.40	2, 100	0.85	0.43
	DP	38	3.29 (1 – 5)	1.18			
	GI	34	3.21 (1 – 5)	1.23			
PLOC: Identified motivation	SR	31	4.16 (1 – 5)	0.93	2, 100	0.64	0.53
	DP	38	4.03 (1 – 5)	0.97			
	GI	34	4.29 (1 – 5)	1.09			
PLOC: Intrinsic motivation	SR	31	3.55 (1 – 5)	1.23	2, 100	1.71	0.19
	DP	38	3.08 (1 – 5)	1.08			
	GI	34	3.12 (1 – 5)	1.12			
Mean PLOC	SR	31	1.65 (-3 – 5)	2.67	2, 100	1.11	0.33
	DP	38	0.74 (-8 – 6)	2.72			
	GI	34	1.18 (-3 – 6)	2.14			
ASRQ: Extrinsic motivation	SR	32	3.18 (1.67 – 4.00)	0.62	2, 101	0.62	0.54
	DP	38	3.12 (1.22 – 4.00)	0.58			
	GI	34	3.27 (1.67 – 4.00)	0.52			
ASRQ: Introjected motivation	SR	32	3.07 (1.56 – 4.00)	0.76	2, 101	0.85	0.434
	DP	38	3.05 (1.00 – 4.00)	0.74			
	GI	34	3.25 (1.00 – 4.00)	0.61			
ASRQ: Identified motivation	SR	32	3.53 (2.57 – 4.00)	0.45	2, 101	0.18	0.84
	DP	38	3.48 (2.14 – 4.00)	0.51			
	GI	34	3.54 (2.57 – 4.00)	0.40			
ASRQ: Intrinsic motivation	SR	32	2.88 (1.00 – 4.00)	0.69	2, 101	0.37	0.70
	DP	38	2.74 (1.00 – 3.86)	0.78			
	GI	34	2.83 (1.57 – 3.86)	0.61			

Note: SR = self-reflection condition, DP = daily plans condition, GI = goal implementation.

(Table 1 continued on the next page.)

Table 1 (continued)

Mean difference tests for variables regarding the hypotheses using T1 data

Variable	Condition	n	Mean (Min. – Max.)	SD	df	F	p
Goal importance	SR	32	4.66 (3 – 5)	0.55	2, 101	3.87	0.02
	DP	38	4.76 (4 – 5)	0.43			
	GI	34	4.94 (4 – 5)	0.24			
Goal meaning	SR	32	4.38 (3 – 5)	0.75	2, 101	1.63	0.20
	DP	38	4.53 (2 – 5)	0.76			
	GI	34	4.68 (4 – 5)	0.47			
Goal progress	SR	32	4.13 (3 – 5)	0.71	2, 101	0.40	0.67
	DP	38	3.97 (1 – 5)	0.97			
	GI	34	4.12 (3 – 5)	0.69			
Goal mood	SR	32	3.94 (2 – 5)	0.88	2, 101	0.09	0.91
	DP	38	3.97 (2 – 5)	0.94			
	GI	34	3.88 (2 – 5)	0.88			
Goal expectancy	SR	32	4.38 (3 – 5)	0.71	2, 101	0.11	0.89
	DP	38	4.45 (3 – 5)	0.69			
	GI	34	4.38 (2 – 5)	0.74			

Note: SR = self-reflection condition, DP = daily plans condition, GI = goal implementation.

Table 2

Mean differences among conditions for manipulation check variables

	Self-reflection (n = 32)	Daily plan (control; n = 38)	Goal implementation (n = 34)
Wrote about the meaning and value	3.94 ^a	2.00 ^b	3.29 ^c
Wrote about the following day's plans	1.75 ^a	4.76 ^b	2.68 ^c
Wrote about how to accomplish the goal	2.88 ^a	2.89 ^a	4.50 ^b

Note: Means that do not share the same superscript are significantly different.

Table 3

Selected correlations among major variables from T1 and T4 data (n = 104)

	Goal progress	Goal expectancy	Goal meaning	Goal mood	Goal importance
<u>PLOC (T1)</u>	.22*	.18†	.30**	.21*	.25*
External	-.04	-.04	.00	-.11	.10
Introjected	.01	.12	.41***	.07	.43***
Identified	.28**	.30**	.54***	.27**	.55***
Intrinsic	.29**	.31**	.50***	.31**	.33**
<u>ASRQ (T1)</u>	.18†	.07	.06	.13	-.02
External	.11	.10	.17†	.13	.19†
Introjected	.08	.19†	.41***	.19*	.26***
Identified	.31***	.29**	.40***	.27**	.29**
Intrinsic	.24*	.20*	.38***	.32**	.20*

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$. Goal outcome variables are from the T4 dataset.

Table 4

Statistics associated with testing group differences in dependent variables

Dependent variable	Mean (Min.-Max.)	SD	df	F	p
<u>Change in internalization (PLOC)</u>					
Self-reflection	-0.13 (-6.00 – 5.00)	2.19	2, 100	0.67	0.52
Control	0.55 (-5.00 – 8.00)	2.34			
Goal implementation	0.45 (-6.00 – 6.00)	2.74			
<u>Change in internalization (ASRQ)</u>					
Self-reflection	-0.15 (-1.95 – 1.33)	0.79	2, 102	0.14	0.87
Control	-0.05 (-2.17 – 2.40)	0.91			
Goal implementation	-0.09 (-1.89 – 2.19)	0.79			
<u>Goal progress</u>					
Self-reflection	4.03 (2.00 – 5.00)	0.77	2, 104	0.79	0.46
Control	3.76 (2.00 – 5.00)	0.94			
Goal implementation	3.89 (1.00 – 5.00)	0.95			
<u>Goal expectancy</u>					
Self-reflection	4.12 (2.00 – 5.00)	0.89	2, 104	0.45	0.64
Control	4.16 (2.00 – 5.00)	0.86			
Goal implementation	4.31 (2.00 – 5.00)	0.86			
<u>Goal meaning</u>					
Self-reflection	3.88 (1.00 – 5.00)	1.17	2, 104	1.76	0.18
Control	3.92 (1.00 – 5.00)	1.17			
Goal implementation	4.31 (3.00 – 5.00)	0.79			
<u>Goal mood</u>					
Self-reflection	3.79 (2.00 – 5.00)	0.89	2, 104	1.61	0.20
Control	3.39 (1.00 – 5.00)	0.97			
Goal implementation	3.64 (1.00 – 5.00)	0.93			
<u>Goal importance</u>					
Self-reflection	4.52 (3.00 – 5.00)	0.62	2, 104	1.47	0.24
Control	4.24 (1.00 – 5.00)	0.91			
Goal implementation	4.47 (3.00 – 5.00)	0.65			

Notes: n = 32 (self-reflection condition); 38 (control); 34 (goal implementation).

Table 5

Mean differences among conditions for essay content words

Word type	Self-reflection	Daily plan	Goal implementation
<u>Overall affect</u>	3.48 ^a	1.55 ^b	2.05 ^c
Positive emotions	2.33 ^a	1.26 ^b	1.50 ^b
Positive feelings	.32 ^a	.12 ^b	.12 ^b
Optimism and energy	.73 ^a	.57 ^{a,b}	.47 ^{b,c}
Negative emotions	1.12 ^a	.30 ^b	.53 ^c
Anxiety or fear	.39 ^a	.09 ^b	.15 ^b
Anger	.16 ^a	.05 ^{a,b}	.08 ^{b,c}
Sadness or depression	.21 ^a	.06 ^{a,b}	.12 ^{b,c}
<u>Cognitive processes</u>	7.84 ^a	4.14 ^b	7.00 ^a
Causation	1.09 ^{a,c}	.67 ^b	.89 ^{b,c}
Insight	2.09 ^a	.64 ^b	1.32 ^{a,b}
Discrepancy	2.43 ^a	1.38 ^b	2.00 ^a
Inhibition	.14 ^a	.10 ^{a,b}	.24 ^c
Certainty	1.31 ^a	0.46 ^b	1.15 ^a

Note: Means that do not share the same superscript are significantly different. n = 32 (self-reflection condition); 38 (control); 34 (goal implementation).

Table 6

Correlations between ACT scores and dependent variables.

Condition	PLOC increase	ASR increase	Goal progress	Goal expectancy	Goal meaning	Goal mood	Goal importance
Self-reflection	.14	-.01	.31†	.48**	.29	.33†	.08
Daily plan (control)	-.30†	-.30	.13	-.10	-.28	-.13	-.17
Goal Implementation	.18	.06	.14	-.03	.07	.12	-.17

Note: † $p < .10$, ** $p < .01$, Goal outcome variables are from T4. $n = 32$ (self-reflection condition); 38 (control); 34 (goal implementation).

Table 7

Regression analyses

	B	p	df	R ²	Adjusted R ²	model F (p)
<u>Change in internalization (PLOC)</u>						
Step 1:			3, 59	.08	.03	1.61 (.20)
gender	-.71	.31				
condition	-1.04	.08				
ACT	-.06	.42				
Step 2:			4, 58	.14	.09	2.47 (.06)
gender	-1.14	.11				
condition	-10.05	.02				
ACT	-.23	.04				
ACT x condition	.34	.03				
<u>Change in internalization (ASRQ)</u>						
Step 1:			3, 60	.19	.15	4.73 (.01)
gender	.75	.001				
condition	-.12	.54				
ACT	-.04	.18				
Step 2:			4, 59	.19	.14	3.54 (.01)
gender	.78	.003				
condition	-.74	.63				
ACT	-.05	.23				
ACT x condition	.02	.69				
<u>Goal expectancy (T4)</u>						
Step 1:			3, 60	.04	-.01	.80 (.50)
gender	.11	.68				
condition	-.06	.80				
ACT	.05	.14				
Step 2:			4, 59	.12	.06	1.93 (.12)
gender	-.08	.78				
condition	-3.77	.03				
ACT	-.03	.55				
ACT x condition	.14	.03				

Table 7, continued.

Regression analyses

	B	p	df	R ²	Adjusted R ²	model F (p)
<u>Goal meaning (T4)</u>						
Step 1:			3, 60	.03	-.02	.60 (.62)
gender	-.47	.19				
condition	.02	.95				
ACT	-.00	.93				
Step 2:			4, 59	.15	.10	2.68 (.04)
gender	-.78	.03				
condition	-6.12	.01				
ACT	-.12	.03				
ACT x condition	.23	.01				
<u>Goal mood (T4)</u>						
Step 1:			3, 60	.06	.01	1.18 (.33)
gender	-.29	.29				
condition	.32	.18				
ACT	.02	.54				
Step 2:			4, 59	.13	.07	2.21 (.08)
gender	-.48	.09				
condition	-3.43	.05				
ACT	-.05	.23				
ACT x condition	.14	.03				

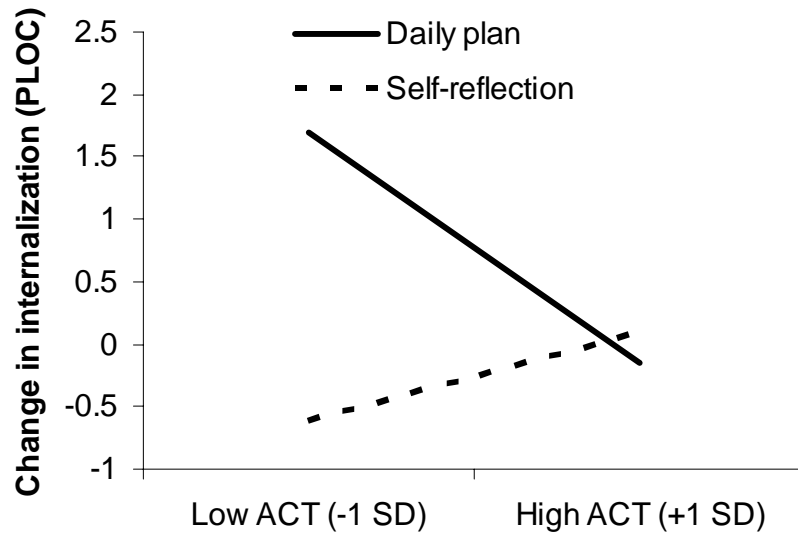


Figure 1. A graphical plot of the interaction between ACT and condition for PLOC.
n = 32 (self-reflection condition); 38 (control).

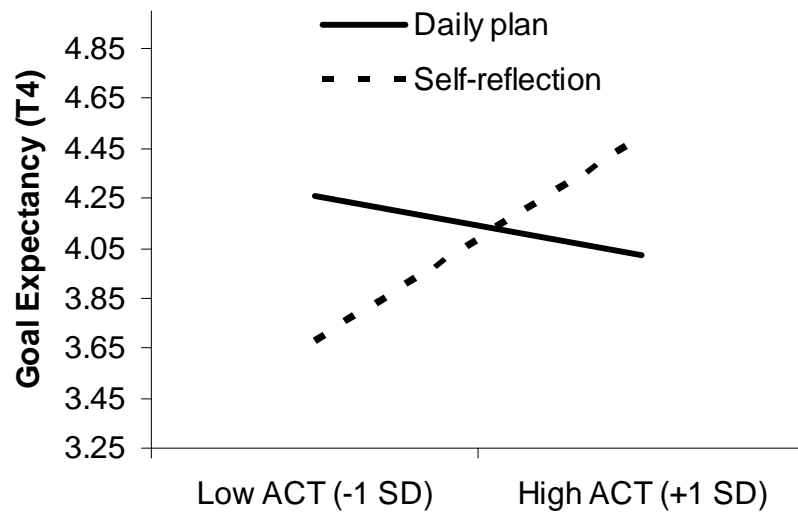


Figure 2. A graphical plot of the interaction between ACT and condition for goal expectancy.

n = 32 (self-reflection condition); 38 (control).

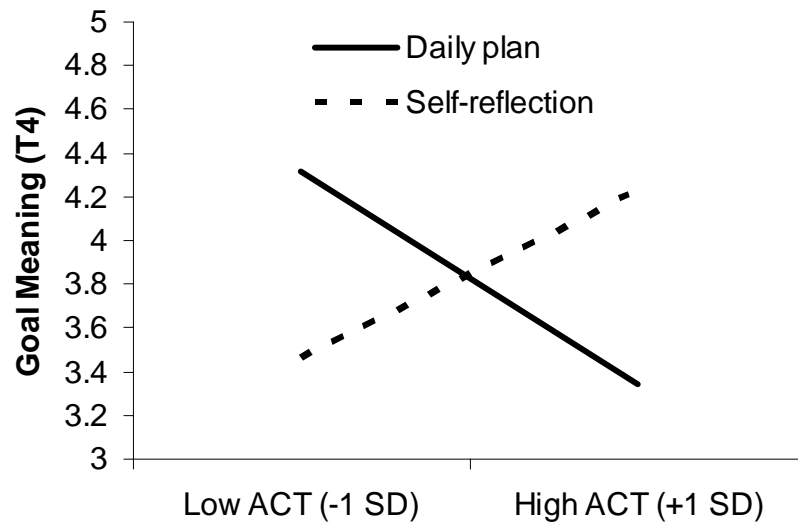


Figure 3. A graphical plot of the interaction between ACT and condition for goal meaning.

n = 32 (self-reflection condition); 38 (control).

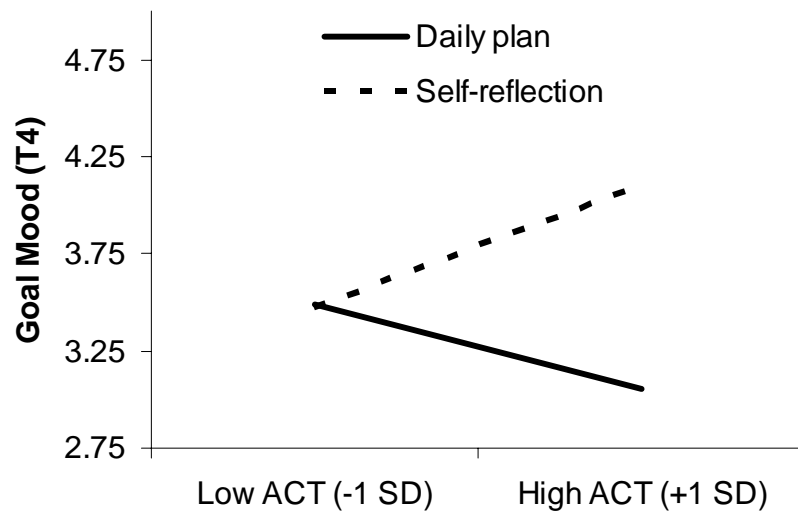


Figure 4. A graphical plot of the interaction between ACT and condition for goal mood.
n = 32 (self-reflection condition); 38 (control).

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