

# Self-Regulation of Goal Setting: Turning Free Fantasies About the Future Into Binding Goals

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Fantasy realization theory states that when people contrast their fantasies about a desired future with reflections on present reality, a necessity to act is induced that leads to the activation and use of relevant expectations. Strong goal commitment arises in light of favorable expectations, and weak goal commitment arises in light of unfavorable expectations. To the contrary, when people only fantasize about a desired future or only reflect on present reality, expectancy-independent moderate goal commitment emerges. Four experiments pertaining to various life domains supported these hypotheses. Strength of goal commitment was assessed in cognitive (e.g., making plans), affective (e.g., felt attachment), and behavioral terms (e.g., effort expenditure, quality of performance). Implications for theories on goal setting and goal striving are discussed.

Recent reviews of research on goals (Austin & Vancouver, 1996; Carver & Scheier, 1998, 1999; Frese & Sabini, 1985; Karniol & Ross, 1996; Karoly, 1993; Oettingen & Gollwitzer, 2001), make it apparent that the analysis of goals primarily focuses on the attainment of set goals. According to Gollwitzer and Moskowitz (1996), two types of goal theories can be distinguished. The first type postulates that the content of a goal is an important determinant of goal attainment. For example, goals of autonomy, competence, and social integration (Ryan, Sheldon, Kasser, & Deci, 1996), learning goals (Dweck, 1999), promotion goals (Higgins, 1997), specific challenging goals (Locke & Latham, 1990), or proximal goals (Bandura & Schunk, 1981) are observed to facilitate goal striving. The second type of goal theory postulates that successful goal attainment depends on how well people regulate the pursuit of their goals. For example, using control strategies (such as emotion control; Kuhl & Beckmann, 1994), engaging in

compensatory efforts (Wicklund & Gollwitzer, 1982), establishing implemental mindsets (Gollwitzer & Bayer, 1999), forming implementation intentions (Gollwitzer, 1999), and performing mental simulations of the pathways toward goal completion (Taylor, Pham, Rivkin, & Armor, 1998) promote goal attainment.

All of these theories on goals implicitly assume that the goals under investigation have already been set. The question of how people manage to set goals for themselves has received much less attention. Bargh (1990) pointed out that in recognizing the influence of goals, researchers “leave open the question of where the goal itself comes from” (p. 98). Karoly (1993) stated that “the study of goals as dependent variables remains infrequent” (p. 27), and more recently, Carver and Scheier (1999) observed that the question of where goals come from has not been well explored.

The scarce research that exists on goal setting has focused on what kind of goals people set for themselves. Expectations and incentives are two key determinants of the kind of goals that will be chosen (Ajzen, 1985; Heckhausen, 1991; Gollwitzer, 1990; Kruglanski, 1996; Locke & Latham, 1990). It is commonly assumed that people choose goals that are highly desirable, but still feasible. Expectations are judgments of the capabilities to perform relevant goal-directed behaviors (i.e., self-efficacy expectations; Bandura, 1997), judgments of whether these goal-directed behaviors will lead to the desired outcome (i.e., outcome expectations; Bandura, 1997), judgments about the favorableness of future life in general (generalized optimism; Scheier & Carver, 1987), or the judged likelihood of attaining the desired outcome (i.e., general expectations; Heckhausen, 1991; Oettingen, 1996). The estimated attractiveness of goal attainment may pertain to anticipated self-evaluations, evaluations by significant others, progress to some higher order goal, external rewards of having attained the goal, and the joy or pain associated with moving toward the goal (Heckhausen, 1991).

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Recently, further factors of what kind of goals people set for themselves have been determined. For example, implicit theories on the malleability versus stability of ability lead to the preference for learning goals (i.e., goals to increase competence) and performance goals (i.e., goals to demonstrate capabilities; Dweck, 1999), respectively. People who construe their self as an "ideal self" that they intrinsically desire to be set promotion goals (i.e., goals geared at advancement, growth, and accomplishments), whereas people holding an "ought self" that they feel compelled to be set prevention goals (i.e., goals geared at protection, safety, and responsibility; Higgins, 1997). Autonomy, competence, and social integration needs further goals of self-realization more than goals of materialistic gains (Ryan et al., 1996). Furthermore, a general preference for an abstract versus a concrete level of identifying actions (Vallacher & Wegner, 1987) should be reflected in the choice of abstract versus concrete goals. Finally, higher order goals or "be" goals (e.g., to become a clinical psychologist) determine the content of lower order goals or "do" goals (e.g., to apply for an internship), which in turn determine the content of respective "motor-control" goals (Carver & Scheier, 1998).

Research on the self-regulatory processes of goal setting is particularly scarce. Gollwitzer, Heckhausen, and Ratajczak (1990) observed that people who were undecided in making a choice between two goals felt closer to making a decision after having extensively deliberated likely positive and negative consequences of the attainment of both goals. Moreover, when undecided people facing a goal decision were lured into forming implementation intentions, they also felt closer to making a decision. The authors interpreted these findings to mean that people have to feel that they have completed the task of deliberating a goal choice before they allow themselves to make a goal decision.

### Fantasy Realization Theory

A recent theory on fantasy realization (Oettingen, 1996, 1999) addresses goal setting as a self-regulatory phenomenon. First, this theory differentiates between two forms of thinking about the future: expectations versus free fantasies. Specifically, expectations are judgments of how likely it is that certain events or behaviors will occur in the future (Bandura, 1977; Mischel, 1973; see review by Olson, Roese, & Zanna, 1996). They are based on past experiences and thus on a person's performance history. Free fantasies are thoughts and images of future events or behaviors that appear in the mind (Klinger, 1990; Singer, 1966), independent of the likelihoods that these events or behaviors will actually occur. For example, despite perceiving low chances of obtaining a desired job, a person can indulge in wishful fantasies about being offered the hoped for position.

### Three Modes of Self-Regulatory Thought

Fantasy realization theory elucidates three routes to goal setting that result from how people deal with their free fantasies about desired futures. One route is expectancy-based, whereas the other two are independent of expectations. The expectancy-based route to goal setting rests on mentally contrasting fantasies about a desired future with aspects of present reality that stand in the way of reaching the desired future. Mental contrasting transforms the desired future into something that is to be achieved, and reality into

something that is to be changed. Consequently, a necessity to act is induced that raises the question of whether present reality can indeed be turned into the desired future. The answer is provided by a person's expectations of being able to change reality into the desired future. Hence, the induced necessity to act activates relevant expectations (Olson et al., 1996), which in turn determine the strength of commitment to fantasy realization. A strong goal commitment will emerge when expectations of success are high; when expectations of success are low, goal commitment will be weak.

The second route to goal setting originates from solely fantasizing about a positive future. Such fantasizing seduces a person to mentally enjoy the desired future in the here and now, because there are no reflections on present reality that would point to the fact that the positive future is not yet realized. Thus, a necessity to act is not induced, and expectations of success are not activated and used. Strength of commitment toward fantasy realization solely reflects the implicit motivation (pull) triggered by imagining the desired future (McClelland, Koestner, & Weinberger, 1989). It will be moderate and independent of the perceived chances of success (i.e., expectations of success). As a consequence, people will try too hard when expectations of success are low, and not try hard enough when expectations of success are high.

The third route to goal setting is based on mere reflections on negative reality. Such reflections stay revolving ruminations, as no fantasies about a positive future designate the direction in which to act. Hence, a necessity to act is not induced, and expectations are not activated and used. Strength of commitment toward fantasy realization results solely from the implicit motivation (push) triggered by reflecting the negative reality (McClelland et al., 1989). As with indulging in positive fantasies about the future, commitment will be moderate and independent of perceived chances of success so that people will either try too hard or not hard enough.

### *Simultaneous Accessibility of Future and Reality*

Fantasy realization theory assumes that for a necessity to act to occur, the discrepant cognitive elements of the desired future and the respective negative reality do not have to be only noticed, but they need to be explicitly elaborated. As demonstrated in classic research on cognitive dissonance, dissonant cognitions easily become inaccessible when distraction opportunities are presented (Allen, 1965; Zanna & Aziza, 1976). Dissonant cognitions need to be attended to diligently and simultaneously for strong dissonance effects to occur (e.g., Brehm & Wicklund, 1970: justifying decisions paradigm; Pallak, Brock, & Kiesler, 1967; Zanna, Lepper, & Abelson, 1973: forbidden toy paradigm). More recently, McGregor, Newby-Clark, and Zanna (1999) also argued for the simultaneous accessibility of dissonant cognitions as a prerequisite for dissonance reduction, as "individuals seem to have a remarkable capacity for avoiding awareness of inconsistencies unless their noses are quite vigorously rubbed in them" (p. 331).

In our line of reasoning, simple separate listing of positive aspects of the desired future and negative aspects of the present reality should not suffice to create simultaneous accessibility of these two discrepant cognitions. The same is true for indulging in the desired future or for dwelling on the present reality. Indulging in the desired future creates heightened accessibility of the desired future only, as it focuses on the positive future and thus distracts

from the negative reality. Analogously, dwelling on negative reality creates heightened accessibility of the respective reality only, as it focuses on the negative reality and thus distracts from the positive future. It is only the mental elaboration of both the desired future and the present reality, as it occurs in mental contrasting, that creates heightened simultaneous accessibility of the desired future and the negative reality.

### *Constructing the Appropriate Relation Between the Future and the Present*

Mental contrasting of fantasies with reality, however, not only creates heightened simultaneous accessibility, but also activates a certain relational construct. According to Hebb (1949), when two brain processes are activated at the same time, they tend to make permanent connections with each other. This idea can be used to describe the origination of associations between thoughts (James, 1890), such as between thoughts about a desired future and thoughts about the respective reality. Still, there remains the question of what kind of link becomes established. How accessible cognitions are related depends on what kind of relational construct is activated (Higgins & Chaires, 1980). For example, activated cognitions pertaining to two different people may be linked in terms of *together* or *with* versus *apart* or *against*, thus signifying cooperation versus competition.

The relational construct activated by mental contrasting is that of the negative reality being an obstacle to or "standing in the way" of the desired future. It is this relational construct, then, that creates a necessity to act in terms of having to change the present reality toward the desired future. Any procedure that only instills simultaneous accessibility of the future and the reality, but fails to activate this specific relational construct of reality standing in the way of the desired future (e.g., by having participants elaborate reality first and fantasy second), cannot be expected to create a necessity to act on fantasy realization.

### *Fantasy Realization as an Issue of Problem Solving*

A person who holds fantasies about a desired future can also be understood as somebody who is confronted with a problem: "He wants something and does not know immediately what series of actions he can perform to get it." (Newell & Simon, 1972, p. 72). In such cases, Newell and Simon suggested distinguishing between the objective task environment as posed by the experimenter or the environment (in the present case, the positive aspects of the desired future on the one hand and the negative aspects of present reality on the other hand) and the internal subjective representation of the task or problem at hand (i.e., the person's *problem space*). The latter hinders rational performances to the degree that it deviates from the objective problem. Applied to the problem of fantasy realization, this implies that only when people's problem spaces entail both positive aspects of the desired future and negative aspects of present reality, whereby present reality is perceived as standing in the way of the desired future, will people show rational behavior in the sense of respecting probabilities of success in their problem-solving behaviors. Construing the subjective problem space by considering only half of the constituents of the objective problem (i.e., either only the desired future or only the status quo) or by failing to recognize that reality stands in the way of fantasy

realization, should lead to suboptimal attempts to solve one's problem (i.e., irrational, expectancy-independent efforts to realize one's fantasies).

### *Related Approaches*

Fantasy realization theory differs from research demonstrating that thinking of future events (Gregory, Cialdini, & Carpenter, 1982) or behaviors (Anderson, 1983) influences the level of expectations and in turn influences motivation. It is not the fact of thinking about the future that is the issue, but how people go about it. Consequently, rather than predicting goal commitment on the basis of changes in level of expectations, the theory focuses on the link between expectations and goal commitment. To make sure that the effects of the three modes of self-regulatory thought on goal-directed behavior are based on a differential link between expectations and goal-directed behavior rather than on changes in level of expectations, in the present research we measured participants' expectations at least twice: prior to (Time 1) and after (Time 2) the three modes of self-regulatory thought had been established.

Because of the concern with different forms of thinking about the future, our ideas are similar to the work of Taylor et al., (1998; Taylor & Schneider, 1989) that examines different forms of goal-pursuit simulation. Taylor et al. (1998) observed that process simulations (i.e., imagining the implementation of goal-directed behaviors) are more effective in furthering the attainment of a set goal (e.g., getting an A or a high grade in a course) than are outcome simulations (i.e., imagining having attained the set goal). Both models ultimately attempt to predict differences in goal pursuit and goal attainment on the basis of differential thinking about an anticipated future. However, although our work focuses on how people most effectively turn their free fantasies into binding goal commitments, Taylor et al.'s research explored how people best plan the implementation of an already set goal.

### *The Current Research*

As in previous research on fantasy realization (Oettingen, 2000), we analyzed the degree to which a goal is experienced as binding in terms of the strength of goal commitment. In accordance with current conceptions of goal commitment (e.g., Hollenbeck & Klein, 1987; Novacek & Lazarus, 1990; Brunstein, 1993),<sup>1</sup> we conceived of goal commitment in terms of a strong sense of determination, the willingness to invest effort, and impatient striving toward goal implementation. These indicators of commitment are used in research on how people pursue personally meaningful objectives in their daily lives (e.g., personal strivings; Emmons, 1986; personal projects; Little, 1983; life tasks; Cantor & Kihlstrom, 1987; self-defining goals; Wicklund & Gollwitzer, 1982).

The four studies described in this article were designed to systematically assess the named aspects of goal commitment as a function of the three modes of self-regulatory thought. Experiment 1 followed the idea that planning the implementation of the

<sup>1</sup> Note that the present concept of commitment does not denote the act of having or not having made a decision (Klinger, 1977; Wicklund & Brehm, 1976). Rather, it specifies the degree of determination with which a person attempts the implementation of a set goal.

chosen goal indicates a strong goal commitment (e.g., Berger, 1988; Gollwitzer, 1990, 1999) and that only committed individuals take responsibility for bringing about the desired outcome (e.g., Kiesler, 1971). Experiment 2 focused on a less cognitive-structural, but more affective, aspect of goal commitment by assessing participants' anticipated disappointment (e.g., Berger, 1988; Gollwitzer & Kirchhof, 1998). Finally, in Experiments 3 and 4, we measured goal commitment in terms of its behavioral consequences (e.g., Brunstein, 1993; Brunstein & Gollwitzer, 1996; Wicklund & Gollwitzer, 1982). More specifically, we assessed how energized people feel with respect to attaining their positive fantasies and whether they start relevant behaviors immediately, as well as how much effort they exert and how well they perform in realizing their positive fantasies as observed by independent raters.

The present research analyzes short-term and long-term goal commitment, as we expected the differential effects of the three modes of self-regulatory thought to persist over time. First, people commonly feel committed to their goals until they have attained them (Atkinson & Birch, 1970; Lewin, 1926; Wicklund & Gollwitzer, 1982). Second, the effects of the three modes of self-regulatory thought should be stable over time as heightened activation of mental procedures is characterized by high temporal stability (e.g., Kolers & Roediger, 1984; Smith, Stewart, & Buttram, 1992). If one assumes that mental contrasting, indulging, and dwelling sufficiently strengthen respective cognitive procedures, the originally practiced procedures should be readily reapplied whenever people are reconfronted with the problem of fantasy realization. Third, as noted above, the link between fantasy and reality created by mental contrasting can be assumed to possess a certain degree of permanency (Hebb, 1949).

The present research goes beyond previous studies on fantasy realization (Oettingen, 2000) with respect to the following aspects. Instead of relying solely on self-report measures of goal commitment, behavioral indicators as observed by independent raters were also assessed. Further, in the present experiments we analyzed not only desired futures stimulated by the experimenter but also desired futures participants thought up by themselves. Moreover, whereas past research only used laboratory experiments, we also included a field experiment. Finally, the present research explores the conceptual issue of whether the activation of the relational construct of reality standing in the way of fantasy is a prerequisite for the effects of mental contrasting to occur.

In the experiments to be reported, all participants were either presented with or asked to name a desired future event and then they had to list both positive aspects of the desired future and negative aspects of impeding reality. In this way we confronted participants with the same objective task environment (Newell & Simon, 1972). Only thereafter were the three modes of self-regulatory thought (i.e., mental contrasting, indulging, and dwelling) induced to create different internal representations of the problem at hand (i.e., different problem spaces). That way, it is not the objective task environment that is varied, but how people construe this task environment.

### Experiment 1: Planning Goal Implementation

Strength of goal commitment can be inferred from a person's planning the implementation of the goal at hand. Plans can take

different forms. They may link critical anticipated situations with intended behaviors in simple "if . . . then . . ." statements (so-called implementation intentions; Gollwitzer, 1999), but can also be more complex by specifying the order in which the sequence of behavior will be performed (Miller, Galanter, & Pribram, 1960). Plans may set stop rules that specify when a given goal-directed behavior will be given up in favor of another goal-directed behavior (Heckhausen, 1991) or lay down how certain problems and adversities will be dealt with (Wilensky, 1983).

Goal commitment can also be inferred from a person's perceived responsibility for bringing about desired future events (Kiesler, 1971). Therefore, as a second measure of goal commitment, we asked participants to what extent they perceived external circumstances to be responsible for the realization of their desired future. The less participants attributed the realizing of their desired future to external circumstances, we inferred, the stronger their goal commitment would be.

We chose the happy ending of an interpersonal problem as the fantasy theme for the first study. Such happy endings qualify as a powerful incentive for students, as maintaining good relationships with others is one of the most important desires in the lives of young adults (Hammersla & Frease-McMahan, 1990). As we wanted to establish the necessary condition for strong expectancy-behavior relations to occur (strong incentive value; Olson et al., 1996), female college students were asked to name their most important interpersonal problem. Moreover, as the outcomes of interpersonal problems are quite uncertain, they should stimulate fantasies. Further, the complexity of solving interpersonal problems should facilitate elaborations on negative reality. Finally, different individual performance histories in solving such interpersonal problems assure variance in expectations of success.

We had the following hypotheses: When given a chance to plan on how to implement the desired future, participants who mentally contrast their positive fantasies with impeding reality should engage in planning the most when expectations of success are high and the least when expectations of success are low. To the contrary, indulging and dwelling should lead to a medium amount of planning irrespective of whether expectations of success are high or low. Analogously, we hypothesized the strongest responsibility toward fantasy realization in contrasting participants who perceive their chances of success as being high and the weakest responsibility in those who perceive their chances of success as being low. Indulging and dwelling participants should report medium responsibility toward fantasy realization, whether their subjective probabilities of success are promising or not.

### Method

*Participants and design.* A total of 136 female students from the Free University of Berlin participated. Their mean age was 22.1 years ( $SD = 2.85$ ), ranging from 18 to 33 years. Students, separated by partitions, were tested 4 to 6 at a time. Participants were paid DM 20 (about \$10 U.S.). There were three experimental conditions: a positive-fantasy-negative-reality contrast condition (mental contrasting), a positive-fantasy-only condition (indulging), and a negative-reality-only condition (dwelling). The making of plans and taking on responsibility were measured immediately following the experiment.

*Procedure.* Students were greeted by a female experimenter who gave an overview of the procedure, told the participants that their answers would remain confidential, and stressed that their participation was voluntary.

After participants had given their informed consent, they were guided to their seats, where they found the experimental materials.

The cover story explained that the study was an investigation of daydreams, and was part of a larger research program on human development across the life span. Daydreams were defined as free thoughts and mental images that effortlessly unfold in the mind. The most intensive daydreams would be experienced about interpersonal relationships and, in particular, about solving interpersonal problems.

The study consisted of three parts. In the first part, participants were asked to name their most important interpersonal problem at the present (participants named, e.g., "to get to know better someone I like," "to improve the relationship to my partner," and "to understand my mother better"). To measure participants' expectations of success, we gave them a 7-point scale reaching from 1 (*very unlikely*) to 7 (*very likely*) on which they were asked to indicate their response to the following question: "How likely do you think it is that the named problem will have a happy ending?" Finally, to assess participants' perceived incentive value of solving the problem, we asked participants to rate their response to the following question: "How important is it to you that the named problem will have a happy ending?" The 7-point response scale reached from 1 (*not at all important*) to 7 (*very important*).

In the second part of the questionnaire, all participants were asked to list in writing four positive aspects that they associated with their interpersonal problem coming to a happy ending (participants named, e.g., having more time for each other, being loved, and feelings of being needed). Next, we asked participants to list four negative aspects of reality that stand in the way of a happy ending of their interpersonal problem (participants named, e.g., being shy, being too emotional, and too much work). To prevent extensive mental elaborations, we asked participants to write down only keywords.

The third part of the questionnaire was designed to establish the three experimental groups. All participants first ranked the positive aspects of the desired future and the negative aspects of present reality that they had listed in order of importance. In the fantasy–reality contrast condition, participants were then asked to mentally elaborate two positive aspects of a happy ending to the interpersonal problem and two negative aspects of reality that stand in the way of a happy ending, in alternating order beginning with a positive aspect of the future. To accomplish this procedure, we had participants transfer the second most important positive keyword pertaining to the desired future to a new sheet of paper with the following instructions at the top of the page:

Think about this aspect and depict the respective events or experiences in your thoughts as intensively as possible! Let the mental images pass by in your thoughts and do not hesitate to give your fantasies free reign. Take as much time and space as you need to describe the scenario. If you need more space to write, please use the back of the page.

After participants had finished mentally elaborating the keyword pertaining to the positive future and had written down their thoughts and images in the designated space on the upper half of the page, they transferred the second most important keyword pertaining to negative reality to the middle of the page, which contained the same instructions as above. After participants had finished working on the first sheet, they moved on to a second sheet that carried the same two sets of instructions. This time the keyword labeling the most important positive aspect of the future was transferred to the top of the page and mentally elaborated, then the most important negative aspect of reality was transferred to the middle of the page and mentally elaborated.

Participants in the positive-fantasy group were requested to mentally elaborate only the four most important positive aspects of a happy ending to the interpersonal problem. The keyword labeling the positive aspect of a happy ending ranked fourth important had to be transferred to the top of the first page and then was mentally elaborated. Participants continued with

the keywords of the third, second, and finally the most important positive aspect of a happy ending.

Participants in the negative-reality group were requested to elaborate only the four most important negative aspects of reality. Participants began with the keyword denoting the fourth important negative aspect, and then moved on to the third, second, and most important negative aspect of reality.

*Dependent variables.* Immediately following the experiment, all participants were confronted with eight sentence stems presented in random order: Four sentence stems suggested the formulation of plans, whereas the completion of the other four sentence stems did not require the formulation of plans (see Appendix). Instructions to the sentence stems were as follows: "Please carefully read all sentence stems. Then complete the four sentence stems—and only those four—that match best how you think about your interpersonal problem." As a dependent variable we counted the number of sentence stems chosen that led to the formulation of plans. Next, participants were asked: "To what extent does a happy ending to your interpersonal problem depend on external circumstances?" Participants answered this question using a 7-point answering scale ranging from 1 (*not at all*) to 7 (*totally*). To attain a measure of taking responsibility, we reverse coded the scale. Furthermore, we assessed expectations and incentive value once more using the same items as described above. Finally, participants were fully debriefed and encouraged to contact us at any time if they had further questions or if they wanted to learn a different self-regulatory strategy than the one experienced during the experiment.

## Results

*Descriptive analyses.* Mean expectation of attaining a happy ending was above the midpoint of the 7-point scale ( $M = 4.31$ ,  $SD = 1.75$ ), whereas mean incentive value was at the upper end of the 7-point scale ( $M = 6.14$ ,  $SD = 1.06$ ). Expectation and incentive value correlated positively ( $r = .24$ ,  $p = .002$ ). The dependent variables, the formulation of plans ( $M = 1.98$ ,  $SD = 0.72$ , ranging from 0 to 4 sentences) and taking on responsibility ( $M = 3.66$ ,  $SD = 1.67$ ), did not correlate substantively ( $r = .06$ ,  $p = .24$ ). Plans in the form of implementation intentions function by delegating the control of one's behavior to environmental cues (Gollwitzer, 1999). Therefore, those participants who engaged in planning in the form of implementation intentions may have experienced reduced responsibility for fantasy realization, which in turn should have ameliorated the overall positive correlation between the two dependent variables assessing strength of commitment.

To assure that the pattern of results was not due to variations in incentive value, we statistically controlled expectations and dependent variables in the following analyses for incentive value.

*Formulation of plans.* The link between participants' expectations of a happy ending and the number of formulated plans (see Figure 1, left graph) was stronger in the contrast condition ( $r = .44$ ) than in both the positive-fantasy condition ( $r = -.00$ ;  $z = 2.15$ ,  $p < .02$ ) and the negative-reality condition ( $r = .00$ ;  $z = 2.15$ ,  $p < .02$ ), whereas there was no difference between the positive-fantasy and negative-reality group ( $z = .00$ ).

To test for differences in formulating plans between participants who entertain high versus low expectations in the contrast condition versus the other conditions, we computed a 2 (expectations: high vs. low)  $\times$  2 (conditions: contrast vs. others) analysis of variance (ANOVA) that yielded a significant interaction effect,  $F(1, 132) = 10.39$ ,  $p = .002$ . Participants in the contrast group more frequently formulated plans than did participants in the other

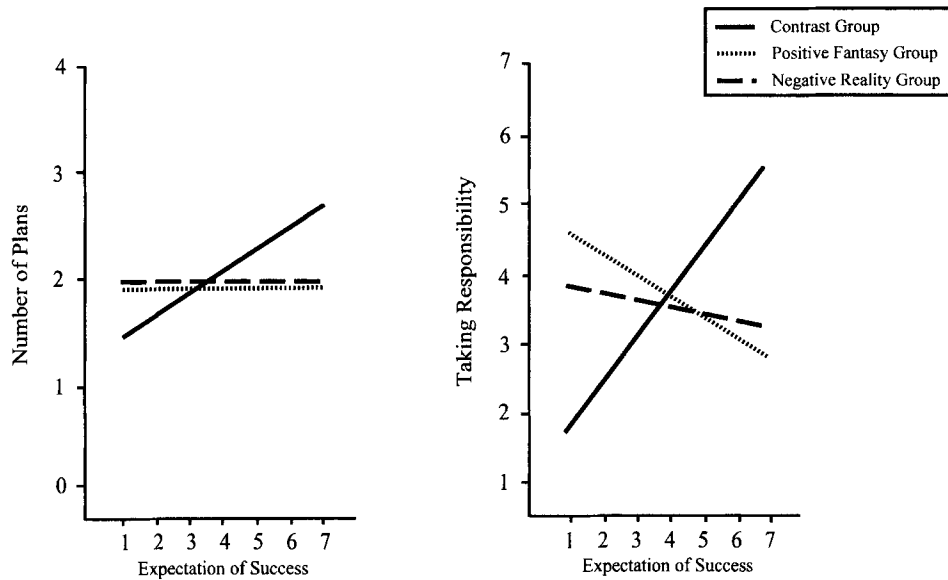


Figure 1. Regression lines depicting the link of expectation of success to formulating plans (left) and to taking responsibility (right) as a function of self-regulatory thought.

groups when expectations of success were high,  $t(132) = 3.47$ ,  $p = .001$ , but they failed to plan less in light of low expectations,  $t(132) = 1.15$ ,  $p = .25$ .

*Taking on responsibility.* A similar pattern of results emerged for the link between participants' expectations of attaining a happy ending and their taking on responsibility (see Figure 1, right graph). This link was stronger in the contrast condition ( $r = .27$ ) than in the positive-fantasy condition ( $r = -.16$ ;  $z = 2.03$ ,  $p = .02$ ) and the negative-reality condition ( $r = -.08$ ;  $z = 1.69$ ,  $p = .05$ ). Again, there was no difference between the positive-fantasy and the negative-reality group ( $z = .36$ ,  $p = .37$ ).

To test for differences between participants who entertain high versus low expectations in the contrast condition versus the other conditions, we computed a 2 (expectations: high vs. low)  $\times$  2 (conditions: contrast vs. others) ANOVA that yielded a significant interaction effect,  $F(1, 132) = 7.47$ ,  $p = .007$ . Participants in the contrast group took on more responsibility than did participants in the other groups when expectations of success were high,  $t(132) = 2.14$ ,  $p = .03$ , and tended to take on less responsibility when expectations of success were low,  $t(132) = 1.74$ ,  $p = .09$ .

*Changes in expectation and incentive value as alternative processes.* Fantasy realization theory postulates that the three modes of self-regulatory thought differentially affect the link between expectation and goal commitment rather than the absolute level of expectation or the absolute level of incentive value. To test whether the observed patterns of results might be a product of changes in level of expectation or incentive value, we measured expectation and incentive value a second time (i.e., when the dependent variables were assessed). When repeating all analyses after statistically controlling the dependent variables for the measures of expectation and incentive value at Time 2, the pattern of data stayed the same: The correlations of expectation with the dependent variables were higher in the contrast condition than in the positive-fantasy and the negative-reality conditions (all

$z_s \geq 1.63$ ,  $ps \leq .05$ ), which did not differ from each other (all  $z_s \leq 0.34$ ,  $ps \geq .37$ ). ANOVAs testing for differences between participants who entertained high versus low expectations in the contrast condition versus those in the other conditions still showed the expected significant interaction effects, all  $F_s(1, 132) > 7.43$ ,  $ps < .01$ .

### Discussion

When participants contrasted their positive fantasies of attaining a happy ending of their interpersonal problem with negative aspects of present reality, they made plans and took on responsibility to realize their fantasies when expectations of success were high, but refrained from doing so when expectations of success were low. Thus, contrasting participants solve the problem of fantasy realization in a rational manner (i.e., in their level of goal commitment they respect chances of success). Expectations did not affect level of goal commitment as assessed by planning and taking on responsibility when participants indulged in positive fantasies or dwelled on negative reality. Apparently, when solely fantasizing about a desired future or merely dwelling on present reality, expectations do not become activated and used. Goal setting becomes a mere issue of being pulled by the positive future or pushed by negative reality, leading to expectancy-independent medium goal commitment. Given that expectations are based on past experiences and performances, both indulging and dwelling participants' goal commitment seems irrational as it is too strong when subjective probabilities of success are low and too weak when subjective probabilities of success are high.

In Experiment 1, participants' level of goal commitment was assessed in terms of cognitive aspects (i.e., the formation of plans and taking on personal responsibility). In Experiment 2, goal commitment was assessed in terms of feeling attached to the goal. We measured participants' anticipated disappointment in case their

positive future failed to come true. Further, this dependent variable was assessed 2 weeks after the experiment. As outlined above the effects of the three modes of self-regulatory thought on goal commitment should be quite stable over time.

In Experiment 1, we analyzed individual problems that each participant brought to the experiment herself. Therefore, it seems possible that some participants had already set themselves binding goals to realize the implied desired future before entering the experiment. A critical test of the hypothesis that the three modes of self-regulatory thought indeed differentially affect goal setting rather than simply differentially strengthening existing goal commitments requires that new fantasies about a desired future are stimulated during the experiment. This line of thought was followed in Experiment 2. Rather than allowing participants to suggest their own problems, we instructed all participants to think about the new issue of studying abroad.

### Experiment 2: Anticipated Disappointment

According to a 1997 report of the United Nations Educational, Scientific, and Cultural Organization, 1.5 million people study abroad. Studying abroad seems highly desirable, even though there are substantial obstacles standing in its way (e.g., financial costs and bureaucracy). Therefore, the theme of studying abroad is ideal for both fantasizing about the future and reflecting on negative aspects of reality.

An affective component of goal commitment is the degree of disappointment people feel when anticipating that a desired future fails to come true (Wicklund & Gollwitzer, 1982; Brunstein & Gollwitzer, 1996). We hypothesized that in light of high expectations of success, participants who had to mentally contrast their positive fantasies of studying abroad with impeding reality would feel most disappointed when anticipating failure, and, in light of low expectations of success, they would feel least disappointed. Participants who had to indulge in their positive fantasies or dwell on negative reality, to the contrary, should feel moderate disappointment whether their expectations of success are high or low.

### Method

**Participants and design.** Ninety-five female first-year students at the Free University of Berlin with a mean age of 21.6 years ( $SD = 2.9$ ) participated. Students, separated by partitions, were tested 4 to 6 at a time. They were paid DM 20 (about \$10 U.S.). As in the previous experiment, there were three experimental conditions: a positive-fantasy-negative-reality contrast condition, a positive-fantasy-only condition, and a negative-reality-only condition.

**Procedure.** The female experimenter described the procedure, assured confidentiality, and told participants that their participation was voluntary. Participants were also informed that 2 weeks after the experiment they would receive a short follow-up questionnaire. To guarantee anonymity, participants wrote down a personal code instead of their names. They were asked to note this code on a business card provided by the experimenter and to keep it until they had answered the follow-up questionnaire 2 weeks later.

Participants were told that the study concerned thoughts and images about studying abroad. To measure relevant expectations we asked, "How likely do you think it is that you will study abroad for one or more semesters?" The response scale reached from 1 (*very unlikely*) to 7 (*very likely*). Incentive value was assessed by asking participants "How important is it to you that you will study abroad for one or more semesters?" Here

the response scale reached from 1 (*not at all important*) to 7 (*very important*).

Then, participants were asked to list four positive aspects that they associated with studying abroad in the future (participants named, e.g., broadening my mind, having a good time, and learning a second language). Next, they had to list four negative aspects of reality that stand in the way of studying abroad (participants named, e.g., lack of money, bureaucratic hassles, and feeling homesick). To prevent extensive mental elaborations at this point, we asked participants to write down only keywords. Finally, three experimental groups were established in the same manner as in Experiment 1.

**Dependent variables.** Two weeks after the experiment, participants were sent a letter asking, "How disappointed would you be if you never studied abroad?" Participants answered this item on a 7-point scale reaching from 1 (*not at all disappointed*) to 7 (*very disappointed*). Eighty-seven participants (91%) responded to the follow-up letter. Expectations and incentive value did not differ between participants with or without follow-up questionnaires ( $ps > .59$ ). Two weeks after mailing the follow-up questionnaire, we debriefed participants in a final letter that explained in detail the purpose, hypotheses, and design of the experiment and encouraged students to contact us if they had further questions or wanted to learn a different self-regulatory strategy than the one they had used in the experiment.

### Results

**Descriptive analyses.** Participants' mean expectation and mean incentive value of studying abroad were above the midpoint of the 7-point scales ( $M = 4.71$ ,  $SD = 1.98$ ;  $M = 5.46$ ,  $SD = 1.90$ , respectively). The same was true for the mean of the dependent variable of anticipated disappointment ( $M = 4.36$ ,  $SD = 2.06$ ).

**Anticipated disappointment.** The link between participants' expectations of studying abroad and their anticipated disappointment (see Figure 2) was stronger in the contrast condition ( $r = .46$ ) than in the positive-fantasy condition ( $r = .03$ ;  $z = 1.64$ ,  $p = .05$ ) and the negative-reality condition ( $r = -.09$ ;  $z = 2.13$ ,  $p = .02$ ), which did not differ from each other ( $z < 0.46$ ,  $p > .32$ ).

To test for differences in the mean levels of anticipated disappointment between participants who entertain high versus low

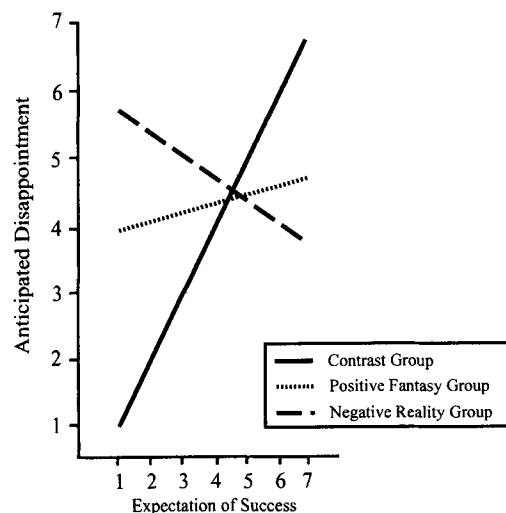


Figure 2. Regression lines depicting the link of expectation of success to anticipated disappointment as a function of self-regulatory thought.

expectations in the contrast condition versus the other conditions, we computed a 2 (expectations: high vs. low)  $\times$  2 (conditions: contrast vs. others) ANOVA that yielded a significant interaction effect,  $F(1, 83) = 9.21, p = .003$ . Participants in the contrast group tended to anticipate more disappointment than did those in the other groups when expectations of success were high,  $t(83) = 1.87, p < .07$ , and they anticipated less disappointment than did participants in the other groups when expectations of success were low,  $t(83) = 2.39, p = .03$ .

### Discussion

Mental contrasting leads to expectancy-based goal commitment, whereas indulging and dwelling lead to expectancy-independent goal commitment. Apparently, this pattern of results holds true not only when level of goal commitment is assessed in terms of its cognitive aspects (Experiment 1), but also when affective aspects of goal commitment (i.e., anticipated disappointment) are at issue. In addition, the differential effects of the three modes of self-regulatory thought are not only observed when level of goal commitment is assessed immediately after the experiment (Experiment 1), but also after 2 weeks duration. Further, the hypothesized effects prevail not only when people are allowed to think about their own personal problems (Experiment 1), but also when a new issue, such as studying abroad, is introduced to all participants. Finally, these effects appear to hold true for interpersonal and professional issues alike.

However, the two experiments reported so far do not tell us whether the differential effects of the three modes of self-regulatory thought go beyond cognitive and affective aspects of goal commitment and extend to its behavioral indicators. To explore this issue, in the third experiment we looked at whether the observed pattern of results also holds true for immediacy of initiating goal-directed behaviors, as strong goal commitments should be associated with promptly getting started on one's goal pursuit (Brunstein, 1993). Therefore, in Experiment 3, we inquired 2 weeks after the experiment how swiftly participants had initiated goal-directed action by asking for the date that they initiated critical steps toward fantasy fulfillment. Furthermore, immediately following the experiment, we included another measure of behavioral readiness, this one based on participants' "feeling energized" (Brunstein & Gollwitzer, 1996). Participants had to report on how energetic, active, eventful, and empty (reverse coded) they felt with respect to fantasy fulfillment.

In Experiment 3 we also wanted to explore the question of whether the activation of the standing in the way relational construct is critical for experiencing a necessity to act. As stated earlier, mental contrasting of fantasies about a desired future with present reality creates (a) simultaneous accessibility of cognitions entailing the desired future and cognitions entailing the status quo and (b) heightened accessibility of the relational construct in the sense of reality standing in the way of the desired future. We assume that the activation of this type of relational construct rests on the fact that the not-yet-materialized desired future is taken as a reference point or anchor with which the materialized present reality is then compared. The desired future is taken as a reference point precisely because participants are first asked to elaborate the desired future before they are asked to reflect on negative reality.

If one follows the idea that the choice of reference points affects the activation of knowledge (Tversky, 1977), switching the order of elaboration of future and reality should inhibit the activation of the named relational construct. When things are turned around and participants are asked to elaborate the negative reality prior to the desired future, the status quo is the reference point, as compared with which the envisioned positive future is perceived as a welcome relief that can be indulged in. Therefore the status quo will not be experienced as something that stands in the way of the desired future. Accordingly, a necessity to act toward fantasy realization through changing the present reality should not be induced, and participants should fail to set themselves expectancy-dependent goals; the strength of their goal commitments should be solely based on the implicit pull effects associated with the soothing fantasies about the desired future.

To test this hypothesis, in Experiment 3 we added a further experimental group in which participants had to elaborate the negative reality before generating positive fantasies about the future. In this reality-fantasy group, we predicted expectancy-independent moderate levels of commitment.

### Experiment 3: Immediacy of Starting Goal Pursuit

The fantasy theme (i.e., interpersonal problem) and experimental procedure were the same as in Experiment 1. To assess behavioral indicators of goal commitment, we first asked participants to rate how energetic, active, eventful, and empty (reverse coded) they felt directly after the manipulation. Second, we asked participants to report on the exact date of their initiating the two most difficult to implement steps of bringing their interpersonal problem to a happy ending. This second measure, assessed 2 weeks after the experiment, specified the number of days participants let pass before they started critical goal-directed action. Finally, we added a further experimental group in which participants started off elaborating negative aspects of present reality before they had to fantasize about the desired future.

We hypothesized that participants who had mentally contrasted their positive fantasies with negative reality would feel most energized and initiate goal-directed action more quickly when their expectations of success were high, but would feel least energized and initiate goal-directed action more sluggishly when expectations of success were low. Participants from the other three groups should feel moderately energized and initiate goal-directed action after a fair amount of time, whether their expectations of success were perceived as high or low.

### Method

*Participants and design.* A total of 168 female students from various universities in Berlin with a mean age of 23.5 years ( $SD = 3.1$ ) participated. Students, separated by partitions, were tested 6 to 8 at a time and paid DM 20 (about \$10 U.S.) each for participation. There were four conditions: a positive-fantasy-negative-reality contrast condition, a positive-fantasy-only condition, a negative-reality-only condition, and a negative-reality-positive-fantasy condition.

*Procedure.* The procedure and cover story were the same as in Experiment 1. The only difference was that participants were told that there would be follow-up questions sent to them in 2 weeks. The methodology used to assure anonymity was the same as in Experiment 2.

The measure of expectations, "How likely do you think it is that the named problem will have a happy ending?" was answered on a 0% to



100% response scale. Instructions to create the three modes of self-regulatory thought followed those of Experiment 1. In the added negative reality-positive fantasy condition, participants had to mentally elaborate two negative aspects of present reality and two positive aspects of a happy ending in alternating order, beginning with a negative aspect of reality. To achieve this objective, participants received instructions just like in the mental contrast group, but they had to start their mental elaboration with the second most important negative aspect of reality, proceed to the second most important positive aspect of a happy ending, and then turn to the next page, where they elaborated the most important negative aspect of reality and the most important positive aspect of a happy ending.

**Dependent variables.** Directly after the experiment, all participants were asked to think once more about their interpersonal problem and then indicate how energetic, active, eventful, and empty (reverse coded) they felt at the exact moment. Response scales ranged from 1 (*not at all*) to 7 (*very much*). The items showed high internal consistency (Cronbach's  $\alpha = .80$ ). Thus we combined them to create a variable of feeling energized. Before participants left, we again measured expectation and incentive value using the same items as before.

Two weeks after the experiment, we sent out a letter that participants were asked to answer within 3 days. They were to list all steps that they had undertaken to achieve a happy ending to their interpersonal problem since the time they had participated in the experiment. They then had to indicate which two of the listed steps were the most difficult to implement, and to report about the exact date when they had performed these two steps. Immediacy of action was defined as the difference in days between the date participants reported to have taken the critical steps and the date of participation in the experiment. Finally, participants again rated how likely they thought it was that their interpersonal problem would have a happy ending and how important this was to them. Two participants failed to report on the latter two variables.

Ninety percent, or 151 participants, sent the follow-up form back. Of these participants 92 (61%) had taken two or more steps toward fantasy realization. Further, 6 participants (4%) had taken at least one step, and 53 participants (35%) had not initiated any steps. Mean delays of the most and second most difficult steps were 4.94 and 4.82 days. For those participants who had not yet undertaken any steps, we filled in acting participants' maximal delay plus 1 day. For the second most difficult step, the maximum delay was 16 days and thus the constant filled in was 17. For the most difficult step, the maximum delay was 18 days and thus the constant filled

in was 19. Immediacy of action regarding the first step highly correlated with immediacy of action regarding the second step ( $r = .74$ ), and therefore the scores of both steps were combined into one index of immediacy of action. Two weeks later, participants were debriefed in a final letter that followed the criteria used in the previous experiments.

## Results

**Descriptive analyses.** Participants' expectations of attaining a happy ending regarding their interpersonal problem was above the midpoint of the 10-point scale ( $M = 6.21, SD = 2.37$ ), whereas the mean of the incentive value was at the upper end of the 7-point scale ( $M = 6.33, SD = .94$ ). The dependent variables, feeling energized and immediacy of action ( $M = 4.60, SD = 1.37$ , and  $M = 9.62, SD = 6.97$ , respectively), did not correlate ( $r = -.05, p = .56$ ). The lack of correlation between the two variables measuring commitment can be explained by the fact that feelings of energization measured right after the manipulation solely depended on the participant, whereas immediacy of action toward solving the interpersonal problem measured 2 weeks after the experiment depended also on the cooperation of others and the conduciveness of the situational context.

Of the total sample ( $N = 168$ ), 151 participants (90%) completed their follow-up questionnaire. Of the 17 missing participants, 4 were in the positive-fantasy-negative-reality contrast condition, 5 were in the positive-fantasy condition, 2 were in the negative-reality condition, and 6 were in the negative-reality-positive-fantasy control condition. Thus data of 168 participants were included in the analyses at Time 1 (feeling energized) and 151 participants were included in the analyses pertaining to Time 2 (immediacy of action). Expectation and incentive value did not differ between participants with and without follow-up questionnaires ( $p = .96$  and  $p = .14$ , respectively). As in the previous experiments, we statistically controlled expectation and dependent variables for incentive value.

**Feeling energized.** The link between participants' expectations of a happy ending and their feeling energized (see Figure 3,

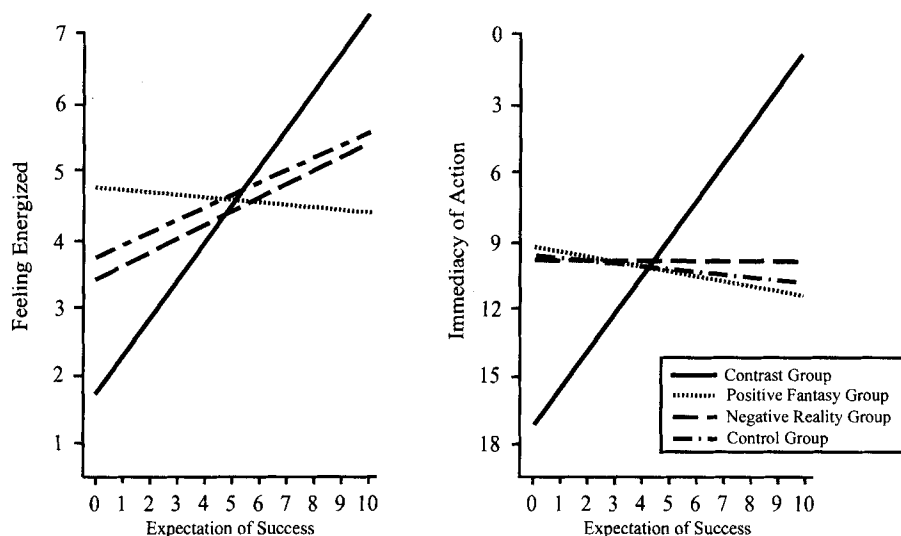


Figure 3. Regression lines depicting the link of expectation of success to feeling energized (left) and to immediacy of action (right) as a function of self-regulatory thought.

left graph) was stronger in the contrast condition ( $r = .56$ ) than in the positive-fantasy condition ( $r = -.06$ ;  $z = 3.05$ ,  $p = .001$ ), the negative-reality condition ( $r = .17$ ;  $z = 2.07$ ,  $p = .02$ ), and the negative-reality-positive-fantasy condition ( $r = .21$ ;  $z = 1.88$ ,  $p = .03$ ). There were no differences among the positive-fantasy, negative-reality, and negative-reality-positive-fantasy groups (all  $z$ s  $< 1.21$ ,  $ps > .11$ ).

To test for differences in the mean levels of feeling energized between participants who entertained high versus low expectations in the contrast condition versus the other conditions, we computed a 2 (expectations: high vs. low)  $\times$  2 (conditions: contrast vs. others) ANOVA that yielded a significant interaction effect,  $F(1, 164) = 8.91$ ,  $p = .003$ . Participants in the contrast group felt more energized than did those in the other groups when expectations of success were high,  $t(164) = 2.26$ ,  $p = .03$ , and they felt less energized than did those in the other groups when expectations of success were low,  $t(164) = 2.05$ ,  $p < .05$ .

*Immediacy of starting goal-directed action.* A similar pattern of results emerged for the link between participants' expectations of attaining a happy ending and their immediacy of acting toward a happy ending (see Figure 3, right graph). The link was stronger in the contrast condition ( $r = .43$ ) than in the positive-fantasy condition ( $r = -.05$ ;  $z = 2.11$ ,  $p = .01$ ), the negative-reality condition ( $r = -.01$ ;  $z = 1.98$ ,  $p = .02$ ), and the negative-reality-positive-fantasy condition ( $r = -.05$ ;  $z = 2.12$ ,  $p = .01$ ). There were no differences between the positive-fantasy, negative-reality, and negative-reality-positive-fantasy groups (all  $z$ s  $< .20$ ,  $ps > .42$ ).

As we had added a constant to the dependent variable, immediacy of action, for participants not having acted toward a happy ending, we repeated the analyses using Spearman rank correlation coefficients instead of Pearson correlation coefficients. The analyses yielded the same pattern of results: The link between expectations and immediacy of action was stronger in the contrast condition ( $r = .39$ ) than in the positive-fantasy condition ( $r = -.08$ ;  $z = 2.07$ ,  $p < .02$ ), the negative-reality condition ( $r = -.00$ ;  $z = 1.80$ ,  $p = .03$ ), and the negative-reality-positive-fantasy condition ( $r = -.09$ ;  $z = 2.10$ ,  $p < .02$ ), all of which did not differ from each other (all  $z$ s  $< .34$ ,  $p > .36$ ).

To test for differences between participants who entertained high versus low expectations of success in the contrast condition versus the other conditions, we computed a 2 (expectations: high vs. low)  $\times$  2 (conditions: contrast vs. others) ANOVA that yielded a significant interaction effect,  $F(1, 147) = 10.25$ ,  $p = .002$ . Participants in the contrast group acted more swiftly than did participants in the other groups when expectations of success were high,  $t(147) = 3.50$ ,  $p = .001$ , whereas the delay in light of low expectations did not reach significance,  $t(147) = 1.15$ ,  $p = .26$ .

*Changes in expectation and incentive value as alternative processes.* Similarly to Experiment 1, we analyzed whether the observed patterns of results might be a product of changes in level of expectations or changes in level of incentive value. We measured expectation and incentive value a second time immediately after the manipulation (Time 2) and a third time 2 weeks after the manipulation (Time 3). When we repeated the analyses with the dependent variables (feeling energized and immediacy of action) statistically controlled for expectation and incentive value measured at Time 2, the pattern of results stayed the same. The correlations of expectation (measured at Time 1, before the ma-

nipulation) with the dependent variables were higher in the contrast condition than in the other conditions (all  $z$ s  $> 1.78$ ,  $ps < .04$ ) and did not differ between the positive-fantasy, the negative-reality, and the negative-reality-positive-fantasy groups (all  $z$ s  $< 1.02$ ,  $ps > .15$ ). Respective ANOVAs showed significant interaction effects, all  $F$ s(1, 164/147)  $> 7.45$ ,  $ps < .01$ .

When we repeated our analyses with the dependent variable, immediacy of action, statistically controlled for expectation and incentive value measured at Time 3 (2 participants failed to report their expectations and incentive value at Time 3), the pattern of results again stayed unchanged. The correlations of expectation (measured at Time 1) with immediacy of action were higher in the contrast condition than in the other conditions (contrast condition versus other conditions,  $z$ s  $> 1.79$ ,  $ps < .04$ ), which did not differ from each other (all  $z$ s  $< 0.33$ ,  $ps > .37$ ). The respective ANOVA showed a significant interaction effect,  $F(1, 145) = 9.10$ ,  $p < .004$ .

## Discussion

When participants contrasted their positive fantasies of attaining a happy ending with negative aspects of impeding reality, their expectations of success guided behavioral readiness as well as immediacy of initiating relevant action. In light of favorable expectations, participants felt most energized and initiated action most swiftly, whereas in light of low expectations of success, they felt least energized and deferred relevant action initiation. Indulging in positive fantasies and dwelling over impeding reality led to moderate, expectancy-independent feeling of being energized as well as to a moderate, expectancy-independent postponement of initiating goal-directed action.

In the negative-reality-positive-fantasy condition, participants' expectations did not guide goal-directed responses either, indicating that the sole simultaneous accessibility of the desired future and the negative reality does not suffice to produce contrasting effects. For expectancy-dependent goal setting with subsequent initiation of goal-directed behavior to occur, the relational construct of reality standing in the way of the desired future also has to be activated, which requires that fantasies about a desired future are elaborated first and thus are taken as the reference point. When the status quo is elaborated first and thus taken as the reference point, reality is not experienced as standing in the way of the desired future. Fantasizing about the desired future is then experienced as a welcome relief to the given reality, and not used as a reference point to which the status quo is related. Therefore the given reality cannot be perceived as impeding the desired future. As a consequence, no necessity to act is induced and participants' readiness to act is solely based on the implicit pull effects stemming from indulging in positive fantasies.

One indication of goal commitment in its behavioral form is the immediacy of getting started to act on the goal, as measured in the present experiment. Alternative behavioral indicators are persistence of goal pursuit and quality of goal attainment. Accordingly, in the fourth experiment we assessed effortful goal striving and successful performance as dependent variables. This time we did not rely on self-report measures, but on observations of independent raters. Finally, as women participated in Experiments 1 to 3, we now invited men to participate.

### Experiment 4: Persistent Effort and Successful Performance

Participants were male students enrolled in two vocational schools for computer-programming. The fantasy theme was excellent in mathematics. Because mathematics was the critical subject in the first year of studies and participants were freshmen (trained full time to become media or computer specialists), we felt participants should find it easy to fantasize about improving in mathematics. Furthermore, improving in mathematics is an uncertain event, which should further stimulate fantasies. At the same time, improving in mathematics is complicated enough so that participants can elaborate on impediments. Finally, variations in students' performance history in mathematics allow for variance in expectancy judgments. In this field experiment, we measured participants' feeling energized right after the experiment as well as their persistent effort and actual achievement as assessed by students' teachers 2 weeks after the experiment.

#### Method

**Participants and design.** Ninety male freshmen enrolled in six classrooms of two German vocational schools at Berlin with a mean age of 18.61 years ( $SD = 1.90$ ), ranging from 17 to 27 years, participated. Students were tested in the classrooms with their teachers absent. The experiment took place 1 week after students had received their first report cards. Students were thanked with a surprise gift. There were three experimental conditions: A positive-fantasy-negative-reality contrast condition, a positive-fantasy-only condition, and a negative-reality-only condition.

**Procedure.** A letter to students explained the course of the study, that participation was voluntary, and that answers would remain confidential. Participants were also informed that their teachers would be consulted for performance evaluations. Parents signed the consent form for students' younger than 18 years old; students older than 18 years of age signed the consent form themselves. To adjoin teachers' evaluations to students' questionnaires under conditions of anonymity, the names of the students were cut off from the questionnaires and the teachers' evaluation forms, and a number was assigned to both. The list attaching number and name were kept at the school.

The cover story explained that the study was part of a larger research program on human development across the life span. It was stated that important facets of human development are daydreams and mental images that effortlessly unfold in the mind's eye. We stated, more specifically, that we would investigate students' daydreams about school. The present study focused on daydreams concerning mathematics.

To statistically control the dependent variables of effort and achievement for intelligence, we first administered the Raven standard progressive matrices (Raven, 1971). The experimenters described the Raven procedure in detail and gave the participants 40 min to work on the tasks. After having taken the Raven, students had a 5-min break. Next, they were told that the study would go on to investigate thoughts and daydreams about mathematics.

To measure participants' expectations of improving in mathematics we asked, "How likely do you think it is that you will improve in mathematics?" Participants answered this question using a 5-point scale ranging from 1 (*not at all likely*) to 5 (*very likely*). To assess the incentive value, we asked "How important is it to you that you will improve in mathematics?" In this case, the 5-point answering scale reached from 1 (*not at all important*) to 5 (*very important*).

In the second part of the questionnaire, all participants were asked to think of positive aspects of improving in mathematics. They were to write down four such aspects (participants named, e.g., enhanced knowledge, feelings of pride, and being better qualified for the job market). Next, we

asked participants to think up four negative aspects of present reality that stand in the way of their improving in mathematics (participants named, e.g., being lazy, being absent-minded, and being distracted by other students). Again, participants were to write down only keywords. The third part of the questionnaire was designed to establish the three experimental groups. This procedure was analogous to the previous experiments.

**Dependent variables.** As in Experiment 3, directly following the experiment, all participants reported how energetic, active, eventful, and empty (reverse coded) they felt. Response scales ranged from 1 (*not at all*) to 5 (*very much*). Three participants (one in each condition) failed to complete the items; therefore the analysis was based on 87 participants. Consistently with Experiment 1, the items showed high internal consistency (Cronbach's  $\alpha = .70$ ), thus we combined them to create a variable of feeling energized. Before leaving, participants again rated how likely they thought it was that they would improve in mathematics and how important this improvement was for them.

Two weeks after the experiment, we obtained teachers' evaluations of students' persistent effort and actual achievement. To assess persistent effort, we asked teachers to what extent the following would apply to each of the students when considering the last two weeks: "The student was intrinsically interested in mathematics," "The student showed persistent effort in studying mathematics," and "The student was easily distracted" (reverse coded). Teachers answered these questions using 5-point scales reaching from 1 (*not at all true*) to 5 (*very true*). Internal consistency was high (Cronbach's  $\alpha = .86$ ). To assess mathematics achievement, we asked teachers, "Which grade would you give to the student if today was the day of report cards?" The scale was the same as used in German report cards and ranged from 1 (*very good*) to 6 (*failed*). From the 90 participating students, teachers rated effort and achievement in 87 participants. In addition, participants had to indicate again how likely they thought it would be that they would improve in mathematics and how important this improvement was to them (80 students, or 88%, answered the two follow-up questions). After completing the study, both participants and teachers were fully debriefed. We encouraged students and teachers to contact us at any time with further questions and invited participants to learn about the other self-regulatory strategies they had not gotten to know in the experiment.

#### Results

**Descriptive analyses.** The mean of participants' expectations for improving in mathematics was above the midpoint of the 5-point scale ( $M = 3.04$ ,  $SD = 1.12$ ), as was the mean for incentive value ( $M = 3.73$ ,  $SD = 1.13$ ). The two variables correlated positively ( $r = .29$ ,  $p = .01$ ). Students' mean score of feeling energized (measured right after the experiment) was above the midpoint of the 5-point scale ( $M = 3.19$ ,  $SD = 0.77$ ).

Students' mean score of effort as assessed by the teachers was also above the midpoint of the scale ( $M = 3.07$ ,  $SD = 0.91$ ), and it correlated positively with feeling energized ( $r = .32$ ,  $p = .002$ ). Students' achievement as rated by the teachers was rather weak ( $M = 3.13$ ,  $SD = 1.20$ ; on a scale ranging from 1 [*very good*] to 6 [*failed*]), similar to the course grades in the report cards ( $M = 3.21$ ,  $SD = 1.07$ ). Teachers' ratings of students' achievement (reverse coded) correlated strongly with (reverse coded) report card grades ( $r = .76$ ,  $p < .001$ ), moderately with students' feeling energized ( $r = .23$ ,  $p = .01$ ), and strongly with teachers' ratings of students' effort ( $r = .82$ ,  $p < .001$ ). Apparently, the three commitment variables in Experiment 4 are closely interrelated, even though one was self-reported right after the experiment (i.e., feeling energized) and the other two were assessed by the teachers 2 weeks after the experiment (i.e., effort and performance). The observed interdependence of the three behavioral measures of commitment in

Experiment 4 is in contrast to the lack of interdependence of the behavioral measures of commitment in Experiment 3. Apparently, when it comes to issues of achievement as compared with interpersonal relations, the behavioral aspects of commitment that have to do with the execution of behavior (i.e., effort and performance) are less dependent on external circumstances. Thus they correlate more closely with feeling energized.

Raven scores ( $M = 54.53$ ,  $SD = 3.41$ ) matched the scores described in the literature for students of similar age (17- to 18-year-old students in 11th grade of German high schools show Raven scores of 56; Heller, Kratzmeier, & Lengfelder, 1998). They mildly correlated with students' report card grades ( $r = .20$ ,  $p = .05$ ) as well as with teacher ratings of students' performance ( $r = .15$ ,  $p = .08$ ) and effort ( $r = .16$ ,  $p = .07$ ) 2 weeks after the experiment. To control for teacher and peer-group influences in the different classrooms (Beach, 1994), we ran all analyses using independent and dependent variables standardized per classroom.

As dependent variable of students' mathematics achievement, we used the teacher evaluations 2 weeks after the experiment minus report card grades handed out 1 week before the experiment. All dependent variables were controlled for intelligence (Raven) and for the incentive value of improving in mathematics. Expectations were controlled for incentive value only, as intelligence contributes to performance, and expectations are based on past performance. However, even after expectations were statistically controlled for intelligence, the pattern of results stayed the same.

*Feeling energized.* The link between students' expectations of success and their feeling energized (see Figure 4, left panel) was stronger in the contrast condition ( $r = .60$ ) than in the positive-fantasy condition ( $r = .15$ ;  $z = 1.99$ ,  $p = .02$ ), and in the negative-reality condition ( $r = -.06$ ;  $z = 2.81$ ,  $p = .002$ ). There was no difference between the positive-fantasy and the negative-reality group in the links between expectations and feeling energized ( $z = 0.74$ ,  $p = .23$ ).

To test for differences in the mean levels of feeling energized between students who entertained high versus low expectations in

the contrast condition versus the other conditions, we computed a 2 (expectations: high vs. low)  $\times$  2 (conditions: contrast vs. others) ANOVA that yielded a significant interaction effect,  $F(1, 83) = 6.30$ ,  $p = .02$ . Students in the contrast condition were more energized than were students in the other groups when expectations of success were high,  $t(83) = 1.93$ ,  $p = .05$ . When expectations of success were low, they tended to feel less energized than the respective students in the other groups did,  $t(83) = 1.73$ ,  $p = .08$ .

*Effort.* Students' effort as observed by the teachers showed a similar pattern (see Figure 4, middle panel). The link between expectations and effort was stronger in the contrast condition ( $r = .50$ ) than in the positive-fantasy condition ( $r = -.05$ ;  $z = 2.24$ ,  $p = .01$ ) and in the negative-reality condition ( $r = .06$ ;  $z = 1.79$ ,  $p = .03$ ). There was no difference between the positive-fantasy and the negative-reality groups in the links between expectation and effort ( $z = 0.41$ ,  $p = .34$ ).

To test for differences in the mean levels of effort between students who entertained high versus low expectations in the contrast condition versus the other conditions, we computed a 2 (expectations: high vs. low)  $\times$  2 (conditions: contrast vs. others) ANOVA that yielded a significant interaction effect,  $F(1, 83) = 5.88$ ,  $p = .01$ . Even though participants in the contrast condition did not put in significantly more effort than participants in the other groups did when expectations of success were high,  $t(83) = 0.83$ ,  $p = .40$ , they put in much less effort when expectations of success were low,  $t(83) = 2.70$ ,  $p = .008$ .

*Achievement.* The link between students' expectation of success and their achievement (see Figure 4, right panel) was stronger in the contrast condition ( $r = .47$ ) than in the positive-fantasy-only condition ( $r = -.10$ ;  $z = 2.28$ ,  $p = .01$ ) and tended to be stronger in the negative-reality-only condition ( $r = .16$ ;  $z = 1.25$ ,  $p = .10$ ). There was no difference between the positive-fantasy and the negative-reality group in the links between expectation and achievement ( $z = 0.93$ ,  $p = .17$ ).

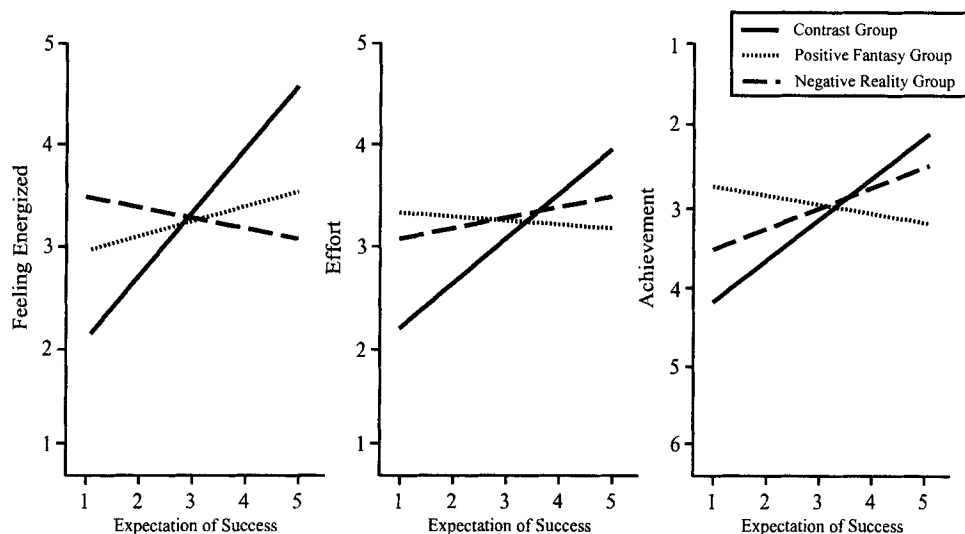


Figure 4. Regression lines depicting the link of expectation of success to feeling energized (left), to teacher-rated effort (middle), and to teacher-rated achievement (right) as a function of self-regulatory thought.

To test for differences in the mean levels of achievement between students who entertained high versus low expectations in the contrast condition versus the other conditions, we computed a 2 (expectations: high vs. low)  $\times$  2 (conditions: contrast vs. others) ANOVA that yielded a significant interaction effect,  $F(1, 83) = 6.50, p = .01$ . Students in the contrast condition displayed higher levels of achievement than did students in the other groups when expectations of success were high,  $t(83) = 1.93, p = .05$ ; when expectation of success were low, they tended to show weaker performance in mathematics than did those in the other groups,  $t(83) = 1.69, p = .09$ .

*Changes in expectation or incentive value as alternative processes.* We measured expectation and incentive value a second time 2 weeks after the manipulation. When repeating our analyses with the dependent variables (effort and achievement) statistically controlled for the expectation and incentive value measured at Time 2, the pattern of results remained the same. The correlations of expectations (assessed prior to the manipulation) with teacher-rated effort were higher in the contrast condition than in the other conditions ( $z_s > 1.83, p_s < .04$ ) and did not differ between the positive-fantasy and the negative-reality conditions ( $z < 0.80, p > .21$ ). The correlations of expectations with teacher-rated achievement were higher in the contrast condition than in the positive-fantasy condition ( $z = 2.50, p = .006$ ), tended to be higher in the contrast condition than in the negative-reality condition ( $z > 1.33, p = .09$ ), and did not differ between the positive-fantasy and negative-reality conditions ( $z = 1.19, p = .11$ ). The ANOVAs testing for differences between participants who entertained high versus low expectations in the contrast condition versus the other conditions showed significant interaction effects for effort and achievement; all  $F_s(1, 76) > 5.77, p_s < .02$ .

## Discussion

Just as in Experiment 3, contrasting participants with high expectations of success felt most energized right after the experiment. Two weeks later, teachers rated these participants as exhibiting strong effort and the best performance. In light of bad prospects, contrasting participants felt least energized and teachers rated these participants as exhibiting the smallest effort and the weakest performance.

In comparison, indulging and dwelling participants showed moderate and expectancy-independent energization, effort, and achievement. This implies that in light of good prospects, indulging and dwelling participants underachieve, whereas in light of bad prospects, indulging and dwelling participants overachieve. Educational contexts wanting to reduce drop-outs, then, can use indulging or dwelling as self-regulatory strategies geared at helping students with a bad performance history to stay in the field. Educational contexts wanting to promote top performances, on the contrary, can use mental contrasting to aid students with good performance histories in fully expressing their potential and assist students with bad performance histories in disengaging and looking for alternative, more promising career paths.

## General Discussion

The present research fills a gap in the analysis of goals as it identifies self-regulatory processes that turn free fantasies about

the future into binding goals, thus providing insights to the processes of goal setting. Across four experiments, we found that people who mentally contrasted their fantasies about a desired future with negative aspects of impeding reality effectively set themselves binding goals if expectations of success were high, whereas they refrained from setting themselves goals when expectations of success were low. Conversely, indulging in positive fantasies and dwelling on negative reality led to moderate goal commitment: Participants neither fully committed themselves nor disengaged from fantasy realization, irrespective of their perceived chances of success.

This pattern of results emerged whether strength of goal commitment was assessed in terms of cognitive aspects (i.e., making plans and taking on responsibility, Experiment 1), affective aspects (i.e., anticipating feelings of disappointment if goal attainment should fail, Experiment 2), or behavioral aspects (i.e., feeling energized, Experiments 3 and 4; initiating relevant actions without delay, Experiment 3; and effortful striving and successful achievement, Experiment 4). It did not matter whether goal commitment was measured right after the experiment (Experiment 1, 3, and 4) or 2 weeks later (Experiment 2, 3, and 4), and whether goal commitment was assessed through self-report (Experiments 1 to 4) or by independent observers (Experiment 4). Finally, the differential effects of self-regulatory thought on goal commitment replicated across gender, experimental settings (Experiment 1 to 3: laboratory setting, Experiment 4: institutional setting), and across life domains (Experiment 1 and 3: interpersonal relationships, Experiment 2 and Experiment 4: achievement), regardless of whether the fantasy theme was old (Experiment 1, 3, and 4), or new (Experiment 2), and regardless of whether the fantasy theme was self-generated (Experiments 1 and 3) or presented by the experimenter (Experiments 2 and 4).

## A Process Account of Mental Contrasting

A necessity to act toward fantasy realization is only induced when the desired future and the present reality are highly accessible at the same time. This requires explicit, simultaneous mental elaborations of both the desired future and present reality as instigated in the mental contrasting procedure. Therefore, simple listing of positive aspects of the desired future and of negative aspects of present reality should fail to produce expectancy-dependent goal setting. Indeed, indulging and dwelling participants did not show expectancy-dependent goal setting, even though both groups of participants started out by listing positive aspects of the desired future as well as negative aspects of present reality. Moreover, prior research (Oettingen, 2000, Study 1) used a control group, in which participants were requested to only list positive aspects of the desired future and negative aspects of present reality without subsequent indulging or dwelling; these participants also failed to show expectancy-dependent goal commitments.

That mental contrasting effects only originate when participants elaborate the desired future and the negative reality diligently and continuously is in line with recent research on dissonance theory (Wicklund & Brehm, 1976, Chapter 7; McGregor et al., 1999). Dissonant cognitions need to be activated simultaneously to lead to dissonance reduction. Further, Lockwood and Kunda (1999) demonstrated that the positivity of self-evaluations inspired by out-

standing role models is not undermined by people's knowledge about their maximal past achievements, unless this knowledge is highly activated by having people explicitly elaborate their past achievements.

Next to producing simultaneous accessibility of the desired future and present reality, the mental contrasting procedure is assumed to activate the relational construct of reality standing in the way of the desired future. For people to achieve the activation of this relational construct, mental elaboration needs to start with the desired future and only thereafter move on to the present reality. When fantasies about the desired future are elaborated first, they become the reference point to which the present reality is related to in terms of being an obstacle. Reversing the order (as was done in a fourth experimental group of Experiment 3) relates fantasies about the desired future to present reality in terms of being a relief. As a consequence, the relational construct of reality standing in the way of the desired future is not activated and the typical effect of mental contrasting (i.e., expectancy-dependent goal commitment) cannot be observed.

This observation is in line with findings reported by Higgins and Chaires (1980) who used Duncker's candle problem to demonstrate the effects of the activation of different relational constructs on problem solving. When a box containing tacks was described to participants as a box *and* tacks instead of a box *of* tacks, participants found it easier to solve the candle problem (i.e., use the box as a platform for the candle). Solving the problem of fantasy realization is eased when the relational construct of reality standing in the way of the desired future is activated. When the problem space (Newell & Simon, 1972) is defined in this way, one can expect rational problem solving (i.e., expectancy-dependent goal commitment) to occur.

### Alternative Explanations

Several possible alternative explanations for the findings were eliminated by the results of the experiments. First, it might be possible that the three modes of self-regulatory thought did not differentially affect the link between expectations and goal commitment as postulated by fantasy realization theory, but rather the level of expectations (Gregory et al., 1982; Anderson, 1983). Accordingly, we tested whether our findings may have been a product of changes in level of expectations. In three of the four experiments (Experiments 1, 3, and 4), we measured expectations again when the dependent variables were assessed. However, when repeating all analyses after having statistically controlled the dependent variables for the second assessment of expectation, we found the pattern of data was unchanged.

Second, the results may have been caused by the three modes of self-regulatory thought differentially affecting the link between incentive value of the desired future and goal commitment rather than the link between expectations and goal commitment. To control for this possibility, in all experiments we statistically controlled both expectations and the dependent variables for estimated incentive value as measured at the outset of each experiment. In addition, the level of incentive value might have been differentially affected by the three experimental instructions so that mental contrasting participants who entertained high expectations acted because of increased incentive values rather than through setting themselves binding goals. To test whether our

findings may have been a product of changes in level of incentive value, in three of the four experiments we measured incentive value again when the dependent variables were assessed. When repeating all analyses after having statistically controlled the dependent variables for the second assessment of incentive value, the pattern of data was unchanged.

It needs to be pointed out, though, that the future outcomes in question have to be of relatively high incentive value for expectation effects on behavior to occur (Atkinson, 1957; Heckhausen, 1991; Olson et al., 1996; Tolman, 1925). In the same vein, future outcomes need to possess a high incentive value so that people can generate positive fantasies about the future (Klinger, 1977). Indeed, Oettingen (2000, Study 2) observed that for mental contrasting, indulging, and dwelling effects to occur, the future event in question has to be perceived as attractive.

*Temporal construal theory.* In their temporal construal theory, Liberman and Trope (1998) proposed that the influence of feasibility considerations relative to the influence of desirability considerations is stronger regarding near future as compared with distant future action decisions. Applying this line of thought to our findings, one might argue that contrasting individuals take expectancies into account when setting goals because of perceiving the desired future as less distant. What was perceived as being in the distant future would after contrasting be perceived as more proximal, and thus feasibility (expectation) would become more relevant.

A change in temporal construal of the desired future from distant to near as a result of mental contrasting should be reflected in participants' elaborations of the desired future. However, when independent raters judged temporal construal of the first and the third mental elaboration in the contrast group of Experiment 4 (with having negative reality elaborated in between), no significant difference was observed (the 7-point scale reaching from 1 [*in the far future*] to 7 [*in the near future*];  $M = 4.06$  vs.  $M = 4.03$ ,  $p > .27$ ). This lack of difference within the mental contrast group was matched by a lack of difference between the contrast group and the positive-fantasy-only group in the third elaboration ( $M = 4.03$  vs.  $M = 3.95$ ,  $p > .56$ ). For these analyses (interrater reliability was  $r = .86$ ), we chose the data of Experiment 4, in which the fantasy theme for all participants pertained to an event of medium temporal distance (i.e., improving in mathematics). These findings indicate that mental contrasting does not induce a closer temporal construal of the desired future.

In referring to research by Gilovich, Kerr, and Medvec (1993), Liberman and Trope (1998) pointed out that changes from distant to near temporal construals can be recognized by a decrease in level of expectations. Gilovich et al. (1993) observed that students think they will do better on their midterm exam when asked on the first day of class than when asked on the day of the exam. Decreases in expectations can thus be used as an indicator of a change in temporal construal from distant to near. As we have measured expectations prior to the contrasting experience and thereafter in three of the four experiments, we checked whether there were significant reductions in level of expectations from before to after the contrasting procedure. We did not observe any significant reductions in level of expectations (significance levels ranged from .30 to .95), indicating that the mental contrasting procedure does not lead to a change in temporal construal of the desired future from distant to near.

*Regulatory focus theory.* Despite evidence that the use of expectancy and value information on forming goal commitment varies widely across individuals and situations (for a summary, see Kuhl, 1984), expectancy value theories have failed to specify the conditions that influence the effects of expectancy and value on goal commitment. Pointing to this oversight, Shah and Higgins (1997) recently suggested that it depends on the construal of goals in terms of promotion (i.e., as aspirations whose attainment brings accomplishment) versus prevention (i.e., as responsibilities whose attainment brings security), if and how expectancy and value information determine goal commitment. With respect to expectancy-related information in the case of high value, Shah and Higgins (1997) postulated that a promotion focus produces sensitivity to expectancy information, so that high expectation leads to stronger goal commitment than does low expectation. This sensitivity to expectancy-related information in the case of high value is not predicted, however, when a prevention focus is prevalent. Apparently, people construe important prevention goals as necessities that must be met regardless of difficulty.

Fantasy realization theory also attempts to specify conditions that influence whether expectancy-related information is respected in people's goal commitments. However, it is not the framing of goal content that is focused on, but how people mentally elaborate the desired future. Mentally contrasting the desired future with negative reality—by creating a necessity to act—makes people form expectancy-dependent goal commitments, whereas indulging in the desired future and dwelling on the negative reality do not. These findings cannot be alternatively explained by regulatory focus theory for two reasons. First, participants in our four experiments have been randomly assigned to the three conditions. Accordingly, the three groups cannot have differed in terms of chronic promotion versus prevention focus (i.e., in the proportion of people with chronic accessible ideal self-guides versus ought self-guides). Second, the instructions to contrast fantasy with reality, indulge in fantasy, or dwell on reality do not provide either a promotion or prevention framing of the desired future. Participants are allowed to mentally elaborate fantasies and reality in whatever framing they want. Still, mental contrasting produces expectancy-dependent goal commitments, whereas indulging and dwelling produces expectancy-independent goal commitments. This implies that next to goal-content framing (i.e., promotion versus prevention specified by regulatory focus theory), modes of elaborating a desired future (contrasting, indulging, and dwelling as specified by fantasy realization theory) affect whether expectancy-related information is reflected in people's goal commitments.

### *Implications for Research on Goal Striving*

*Discrepancy reduction.* Our experiments add to the well-known theories of discrepancy reduction in goal striving (Bandura, 1986, 1997; Carver & Scheier, 1981, 1999), which conceive of goals as performance standards. Discrepancies between these standards and the status quo are readily detected (i.e., when either past performance or the standard are made salient), and expected to be reduced given that critical expectations of success are high (self-efficacy expectation, Bandura, 1986, 1997; outcome expectation, Carver & Scheier, 1982; Scheier & Carver, 1983).

As the present findings show, discrepancies between desired future outcomes and negative reality are not readily detected whenever people have not yet formed binding goal commitments. Recall that participants in all of the different conditions of the reported experiments had to first list positive aspects of a desired future and immediately thereafter negative aspects of the status quo. It was only in the positive-fantasy–negative-reality contrast condition, however, that people showed expectancy-dependent efforts to realize their fantasies. In other words, it needs the intensive elaboration of both the desired future and the negative reality to create the simultaneous accessibility of cognitions on the desired future and the present reality. Moreover, to make this discrepancy relevant to people's acting, the relational construct of reality standing in the way of the desired future has to be activated by having the desired future mentally elaborated prior to the present reality. In other words, for the gap between the desired future and the present reality to affect people's actions, diligent and continuous attention to both fantasy and reality is needed.

That the present research concerns itself with the predecisional phenomenon of setting goals and not the postdecisional phenomenon of implementing chosen goals also becomes evident when one considers the negative-reality–positive-fantasy condition in Experiment 3. If participants had already set themselves goals before the experimental manipulation, and thus the link between fantasy and reality had already been established in the past, participants in this condition should have shown a strong expectancy-dependent readiness to act toward fantasy realization.

*Goal striving and planning.* Taylor et al. (1998) have recently pointed out that various types of mental simulations differentially affect the attainment of already-set goals. More specifically, mental simulations that focus on having attained the outcome (i.e., outcome simulations) are less effective than mental simulations of the path toward goal attainment (i.e., process simulations). Similarly, Gollwitzer (1999) distinguished between two types of intentions that differentially facilitate pursuit of set goals. Intentions that focus on reaching a desired outcome (i.e., goal intentions) are less effective than are intentions that focus on performing a certain goal-directed behavior once a critical situation is encountered (i.e., implementation intentions). Both approaches coincide in that planning on how to get to the goal is more effective than thinking about the outcome (i.e., goal attainment) per se. A similar point is made by Kuhl's (1984) distinction between action orientation and state orientation, and Norem and Cantor's (1986) highlighting of the planning activities in "defensive pessimists."

Fantasy realization theory, to the contrary, speaks about the role of different modes of self-regulatory thought for effective goal setting. It holds that contrasting positive fantasies with aspects of negative reality leads to setting goals in line with expectations. From this perspective, then, planning is construed as a dependent variable that captures the strength of a person's commitment to realize his or her fantasies. Indeed, in Experiment 1 participants with high expectations of success in the mental contrast group planned the most in the form of implementation intentions (Gollwitzer, 1999) and in terms of specifications of what to do first or second (Heckhausen, 1991; Miller et al., 1960; Wilensky, 1983). These findings are supplemented by a recent study (Oettingen, 2000, Study 2) in which mental contrasting in light of high expectations of success led to more reported process simulations

(Taylor et al., 1998) with respect to realizing one's fantasies as compared with indulging and dwelling participants.

### *Implications for Research on Goal Setting*

*Model of action phases.* The model of action phases (Gollwitzer, 1990; Heckhausen, 1991) suggests that successful goal pursuit demands solving four consecutive tasks: deliberating wishes to make a goal decision, planning the implementation of the chosen goal, acting toward goal attainment, and evaluating achieved outcomes. Even though the action phases model recognizes the importance of goal setting as a first step toward goal attainment, it does not delineate self-regulatory strategies of goal setting (Oettingen & Gollwitzer, 2001). The action phases model only states that people should consider feasibility and desirability when turning their wishes into goals. Fantasy realization theory, on the other hand, spells out what kind of mentation guarantees that people indeed take expectations (feasibility) into account when they set themselves goals. Indulging in one's fantasies (wishes) and dwelling on present reality (status quo) prevent people from considering expectations in their goal setting. It takes a special self-regulatory effort (i.e., contrasting fantasies with reality) for the issue of feasibility to receive concern. In summary, the action phases model spells out what criteria people should use when making goal commitments, whereas fantasy realization theory differentiates various self-regulatory modes of thought that make or do not make people respect these criteria when setting themselves goals.

*Setting learning goals versus performance goals.* Setting learning goals (i.e., to improve one's standing; Dweck, 1996, 1999) is more beneficial than setting performance goals (i.e., to demonstrate one's standing) when it comes to task enjoyment and coping with failure. Accordingly, it seems important to recognize that instigating learning goals demands a different approach (in terms of which desired future is mentally contrasted with which impeding reality) than does instigating performance goals. Moreover, mentally contrasting positive fantasies about improving one's standing with aspects of reality that hinder effective learning should be particularly effective in creating learning goals with incremental theorists, because incremental theorists believe in the possibility of change and thus expectations of improving in the future should be high. This implies that incremental theorists' mental contrasting of a positive future with impeding reality should hardly ever lead to abstaining from fantasy realization.

### *Mental Contrasting, Indulging, and Dwelling in Daily Life*

So far we have investigated the effects of the three modes of self-regulatory thought on effective goal setting and goal implementation in laboratory or field experiments. We do not know yet, however, which mode people use most frequently in their daily lives. For three reasons, we speculate that people indulge or dwell more often than they engage in mental contrasting. First, the procedure of mental contrasting of the desired future with present reality makes people aware of inconsistent cognitions (i.e., the future being different from reality) that according to recent dissonance research (McGregor et al., 1999) people try to avoid. Indulging and dwelling frees people from the awareness of inconsistencies. Second, mental contrasting, more than indulging and

dwelling, demands decisive action: The desired future either has to be implemented or relinquished, depending on one's expectations of success. Third, activation of a positive or negative evaluation of a given stimulus (e.g., future or present event) makes similarly valenced concepts more accessible (Ferguson & Bargh, 2000). This implies that people are automatically tuned toward staying with either positively valenced concepts or negatively valenced concepts. It should take effortful self-regulation (such as mental contrasting) to switch to concepts of opposite valence.

Nevertheless people should differ in the extent to which they entertain one or the other of the three modes of self-regulatory thought in everyday life. Differences should depend on person variables (e.g., age and temperament) as well as context variables (e.g., profession and culture). As noted elsewhere (Oettingen, 1997), the nature of the developmental tasks and cultural demands people are confronted with in their specific situational contexts should ultimately determine which mode of self-regulatory thought is applied.

### *Conclusion*

The present line of research goes beyond analyzing the determinants of goal setting to exploring the processes of goal setting. We did not attempt to discover variables that determine what kind of goals people set for themselves (e.g., ideal versus ought self-guides), nor did we search for the determinants of strong goal commitments (e.g., desirability or feasibility). Rather, we focused on peoples' fantasies about a desired future and investigated how they are transformed into binding goals, thus promoting fantasy realization.

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## Appendix

### Formulating Plans in Experiment 1

Sentence stems suggesting the formulation of plans	Sentence stems not suggesting the formulation of plans
Specifically, I will . . .	All in all, I will . . .
Until . . . I will . . .	In general, I will . . .
If . . . then I will . . .	In principle, I will . . .
I will not . . . but instead . . .	I will not . . .

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