

# The Motivating Function of Thinking About the Future: Expectations Versus Fantasies

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Two forms of thinking about the future are distinguished: expectations versus fantasies. Positive expectations (judging a desired future as likely) predicted high effort and successful performance, but the reverse was true for positive fantasies (experiencing one's thoughts and mental images about a desired future positively). Participants were graduates looking for a job (Study 1), students with a crush on a peer of the opposite sex (Study 2), undergraduates anticipating an exam (Study 3), and patients undergoing hip-replacement surgery (Study 4). Effort and performance were measured weeks or months (up to 2 years) after expectations and fantasies had been assessed. Implications for the self-regulation of effort and performance are discussed.

Research consistently finds that optimistic thinking about the future fosters motivation and successful performance, whereas pessimistic thinking dampens motivation and successful performance (Bandura, 1997; Heckhausen, 1991; Seligman, 1991; Taylor & Brown, 1988). Optimistic thinking is associated with successful cognitive and self-regulatory problem solving, with prosocial and helping behavior, with setting high standards and aspirations, and with indicators of mental health—all of these factors are essential for well-being and personality development. Optimistic thinking even hinders the emergence of acute and chronic disease and slows its progress (C. Peterson & Bossio, 1991; Scheier & Carver, 1992; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000).

Such beliefs about the future, or expectancy judgments, are conceptualized as self-efficacy expectations (i.e., whether one can perform a certain behavior in its relevant context; Bandura, 1997), as outcome expectations (i.e., whether performing a certain behavior will lead to the desired outcome; Bandura, 1997), as general expectations (i.e., whether a certain event will occur, thereby encompassing both efficacy and outcome expectations; Heckhausen, 1991; Oettingen & Wadden, 1991; Reed, Kemeny, Taylor, & Visscher, 1999), or as generalized expectations (i.e., whether the

future in general will be positive or negative; Scheier & Carver, 1992). Generalized expectations are also indirectly measured through a person's habitual use of causal attributions for past events (Abramson, Seligman, & Teasdale, 1978). When attributions to positive events are more stable and global than attributions to negative events, expectations are said to be optimistic: Positive events can be expected to last longer and generalize more across situations than negative events (C. Peterson & Seligman, 1984).

Expectations and performance are reciprocally determined (Bandura, 1978). High expectations of success lead to strong performance, and strong performance leads to high expectations of success. Expectations are thus informed by past experiences and thereby represent a person's performance history (Bandura, 1977, 1997; Mischel, 1973; Mischel, Cantor, & Feldman, 1996; Olson, Roese, & Zanna, 1996). Observed performances of others, persuasive messages received by respected others, and experienced levels of arousal during performance are also known to influence expectations (Bandura, 1997).

Alternative forms of thinking positively about the future, which are based less on past experiences, and thus are less informed by a person's performance history, seem to be less beneficial for effortful action, performance, and well-being. For example, wishful thinking and other avoidant coping styles are linked to lower effort, performance, and well-being compared with planning and confrontative coping styles (e.g., Holahan & Moos, 1986; Lengua & Sandler, 1996; Ried, Dubow, & Carey, 1995). For example, avoidance coping in cancer patients at diagnosis (e.g., "I try not to think about it") predicted disease progression 1 year later (Epping-Jordan, Compas, & Howell, 1994), and in a recent prospective study (over 2 years), HIV-negative and HIV-positive caregivers high in cognitive avoidance showed higher levels of physical symptoms (Billings, Folkman, Acree, & Moskowitz, 2000). Moreover, avoiding or lacking information about upcoming medical procedures is less beneficial than mentally facing the painful future events, for both children and adults (L. Peterson, Oliver, & Saldana, 1997; Suls & Wan, 1989; Taylor & Clark, 1986).

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Wishful thinking about future stressors is linked to neuroticism (Bolger, 1990), sadness, and anger (Spirito, Stark, & Tyc, 1994), and impedes the mastery of impending problems, especially when mastery cannot be achieved with ignorance, but demands vigilance and effortful action (Carver, Scheier, & Weintraub, 1989; Lazarus, 1983). Students who reported to habitually deny stressful events felt more threatened by an upcoming exam than students who used less denial (Carver & Scheier, 1994).

Experimental research on how self-regulatory thought affects task completion further suggests that positive thoughts are not always beneficial for effort and performance. Goodhart (1986) reported unfavorable effects of positive task-related thoughts or images on success in solving anagrams. The findings, however, were only observed in people who had *not* been asked to judge their past performance prior to solving the anagram (i.e., for those participants whose spontaneous images had not been overridden by their expectancy judgments based on the facts of the past). An earlier study yielded similar findings (Sherman, Skov, Hervitz, & Stock, 1981). Participants imagining hypothetical failure before an anagram task did better than people imagining hypothetical success. Yet this was true only if participants did *not* have to make expectancy judgments of failure or success prior to the anagram test. If they did formulate their performance expectations for the anagram tasks, participants in the success condition fared better than those in the failure condition. Finally, Spencer and Norem (1996) demonstrated that images of perfect mastery hurt performance in high-achieving students.

#### Expectations Versus Fantasies as Different Forms of Thinking About the Future

These studies suggest that there might be two forms of thinking about the future with different effects on motivation and performance. More specifically, beliefs about the future (expectations) should be differentiated from images (fantasies) depicting future events. The difference between beliefs and images was first suggested by William James (1890/1950): "Everyone knows the difference between imagining a thing and believing in its existence, between supposing a proposition and acquiescing in its truth" (p. 283). James's differentiation between believing and imagining pertained to events of the past or the present. Following his reasoning, we differentiate two kinds of thinking about the future: beliefs (expectancy judgments) that assess probability of occurrence, and images (fantasies) that contain future events per se as they appear in the stream of thought. Positive expectancy judgments, then, are beliefs that a desired event is likely to occur; positive fantasies about the future, in contrast, are defined as positively experienced images of future desired events that emerge in the stream of thought.

Positive fantasies, as used here, differs from what Lewin (1926) and Mahler (1933) called "Zauberdenken" (i.e., thoughts depicting actions and events that violate known natural laws), and it resembles what Klinger (1971, 1978) named "daydreams," that is, thoughts pertaining to immediate or longer range desires including instrumental activities to attain the desired future.

#### Expectations Versus Fantasies and Their Relation to Motivation and Performance

Because positive expectations judge future events' likelihood by applying past facts to future events (Bandura, 1977, 1997; Mischel, 1973), they are a valid basis for strong behavioral investment. Positive fantasies, to the contrary, embellish future events regardless of past performance and probability of future occurrences (Klinger, 1990; Singer, 1966). Therefore, they fail to be a solid basis for acting. Moreover, positive fantasies about desired future outcomes and about effortlessly moving toward them should seduce a person to mentally enjoy the desired future in the here and now, thereby yielding little motivation to implement the desired future in actuality. Finally, because positive fantasies conceal the necessity to act toward attaining the desired future, they will prevent a person from preparing for upcoming obstacles and temptations, and from planning how to overcome them (Oettingen, 1996, 2000; Oettingen, Pak, & Schnetter, 2001). Lacking preparatory action and planning should further compromise success (Gollwitzer, 1999; Taylor, Pham, Rivkin, & Armor, 1998).

Positive fantasy about a desired future can be respondent versus operant (i.e., impulsive vs. volitional; Klinger 1978) or coherent versus incoherent (a well-integrated scene vs. shreds of thoughts; Klinger, 1978), and the perspective can be *I* or *me* (James, 1890/1950; Klinger, 1978; Watkins, 1976). Of most importance, positive fantasy can pertain to mentally enjoying future outcomes, and to mentally enjoying a future smooth and effortless progress toward that outcome. In other words, the positive versus negative tone of one's fantasies about the future can be based on mentally experiencing having attained the outcome, moving smoothly toward it, or both. Regardless of whether positive fantasy is respondent or operant, coherent or incoherent, focuses on the *me* or on the experiencing *I*, and whether it is outcome based or process based, it should lead to comparatively little effort and performance.

If, however, individuals begin questioning the unrestricted enjoyment of the desired outcome and its smooth attainment in more negatively toned fantasies, the desired future is no longer experienced as merely enjoyable but as something to be achieved (Oettingen, 1996, 2000; Oettingen et al., 2001). People start to lay out the road to success, prepare for setbacks and hindrances, and at the end will exert effort and show persistence. In sum, whereas positive expectations of success predict effortful action and successful performance, positive fantasies about the future should predict the reverse.

#### Related Approaches

Positive fantasies, whether outcome or process, should be a motivational burden, because they hamper motivation to implement the desired future and conceal the steps needed for its attainment. Thus, the present work on positive versus negative fantasies differs from research on outcome versus process simulations (Pham & Taylor, 1999; Taylor et al., 1998), which finds superior effort and performance after process simulations (rehearsing the cumbersome steps needed to reach a set goal, e.g., getting an A) than after outcome simulations (rehearsing the moment of getting an A). Rather than focusing on the differential effects of process simulations versus outcome simulations, the present approach focuses on the positivity of thoughts and images about the

future and postulates that positive fantasies (outcome and process) are a motivational hindrance.

Further, positive fantasies need to be distinguished from illusory optimism (Taylor & Brown, 1988; Taylor et al., 2000; Schneider, 2001; Wright, 2000). Because positive fantasies are mute to future events' reality, they cannot be taken as an indicator of illusory optimism. Only expectations can be illusory, because they assess the future events' reality. This assessment of reality, then, can be more or less realistic (accurate) or illusory (inaccurate).

Finally, positive fantasies differ from avoidant coping, among them denial (Carver et al., 1989) and wishful thinking (Folkman & Lazarus, 1985). Denial refers to people refusing to believe that stressful events have happened, acting as if they did not happen, and trying to convince themselves that they are not real (Carver et al., 1989), and wishful thinking pertains to wishing a stressful event or its emotional consequences away, or wishing to be a stronger person (Folkman & Lazarus, 1985). Positive fantasies, to the contrary, assess the experienced positivity of mental images about a not yet reached future, rather than reports about wishing past or ongoing stressful events to vanish.

### Focus of the Present Studies

Four studies examine the relation between positive future thought in terms of expectations versus fantasies, to effort and successful performance. All four studies refer to changing the status quo toward mastering a developmental task or life task. Developmental tasks or life tasks arise at certain periods of the life span (Havighurst, 1948/1972). They are contextual demands construed as desires, such as finishing a dissertation or finding a marriage partner (Cantor & Harlow, 1994; Cantor & Kihlstrom, 1987). People should thus find it easy to fantasize about a positive future implied in mastering the life task.

Moreover, life tasks are an ideal topic for the present studies, because they are hard to master. Fantasies about successfully solving such hard tasks should seduce people to mentally indulge in the successful future instead of taking on the hardships of implementing it. Thus, life tasks are prone to show a negative relation between positive fantasies and success. To the contrary, in easy-to-master tasks that can be solved effortlessly and immediately (e.g., I stretch my hand to obtain a piece of cake), positive fantasies should provide enough of an implicit pull effect to trigger necessary action. The same is true for choices between promising and available alternatives (e.g., I decide to take one offer rather than the other). In sum, only when desired outcomes are hard to come by, should positive fantasies seduce a person to mentally enjoy the desired future in the here and now instead of effortfully achieving the outcome in reality. These considerations are in line with the work on delay of gratification (Mischel, 1974), where consummatory mental images fostered consummatory action for the immediate small reward (e.g., one marshmallow), but spoiled attaining the delayed large reward (two marshmallows).

Participants in Studies 1–3 are young adults. Study 1 pertains to the life task of entering professional life, Study 2 to the life task of finding a partner, and Study 3 to the life task of academic achievement. Participants in Study 4 are elderly adults, and the life task refers to recovering from a major health threat (i.e., hip-replacement surgery). In each of the four studies, life task-related expectations and fantasies were measured long before we assessed

effort and actual success in attaining the desired future. We operationalized expectations of success by the subjective likelihood of successfully mastering relevant life tasks, and we measured the positivity of fantasies by self-report and semiprojective techniques. Effort and success were assessed by self-report and objective measures. Finally, content analyses of participants' thoughts and images tested to what extent subjectively experienced positive fantasies contained idealization of a perfect future at the expense of considering future hardships.

We hypothesized that positive expectations about reaching the desired future predict strong effort and much success, but positive fantasies about successfully reaching the desired future predict weak effort and little success. We also tested to what extent effort mediated a possible relation between positive fantasies and little success.

### Study 1: Expectations Versus Fantasies and Entering Professional Life

Students in their last year of graduate studies at a German university were asked to rate the likelihood of obtaining an adequate job. Then they produced positive and negative thoughts and images pertaining to entering professional life, and indicated how often they had recently entertained such positive and negative thoughts and images. Two years later, we measured actual success by the number of job offers participants had received, and by the salary they were currently earning.

During the last 15 years, unemployment has been a chronic problem in Germany. Even though academics are suffering less than those with lower education, 16% of unemployed academics never had a job in their field (Labor Exchange, 1997). Expectations have been found to play an important role in regaining employment. Individuals of different ages and educational backgrounds who had recently lost their job, but were confident about finding an adequate job after a short period of time, found such a position earlier than their less confident peers (Holmes & Werbel, 1992). And individuals who had been out of work for more than a year, but who still had high expectations for finding a new position, did get a new job faster than those with low expectations of success (Schaufeli & Van Yperen, 1993). An intervention program for strengthening self-efficacy expectations helped individuals who had been out of work for more than 1.5 years to receive more job offers than members of a no-treatment control group (Eden & Aviram, 1993). Finally, graduating students with high expectations of success received more job offers than students with low expectations of success (Schaufeli & Van Yperen, 1993; Steffy, Shaw, & Noe, 1989).

Though the role of positive expectations of success in finding work is amply demonstrated, the role of fantasy has been neglected. We hypothesized that positive fantasies about successfully and effortlessly attaining the first step on one's career ladder should curb the striving for job offers and limit success more than less positive thoughts picturing hindrances and hardships in finding a first job.

### Method

*Participants and procedure.* Eighty-three male students of Ludwig-Maximilians-University, Munich, Germany participated in the initial as-

assessment. On average, students were 26 years old ( $SD = 1.86$ ). All students wanted to complete their academic education within the next year, but had no job offer yet. Participants were invited to take part in a study on the transition into professional life. They were informed in great detail about the study's guaranteed anonymity, procedure, and their voluntary participation. We asked them for their parents' addresses and informed them about a second questionnaire to be answered in the future. Students completed the forms at home. Two years later, we could contact 40 of these students (48% of the original sample) to ask them about their successes in finding a job.

*Measuring career-related expectations versus fantasies.* In the present study, success was defined as getting adequate job offers. Therefore, as a measure of job-related expectations, we asked the following question: "How probable do you think it is that you'll find an adequate position in your field?" This measure of general expectations encompasses self-efficacy expectations, outcome expectations, and expectations concerning person-external factors (e.g., the economic situation). We also assessed the incentive value to get adequate job offers by the following item: "How important is it for you to find an adequate position in your field?" The 10-point answering scales ranged from *not at all probable* to *very probable* and from *not at all important* to *very important*, respectively.

To measure the experienced tone of fantasies, we asked participants to state whether "during their everyday life they already had experienced *positive* thoughts, images, or fantasies on the subject of transition into work life, graduating from university, looking for and finding a job." If so, they were told: "Please now generate these *positive* thoughts, images, or fantasies and write them down." A half page with lines was prepared for participants to write on. Thereafter, participants had to indicate: "How frequently did you experience such thoughts and images?" The 10-point scale ranged from *very rarely* to *very often*. Participants were then given the exact same instructions with respect to negative fantasies (i.e., only the word *positive* was replaced by the word *negative*). To arrive at an overall scale of experienced tone of career-related future fantasies, we subtracted reported frequencies of negatively toned fantasies from those of positively toned fantasies, arriving at a scale ranging from  $-9$  to  $+9$ .

*Dependent variables: Number of job offers, amount of salary, and number of applications.* Two years after our first assessment, we approached participants to check on their successes in finding a job. We

mailed a short letter to their parents' addresses, asking them to forward the mail. The letter asked participants to indicate how many job offers in their field they had received over the last 2 years. We also inquired about their current income (for those who did not have a job, the score was set at zero) and about the total number of applications they had sent out.

**Results**

*Descriptive analyses.* The two predictor variables—expectations and fantasies—correlated positively ( $r = .31, p < .05$ ; expectation:  $M = 5.18, SD = 2.44$ ; fantasy:  $M = 2.55, SD = 6.82$ ). Incentive value ( $M = 7.33, SD = 1.95$ ) showed a moderately positive correlation with expectations ( $r = .24, p < .15$ ) and no correlation with fantasies ( $r = -.03$ ).

The dependent variables—number of job offers received and amount of salary earned—correlated positively with each other ( $r = .67, p < .001$ ) and positively with the number of applications sent out ( $r = .33$  and  $r = .31$ , respectively, both  $ps < .05$ ). Of the 40 participants, 13 (33%) were left without a job offer, 12 (30%) received one job offer, and 15 (37%) had gotten more than one job offer. Participants had on average sent out eight job applications ( $SD = 9.52$ ).

*Expectations versus fantasies and performance.* Partial correlations controlling for the other predictor variable showed that students with high expectations of success received comparatively more job offers and earned more money; students experiencing positive fantasies, to the contrary, received comparatively fewer job offers and earned less money (see Table 1). Partial correlations tended to be higher than raw correlations (shown in parentheses in Table 1), suggesting that the two predictor variables acted as mutual suppressors.

Participants experiencing positive fantasies had not tried as hard as students who also permitted negative thoughts about entering professional life. They reported sending out fewer job applications (see Table 1). One could argue that reporting fewer applications is

Table 1  
Success and Effort as Predicted by Expectation and Fantasy: Study 1, Study 2, Study 3, and Study 4

Success and effort	Index		Positivity Scale		Negativity Scale	
	Expectation	Fantasy	Expectation	Fantasy	Expectation	Fantasy
<b>Study 1</b>						
No. of job offers	.41*** (.30*)	-.39** (-.26*)				
Amount of salary	.33* (.25)	-.29* (-.19)				
No. of applications	-.04 (-.17)	-.40** (-.43**)				
<b>Study 2</b>						
Intimate relationship	.55*** (.53***)	-.23* (-.10)				
Confession of love	.11 (.07)	-.21* (-.20)				
<b>Study 3</b>						
Course grades	.21** (.17)	-.16* (-.10)	.22** (.17)	-.19* (-.13)	.19* (.17)	.11 (.05)
Study effort	.20* (.12)	-.25** (-.19*)	.20* (.12)	-.27** (-.22*)	.17* (.12)	.19* (.15)
<b>Study 4</b>						
Hip joint motion	.27* (.10)	-.43*** (-.37**)	.24* (.10)	-.39** (-.33**)	.27* (.10)	.44*** (.37**)
Walking on stairs	.37** (.25*)	-.36** (-.23*)	.35** (.25*)	-.33** (-.22)	.36** (.25*)	.35** (.23*)
General recovery	.30* (.20)	-.31* (-.21)	.28* (.20)	-.27* (-.18)	.31* (.20)	.32** (.22*)

Note. Partial correlation coefficients controlled for the other predictor variable; raw correlation coefficients are shown in parentheses.  
\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

simply a self-protective attribution (i.e., attribution to low effort after failure). However, the reported number of applications correlated positively with actually achieved success ( $r_s > .31$ ).

To check for potential interaction effects, expectations and fantasies were entered in the first step of a regression analysis, and the interaction between the two variables in the second step. Dependent variables were the two measures of success in finding a job (number of job offers received, amount of salary) and instrumental activities to find a job (number of applications sent out). There were no significant interaction effects ( $F_s < 1.46$ ,  $p_s > .24$ ), indicating that the negative relations between fantasy and the three dependent variables apply to students with low and high expectations alike.

*Incentive value.* Finally, we repeated our analyses, using incentive value as a third predictor variable in the first step of our regression equation, and the interaction between incentive value and fantasies as well as between incentive value and expectations, in the second step. Incentive value did not affect the data pattern nor did it qualify as a significant predictor (all  $p_s > .13$ ). Further, we did not observe significant interaction effects ( $p_s > .28$ ), save with respect to the dependent variable number of job offers received ( $p < .01$ ), where the negative relation to fantasies was more pronounced in participants for whom it was very important to find an adequate job.

*Number of applications as a mediator.* Baron and Kenny's (1986) modified version of the Sobel (1982) test (see Kenny, Kashy, & Bolger, 1998, p. 260) revealed that the relation between fantasy and number of job offers, and the relation between fantasy and amount of salary, were only partly and not significantly mediated by number of applications ( $Z = 1.21$ ,  $p < .24$ ;  $Z = 1.27$ ,  $p < .21$ ).

## Discussion

Confirming the facilitating relation of positive expectations and success in finding work (e.g., Eden & Aviram, 1993; Schaufeli & Van Yperen, 1993), the present results show that by comparison, participants with positive expectations over a period of 2 years had received more job offers and enjoyed higher salaries. However, we add a new observation to this literature. Participants who reported frequently experiencing positive fantasies about their transition into professional life were less successful in their job search over a period of 2 years. They sent out fewer applications, were offered fewer jobs, and ultimately earned less money than students who reported frequently experiencing fantasies that picture entering professional life in a more negative tone.

Although participants with positive expectations were more successful in mastering the life task of entering professional life, they had not sent out more job applications than those with negative expectations. As high expectations of success reflect an already successful record, participants with high expectations of success trusting in a promising start of their professional future may have felt little need to send out many applications: A few select applications should suffice for reaching success. Indeed, number of job applications rather moderately correlated with success (number of job offers:  $r = .33$ ; amount of salary:  $r = .31$ ). This relatively low correlation also explains why the negative relation between positively experienced fantasies and actual suc-

cess was only partly mediated by fewer instrumental activities (i.e., number of applications).

Whereas Study 1 focused on the life task of entering professional life, Study 2 pertains to the life task of entering a romantic relationship. Furthermore, in Study 1 we asked participants to reproduce relevant fantasies and then report how often they had such fantasies in the recent past. Because such frequency reports may be distorted by problems of retrieval (Ericsson & Simon, 1993), in Study 2 we measured fantasies by a semiprojective technique asking participants to produce relevant fantasies and rate these fantasies for their experienced positivity versus negativity (Oettingen & Wadden, 1991). This method combines the advantages of projective (or operant; McClelland, 1980) tests with the strengths of questionnaire (or respondent) methods.

## Study 2: Expectations Versus Fantasies and Entering a Romantic Relationship

American college students who had a crush on a person of the opposite sex, but whom they were not dating yet, indicated their expectations of starting a relationship with their "crushee." Participants then had to identify with the main characters of eight scenarios that depicted potential opportunities to interact with their crushee. These scenarios, provided by us, ended prematurely and participants fantasized them to their completion, writing down their thoughts and images. After each scenario, participants rated the tone of their thoughts and images on a bipolar scale ranging from *very negative* to *very positive*. Four months later, we assessed students' success in starting an intimate relationship with their crushee.

Romantic love (for a summary, see Bierhoff, 1991; Hatfield, 1988; Sternberg & Barnes, 1988) is "a state of intense absorption in another" (Hatfield & Walster, 1978, p. 9), accompanied by a permanent, sometimes even insistent indulgence in images and fantasies (Brehm, 1988; Tennov, 1979). A person in this state of love is dominated by indescribable happiness when imagining that love is returned. Sharon S. Brehm (1988) summarized this central aspect of being in love as follows: "the core of passionate love lies in the capacity to construct in one's imagination an elaborated vision of a future state of perfect happiness" (p. 253). Success in passionate love is often defined as "union with the other" (Hatfield, 1988, p. 193) or as "oneness" (Tennov, 1979, p. 120). Therefore, in the present study, romantic success is measured as starting an intimate relationship with the beloved person.

College students who positively fantasize about their romantic success should be less likely to actively approach the adored person and have their love less successfully reciprocated, than those who allow their fantasies to cover the problems of obtaining the crushee's affection. However, positive expectations of romantic success, reflecting romantic achievement in the past (Carnelley & Janoff-Bulman, 1992), should be a good predictor for future romantic achievement.

## Method

*Participants and procedure.* Two months after the beginning of fall semester, we asked American college students in a large introductory class: "Do you have a crush on someone of the opposite sex with whom you do not have a relationship yet or do not go out with yet?" Students had to

answer *yes* or *no*. A total of 103 students reporting such a crush participated in the study. Upon coming to the laboratory, they were informed about their guaranteed anonymity, the procedure, and their voluntary participation. We also told them that we would contact them again with some brief questions at the end of spring term. Students, separated by partitions, were tested 4 to 6 at a time. They first completed a questionnaire assessing expectations and fantasies related to their crush. If students had more than one crush, they were supposed to focus on the one person that they were in love with the most. Five months later, shortly before the summer break, we asked 83 participants (80% of the original sample) whether they had started an intimate relationship with their crush. The 83 students (40 males, and 43 females) had an average age of 19.6 years ( $SD = 1.5$ ), the youngest participant was 17 and the oldest was 28 years. Most (70%) of the students were freshmen or sophomores and 23% were juniors; only 7% were seniors.

Three quarters of the students either had a crush on an acquaintance or a friend; 17% had a crush on a close friend, and only 8% were in love with a stranger. Three quarters of these romantic involvements had lasted less than 3 months, a quarter more than 3 months, and 5 students had a crush that had lasted for more than 2 years.

*Measuring romantic expectations and fantasies.* Success was defined as starting an intimate relationship with the crush. Therefore, the assessment of expectations had to encompass relevant self-efficacy and outcome expectations (Bandura, 1997) as well as expectations about external factors (e.g., participant and crush living in the same dorm). The question for measuring expectations read: "How likely do you think it is that you will get involved with HIM or HER?" The response scale ranged from 0% to 100%. We also assessed incentive value to get involved with the crush: "How important is it to you that you get involved with HIM or HER?" The scale ranged from 1 (*not at all important*) to 7 (*very important*).

As with expectations, fantasies pertained to a future with or without the crush. We asked participants to imagine themselves as the main character in eight scenarios provided by us. These scenarios were incomplete and the students had to fantasize them to their completion, writing down their individual endings. Each of these scenarios presented a situation in which the student's passionate love either could be reciprocated or not. There were separate versions for male and female students, differing only in that we called their crushes SHE or HE, respectively. A typical scenario read: "You arrive early to class and sit down. SHE also arrives early and looks for a seat. As SHE approaches your aisle, you imagine . . ." Another example is: "You are at a party. While you are talking to HIM you see a girl whom you believe HE might like, coming into the room. As she approaches the two of you, you imagine . . ."

After imagining one scenario and writing down their thoughts and images, and before addressing the next, participants responded to a bipolar scale ranging from 1 (*very negative*) to 7 (*very positive*). As the internal consistency of the eight scenarios was high (Cronbach's  $\alpha = .77$ ), we created an index of experienced positivity.

*Dependent variables: Intimate relationship and confession of love.* In April, shortly before the summer break and about 5 months ( $M = 4.48$  months,  $SD = 0.28$ ) after assessing expectations and fantasies, we mailed a short notice to participants asking them a number of questions with regard to their then-crush. First, they were to state whether they had started an intimate relationship. The respective two items read: "Have you been sexually involved with HIM or HER?" and "Have you gone somewhere with HIM or HER as 'more than just friends'?" Participants responded to each question with *yes* or *no*. Second, we wanted to learn to what extent students themselves had actively contributed to initiating a relationship by confessing their love to the crush. The item was twofold. We first asked: "Did the two of you ever discuss your having a crush on HIM or HER?" This question was to be answered with a *yes* or a *no*. Participants answering *yes* were asked: "Who was the initiator of this discussion?" Here the 7-point response scale ranged from *completely me* to

*completely HIM or HER*. For participants who had answered *no*, we assumed a score of least possible initiative (i.e., *completely HIM or HER*).

## Results

*Descriptive analyses.* Expectations and fantasies correlated moderately positively ( $r = .21, p = .06$ ; expectations:  $M = 44.52, SD = 23.36$ ; fantasies:  $M = 4.26, SD = 1.04$ ). Fantasies and incentive value did not differ by gender,  $F(1, 81) < 1.87, ps > .17, ds < .30$ , but expectations tended to be higher for men than for women,  $F(1, 81) = 3.13, p = .08, d < .40$  (as measures of effect size for mean differences, throughout this article, we use Cohen's, 1988,  $d$ ). Incentive value ( $M = 4.36, SD = 1.20$ ) correlated with expectations moderately positively ( $r = .25, p = .03$ ), but there was no substantial correlation with fantasies ( $r = -.03$ ). Fantasies and expectations did not differ by age,  $F(1, 81) < 1.86, ps > .17, ds < .30$ , but younger participants tended to estimate their getting involved with their crushes as comparatively more important,  $F(1, 81) = 3.10, p = .08, d < .39$ . Finally, fantasies and expectations did not differ between the 83 participants who could be contacted again in the spring and the 20 participants with whom we were not able to follow up,  $F(1, 101) < .26, ps > .61, ds < .13$ , but participants who could be contacted again estimated their getting involved with their crushes as comparatively less important,  $F(1, 101) = 4.84, p = .03, d < .59$ . The two groups of participants did not differ in gender, or years in school,  $F(1, 101) < 1.82, ps > .18, ds < .34$ .

Success in establishing an intimate relationship was determined by combining the items "Have you been sexually involved with HIM or HER?" and "Have you gone somewhere with HIM or HER as 'more than just friends'?" Six participants had missing data on one of these items and thus were omitted from the respective analyses. For the remaining 77 participants, the two items "sexual relationship" ( $M = 0.18, SD = 0.39$ ) and "going out as more than just friends" ( $M = 0.29, SD = 0.45$ ) showed a positive correlation ( $r = .60, p < .001$ ). Finally, the dependent variable of establishing an intimate relationship correlated positively ( $r = .48, p < .001$ ) with confession of love ( $M = 1.60, SD = 1.49$ ).

*The predictive power of expectations versus fantasies.* Students expecting success were more likely to start an intimate relationship with their crush. Those who experienced positive fantasies about future romantic success, to the contrary, were less likely. They also were less likely to confess their love (see Table 1). Comparing partial correlations controlling for the other predictor variable and respective raw correlations (in parentheses) shows that expectations tended to suppress the fantasy romantic success relation.

Interaction effects between expectations and fantasies were not significant for starting an intimate relationship. However, for admitting love there was a nearly significant interaction effect ( $p = .06$ ), indicating that participants with positive fantasies were especially reluctant to admit their love when they had low expectations of success.

*Gender and incentive value.* Controlling for gender and incentive value did not change the findings nor did the two variables emerge as significant predictors. We observed no further significant interaction effects ( $ps < .31$ ) indicating that the reverse relation of expectation and fantasy to romantic success and con-

fession of love is valid for both male and female students as well as for crushes with low and high incentive.

*Confession of love as a mediator.* Baron and Kenny's (1986) modified version of the Sobel (1982) test showed that the relation between fantasy and starting an intimate relationship was partly, though not quite significantly, mediated by confession of love ( $Z = 1.65, p < .11$ ).

### Discussion

Participants who entertained positive future thoughts in the form of expectations were more likely to start an intimate relationship with the adored person; participants who entertained positive future thoughts in the form of fantasies were less likely to be successful. We had also asked whether students had confessed their love to their crush between November and April. Such an effort to discuss their crush openly is a sign of decisiveness that shows participants' readiness to effortfully achieve their desired future. Students imagining a positive romantic future refrained from such decisiveness.

Expectations were unrelated to confession of love. Thus, present observations parallel findings in Study 1 (professional success), where expectations only negligibly predicted active efforts to realize the desired future (number of job applications). As success experienced in past love relations is the basis of high expectations of romantic success (Carnelley & Janoff-Bulman, 1992), such high expectations might signal that the crush will reciprocate one's love anyway. Therefore, participants with high expectations of romantic success might have waited until their crush will come forward, rather than initiate contact themselves. Also, next to confessing one's love, participants might have used other viable strategies to have their love reciprocated, and thus confession of love only partially mediated the relation between fantasies and actual success.

Study 2 replicated the findings of Study 1 in the interpersonal domain, with a larger sample showing less attrition, and for a semiprojective measure of fantasy. However, both studies measured success by self-reports. In Study 3, therefore, we assessed success by more objective measures: We obtained actual course grades of students who previously had noted their academic expectations and fantasies. Further, Study 3 measured the experienced positivity of fantasies not using a bipolar scale, but two scales, one positivity scale and one negativity scale. We wanted to investigate whether the presence of positive fantasies goes along with the absence of negative thoughts, and whether it is the presence of positive thoughts, the absence of negative thoughts, or both that determines the negative relation to motivation and performance.

### Study 3: Expectations Versus Fantasies and Academic Success

Shortly before their midterm exam, American college students, enrolled in an introductory psychology class, indicated the grade they would like to obtain in the course, and the likelihood that they would reach this grade. We then assessed their grade-related fantasies. As the dependent variable, we measured study effort and the change in course grades from midterm to the end of the course.

Like professional and romantic success, academic success has been found to benefit from positive expectations. High expectations of success predict successful achievement in students of different ages and different academic backgrounds, and with respect to a variety of indicators (e.g., standardized tests, course grades, solving specific tasks, application of learning strategies; Schunk, 1982; Zimmerman & Martinez-Pons, 1992; summary by Bandura, 1997). Positively experienced fantasies, to the contrary, should restrain effort and the preparing for hardships and obstacles. Thus, students entertaining positive fantasies might improve little in their schoolwork from midterm to final.

### Method

*Participants and procedure.* Two days before their midterm exam, 117 college students in an introductory psychology class filled out a questionnaire assessing their academic expectations and fantasies for how they might be doing in the course. Students (63% male and 37% female; mean age = 19.5 years,  $SD = 0.99$ ) were informed about the procedure, guaranteed anonymity, and voluntary participation. We also obtained their permission to record their course grades. Students completed the forms in class. Their midterm and cumulative final grades were collected to determine change in academic achievement from midterm to final (a period of 6 weeks).

*Measuring expectations versus fantasies.* To measure academic expectations, we first asked participants: "What grade would you personally consider a success in this course? Please circle the grade which first comes to your mind." The answering scale ranged from *F* to *A+*. Participants were then asked: "How probable do you think it is that you will obtain the grade that you circled in question number 1? Please circle the percentage which first comes to your mind." The percentage scale ranged from 10% to 100%. We also assessed incentive value: "How important is it for you to obtain the grade circled in question number 1?" The scale ranged from 1 (*not at all important*) to 7 (*very important*).

To measure academic fantasies, we used a similar procedure as in Study 2. Participants had to complete the following scenario: "You have already taken your exams and today is the day the course grades are posted. As you are walking toward the building that the board is in . . ." After completing the story, participants indicated how positive these thoughts were on a 7-point scale ranging from *not at all positive* to *very positive*, and how negative these thoughts were on a scale ranging from *not at all negative* to *very negative*. We observed a strong negative correlation between the two items ( $r = -.82, p < .001$ ), and thus combined them into a fantasy index by subtracting the negativity scale from the positivity scale (arriving at an index ranging from  $-6$  to  $+6$ ). However, we also analyzed the findings for the positivity and the negativity scales separately.

*Dependent variables: Study effort and course grades.* Study effort was assessed at the last class meeting before the final exam. We first asked "How many hours per week did you spend preparing for your class since the past midterm exam? Please indicate the exact number of hours: \_\_\_\_\_". Students then indicated: "How hard did you try to prepare for your class since the past midterm exam?" The 7-point scale ranged from *I did not try hard at all* to *I tried very hard*. Finally, students reported whether they had done optional work: "Did you write one or more extra-credit papers or essays for your class since the past midterm exam?," answering with a *yes* or a *no*. These three variables correlated moderately high (Cronbach's  $\alpha = .57$ ), and were combined to an index labeled *study effort*. Using each item separately yielded the same pattern of results as the items combined for all analyses reported below.

Participants' midterm and final grades (in letter grades ranging from 1 [*A+*] to 13 [*F*]) were recorded. As a dependent variable, we used the improvement in course grades from midterm to the final course grades. Over this 6-week period, 54 (46.2%) of the students improved in their

grades, 24 students (20.4%) kept their grade, and 39 (33.3%) decreased in their grades.

## Results

*Descriptive analyses.* The two predictor variables—expectations and fantasies—correlated positively (index:  $r = .33$ ,  $p < .001$ ; positivity:  $r = .32$ ,  $p < .001$ ; negativity:  $r = -.30$ ,  $p < .001$ ). Means of expectations and fantasies were above the mid-points of the scales (expectations:  $M = 6.68$ ,  $SD = 1.69$ ; fantasies: index:  $M = 0.21$ ,  $SD = 3.08$ ; positivity:  $M = 3.94$ ,  $SD = 1.65$ ; negativity:  $M = 3.74$ ,  $SD = 1.59$ ). Incentive value ( $M = 5.50$ ,  $SD = 1.06$ ) showed a moderately positive correlation with expectations ( $r = .28$ ,  $p < .01$ ), and no substantial correlation with fantasies (index,  $r = -.01$ ; positivity,  $r = -.02$ ; negativity,  $r = -.01$ ). The mean desired grade ( $M = 5.72$ ,  $SD = 1.33$ ) correlated with incentive value positively ( $r = .24$ ,  $p < .01$ ), but there was no significant correlation with expectations ( $r = -.06$ ) or fantasies (index:  $r = .03$ ; positivity:  $r = -.01$ ; negativity:  $r = -.06$ ). Male and female students did not differ in their fantasies, incentive value, or desired grades, all  $F(1, 115) < 1.75$ ,  $ps > .18$ ,  $ds < .24$ . Expectations of success were higher for women than for men (women:  $M = 7.09$ ,  $SD = 1.66$ ; men:  $M = 6.45$ ,  $SD = 1.67$ ),  $F(1, 115) = 4.09$ ,  $p < .05$ ,  $d < .39$ . The dependent variables—course grades ( $M = 0.23$ ,  $SD = 2.35$ ) and study effort—correlated positively ( $r = .35$ ,  $p < .001$ ; different indicators of study effort are hours studied per week:  $M = 4.16$ ,  $SD = 2.60$ ; degree of preparation:  $M = 4.14$ ,  $SD = 1.58$ ; extra credit:  $M = 0.32$ ,  $SD = 0.47$ ).

*The predictive power of expectations versus fantasies.* Expectations of success predicted comparatively high course grades and strong effort, whereas positive fantasies tended to predict comparatively low course grades and weak effort (see Table 1). The index, the positivity scale, and the negativity scale all yielded the same pattern of results, indicating that the presence of positive fantasies predicts low course grades and weak effort as does the absence of negative fantasies, though the latter does not quite reach significance for course grades. Subsequent regression analyses yielded no significant interaction between expectation and fantasy ( $ps > .14$ ), indicating that positive fantasy negatively predicts academic performance and study effort in students with low and high expectations alike. As in the previous studies, mutual suppressor effects of expectation and fantasy emerged, indicated by slightly higher coefficients for partial than for raw correlations (see Table 1, raw correlations in parentheses).

*Gender and incentive value.* For both course grades and effort, the inclusion of gender and incentive value left the pattern of results unchanged. Incentive value, though, positively predicted effort ( $\beta \geq .30$ ,  $p = .001$ ), indicating that students who deemed academic success as important reported investing more effort in their studies. Interaction effects between expectations and gender, and expectations and incentive, as well as between fantasy and gender, and fantasy and incentive predicting effort and course grades were all nonsignificant ( $ps > .26$  and  $> .14$ , respectively).

*Effort as mediator.* Baron and Kenny's (1986) modified version of the Sobel (1982) test revealed that the relation between fantasy and subsequent performance was significantly mediated by effort (index:  $Z = 2.16$ ,  $p < .04$ ; positivity:  $Z = 2.30$ ,  $p < .02$ ; negativity:  $Z = 1.85$ ,  $p < .06$ ).

## Discussion

The reverse relation of expectations and fantasies to success was observed for objective performance criteria: course grades. Further, analyses using all three fantasy scales, the positivity scale, the negativity scale, and the difference between the positivity scale and the negativity scale (index) showed the predicted pattern of results. These results rest on a strong negative correlation between the positivity and the negativity scales, indicating that participants experiencing their fantasies as positive did not experience them as negative, and vice-versa.

The predictive relation between positive fantasy and low performance was mediated by intense studying. Apparently, intense studying was a valid indicator of effort and effort was an effective means to excelling one's grades. Assuming that in Studies 1 and 2, we were less successful in finding a valid indicator of effort (number of applications and confession of love), the findings of the three studies point at effort as a mediator of the relation between positive fantasy and low performance.

So far we have analyzed the role of thinking about the future in terms of expectation versus fantasy for mastering life tasks in the professional, interpersonal, and academic domain. Participants of the three studies were young adults. Participants of the next study, then, are older adults, and the life task pertains to the health domain. More specifically, inpatients just admitted for hip-replacement surgery were assessed for their recovery-related expectations and fantasies. Two weeks after surgery, shortly before patients left the hospital, we asked physical therapists to report on the degree of patients' recovery.

Moreover, in Study 4, we content analyzed whether subjective experiences of positive fantasies are reflected in participants' writings containing idealization of a perfect future at the expense of considering future hardships. Two independent raters to whom the hypotheses were unknown scored to what extent participants in their written responses already enjoyed their perfect recovery or questioned such a relieving outcome, and to what extent participants enjoyed a smooth road to recovery versus questioned such an unencumbered road to success. We hypothesized that positively experienced fantasies will focus on a perfect outcome and a smooth process rather than on an imperfect outcome and a cumbersome process.

### Study 4: Expectations Versus Fantasies and Recovery From Surgery

Total hip-replacement surgery is a commonly performed and accepted procedure in patients with osteoarthritis of the hip. Osteoarthritis is the most frequent joint disorder, and osteoarthritis of the hip joint is a particular problem in the elderly (Gogia, Christensen, & Schmidt, 1994). In surgery, affected bone and cartilage is removed and replaced with an artificial joint made of metal and plastic. Functional disability and pain in the absence of primary and secondary preventive measures are the two major indications for total hip-replacement surgery (Verbrugge, 1990). As surgery is elective and is supposed to reduce disability and dependency, patients should be prone to generate fantasies about a future with improved functional activity and reduced pain. At the same time, patients should vary in their expectations of effective recovery, as their expectations are based on individual illness histories.



Supporting our contention that high expectations of success promote recovery from hip-replacement surgery, patients' expectations to gain high functional ability have been found to precede satisfaction with the outcome of hip-replacement surgery (Mancuso, Salvati, Johanson, Peterson, & Charlson, 1997), and high efficacy beliefs predicted reduced pain and joint inflammation in patients with rheumatoid arthritis (O'Leary, Shoor, Lorig, & Holman, 1988). High expectations of success were followed by compliance with the medical regimen and improved health after cardiac transplant surgery even after controlling for preoperative health status (Leedham, Meyerowitz, Muirhead, & Frist, 1995), and expectations about a positive future in general predicted recovery from coronary artery bypass surgery (Scheier & Carver, 1992; Scheier et al., 1989). Finally, high recovery-related efficacy expectations fostered mastery of various acute and chronic illnesses (Bandura, 1997), and optimistic attributional style preceded good health in the short run (C. Peterson, 1988) and over the life span (C. Peterson, Seligman, & Vaillant, 1988).

Two correlational studies support the notion of positive fantasies negatively predicting health outcomes. First, in a prospective study with obese women who had just enrolled in a weight-loss program, those patients who at pretreatment had generated highly positive fantasies about successfully losing weight, lost less weight during the next year than those who also had permitted negative weight-related thoughts and images (Oettingen & Wadden, 1991). To the contrary, patients with positive expectations of successfully losing weight did much better than those with negative expectations. In another prospective study, testing 50 patients diagnosed with breast cancer, positive fantasies (assessed by the Short Form of the Imaginal Processes Inventory; Huba, Singer, Aneshensel, & Antrobus, 1982) predicted high disease activity over the period of 1 year (Jensen, 1987). In line with these findings, we hypothesized that positive fantasies about successful recovery from hip-replacement surgery predict low success, because they conceal the necessity of still having to reach convalescence and of engaging in the painful and cumbersome procedures demanded by rehabilitation.

## Method

**Participants and procedure.** Sixty-seven patients consecutively admitted to a hospital in Germany for their first hip-replacement surgery were invited to the study. Fifty-eight patients agreed to participate. Seven patients were excluded because they reported not to have left bed several weeks before admission, and staying in bed leads to atrophy in muscles, which severely impedes postsurgery recovery. The remaining 51 patients (41% male and 59% female) were on average 65.7 ( $SD = 8.66$ ) years old, ranging from 49 to 84 years. Body Mass Index ( $BMI = \text{Weight in kg}/[\text{height in m}]^2$ ) was on average 27.5 ( $SD = 4.10$ ). Thirty-six patients were overweight ( $BMI \geq 25$ ; 70.6% of the total sample), and of these 36 patients, 14 patients were obese ( $BMI \geq 30$ ; 27.5% of the total sample). Doctors examined each patient's hip in comparison with the average of patients being admitted for hip-replacement surgery using a scale ranging from 1 (*very bad*) to 5 (*very good*;  $M = 2.78$ ,  $SD = 1.01$ ).

**Measuring health-related expectations and fantasies.** Recovery-related expectations and fantasies were assessed at the day of admission to the hospital (i.e., 1 day before surgery). Expectations were measured by the following four questions: (a) "How likely do you think it is, that 2 weeks after surgery you will be able to go for a brief walk using an assistive cane?"; (b) "How likely do you think it is, that 2 weeks after surgery you will be walking on stairs up and down with the help of an assistive cane?";

(c) "How functionally able do you think you will be 3 months after surgery?"; and (d) "To what extent do you think you will be without pain 3 months after surgery?" Scales ranged from 1 (*not at all likely*) to 5 (*very likely*), and from 1 (*not at all*) to 5 (*fully*), respectively. Cronbach's alpha for the four items was .75; they were combined into a single index of expectations of successful recovery.

We assessed fantasies by having participants imagine themselves in five scenarios. As in Studies 2 and 3, the scenarios were interrupted in the middle, and patients had to imagine them to their completion. The first scenario read as follows: "You wake up after surgery in the wake-up room. You feel your body increasingly clearly . . ." The other four scenarios pertained to going to the hospital's shopping area to buy a newspaper, to take a walk with friends, to tidying up the living room and kitchen, and to preparing a dinner invitation. The last three of the scenarios were to be imagined as happening 3 months after surgery.

After imagining each story to their completion and writing down their thoughts and images, patients indicated both how positive and how negative their thoughts and images were. The scales ranged from 1 (*not at all positive*) to 5 (*very positive*) and from 1 (*not at all negative*) to 5 (*very negative*), respectively. Cronbach's alpha for the positivity scale was .77, for the negativity scale .68. The two scales correlated highly negatively ( $r = -.83$ ), and thus were combined into a fantasy index (by subtracting the negativity scale from the positivity scale) ranging from  $-4$  to  $+4$ . Cronbach's alpha for the five scenarios was .75.

**Dependent variables: Range of hip joint motion, walking on stairs, and general recovery.** Two weeks after surgery, when all patients were still in the hospital, physical therapists reported about (a) the functional status of the hip in terms of degree of hip joint motion, (b) the functional status of the hip in terms of patients' ability to walk on stairs, and (c) patients' general recovery. There were 14 physical therapists that worked with the patients. We asked each patient's primary physical therapist, because primary physical therapists could most closely follow their patients' course of recovery.

First, physical therapists rated the range of hip joint motion, a classic indicator of functional recovery after hip-replacement surgery (Gogia et al., 1994). They were asked to report the range of the hip joint's motion: "How well can the hip joint of the patient be moved? When it comes to: (a) 'abduction,' (b) 'extension,' and (c) 'flexion.'" Answer scales ranged from 1 (*badly*) to 5 (*well*). The three items showed high internal consistency (Cronbach's  $\alpha = .77$ ), and were therefore combined to an overall scale of functional status of the hip (i.e., range of motion). Another classic indicator of functional ability of the hip joint after hip-replacement surgery is the extent to which patients can walk on stairs (Dekker, Boot, van der Woude, & Bijlsma, 1992). Physical therapists answered the question "How many stairs can the patient walk upstairs and downstairs?" on a 5-point scale ranging from *none at all* to *three stairs*. Finally, as a measure of general recovery, physical therapists indicated: "How well does the patient do in comparison to other patients in his or her recovery from hip-replacement surgery?" with respect to (a) pain, (b) muscular strength, (c) functional status of the hip, and (d) general well-being. Scales ranged from 1 (*very badly*) to 5 (*very well*). Cronbach's alpha was .89, and therefore we combined the items in an overall index of general recovery.

**Content analyses: Idealizing versus questioning outcome and process.** Two independent raters evaluated the written responses to each of the five scenarios with respect to the extent participants in their written thoughts and images (a) idealized the positive outcome or questioned such a positive outcome, and (b) idealized an effortless process to reach the desired outcome or questioned an unencumbered way to recovery. Rating scales ranged from  $-5$  (*total questioning*) to 0 (*neither questioning nor idealizing*) to  $+5$  (*total idealizing*).

With respect to outcome, the highest score for idealizing (score of  $+5$ ) was coded when the response solely focused on positive aspects of the outcome without entailing any lessening or impairment (e.g., in response to the scenario of the patient going for a walk with friends, 1 participant

wrote: "I am so happy that I am well, it is easy for me to keep up with my friends on the walk, they are completely amazed how I am doing"). The highest score for questioning a positive outcome (score of -5) was given when a response entailed curtailment regarding the future outcome (e.g., in response to the above mentioned scenario, 1 participant wrote: "Will there be serious consequences of the surgery? What if I have to slow down in the middle of the walk? Will I have to wait in the restaurant?").

With respect to process, the highest score for idealizing (score of +5) was coded when the way to the desired outcome was described as effortless and unencumbered and lacking any hindrances, pains, temptations, or setbacks (e.g., in response to the scenario of the patient buying a newspaper in the hospital shop, 1 participant wrote: "I am walking on the stairways downwards without help, and I walk easily and quickly to the newspaper stand"). The highest score for questioning the process (score of -5) was coded when the way to recovery entailed troublesome aspects such as obstacles, temptations, or set-backs, or when pain and effort were mentioned (e.g., in response to the scenario above, 1 participant wrote: "I am trying to walk to the door first, using my cane. But how shall I open the door? Uh, and then walking until the elevator? How would I ever do it?").

Interrater reliability was high ( $r = .90$ ), and ratings regarding outcome and process were highly correlated ( $r = .73$ ; Cronbach's  $\alpha$  of the 10 scales was  $.75$ ). We created an overall index of idealizing versus questioning containing the ratings of outcome as well as process. High scores on this overall index reflect descriptions of perfect recovery that is effortless and painlessly achieved, low scores reflect descriptions of a fair recovery that is attained with effort and pain.

**Results**

*Descriptive analyses.* Expectations ( $M = 4.00, SD = 0.78$ ) and fantasies (index:  $M = 3.05, SD = 0.89$ , positivity:  $M = 4.44, SD = 0.51$ , negativity:  $M = 1.39, SD = 0.42$ ) correlated positively (index:  $r = .37, p < .01$ , positivity:  $r = .34, p < .01$ , negativity:  $r = -.37, p < .01$ ). BMI ( $M = 27.49, SD = 4.11$ ) correlated negatively with expectations ( $r = -.31, p < .01$ ), as well as with fantasies (index:  $r = -.27, p < .03$ ; positivity:  $r = -.25, p < .04$ ; negativity:  $r = .26, p < .03$ ). Functional status of the hip before surgery as estimated by the doctors ( $M = 2.78, SD = 1.01$ ) did not correlate significantly with expectations ( $r = .01, p = .44$ ), fantasies (index:  $r = .04, p = .38$ ; positivity:  $r = .04, p = .37$ ; negativity:  $r = -.03, p = .40$ ), or BMI ( $r = .07, p = .29$ ). Expectations, fantasies, and functional status of the hip before surgery did not differ between men and women, all  $F_s(1, 49) < 1.64, ps > .20, ds < .37$ , and between participants of different age, all  $F_s(1, 49) < 1.16, ps > .28, ds < .31$ . However,

men tended to have higher BMI than women,  $F(1,49) = 2.60, p > .11, d < .47$ .

The dependent variables of motion of the hip joint ( $M = 3.67, SD = 0.74$ ), walking on stairs ( $M = 4.24, SD = 0.91$ ), and general recovery ( $M = 3.79, SD = 0.81$ ) correlated positively (hip joint motion with walking on stairs:  $r = .43, p < .01$ ; general recovery:  $r = .70, p < .01$ ; walking on stairs with general recovery:  $r = .48, p < .01$ ).

*The predictive power of expectations versus fantasies.* Positive expectation predicted successful recovery from hip-replacement surgery, and the reverse was true for positive fantasy. This finding held whether recovery was measured by highly specific measures, that is, by patients' hip joint motion and their capability of walking on stairs, or by a general measure including pain, muscular strength, functional status of the hip, and patients' well-being. It held for all three fantasy scales, the index, as well as for the positivity and negativity scales separately (see Table 1). Like in Study 3, the experience of more positive than negative fantasies, the presence of positive fantasies as well as the absence of negative fantasies were all linked to comparatively less success. Interaction effects between expectation and fantasy were not significant ( $ps > .26$ ). Mutual suppressor effects with respect to all dependent variables and for the index, the positivity, and the negativity scales are indicated by partial correlations tending to be higher than raw correlations (shown in parentheses in Table 1).

*Gender, weight, and presurgery hip condition.* Regression analyses revealed that gender, weight (BMI), and presurgery hip condition were not significant predictors of hip joint motion (see Table 2, left column), nor did they together explain a significant portion of the variance (the three variables together explained 8% of the variance,  $p = .26$ ). However, gender and presurgery hip condition significantly predicted walking on stairs (see Table 2, middle column) with men and better-off patients being more successful (the three variables together explained 30% of the variance,  $p = .001$ ). Finally, gender, weight, and presurgery hip condition all significantly predicted general recovery (see Table 2, right column) with men, patients with lower weight, and initially better-off patients recovering more successfully (the three variables together explaining 22% of the variance,  $p = .007$ ). Of most importance, positive expectations remained a near-significant positive predictor, and positive fantasies remained a significant neg-

Table 2  
Recovery From Hip-Replacement Surgery as Predicted by Gender, Weight, and Presurgery Hip Condition As Well As Expectation and Fantasy: Study 4

Predictor variable	Hip joint motion			Walking on stairs			General recovery		
	$\beta$	$F$	$p$	$\beta$	$F$	$p$	$\beta$	$F$	$p$
Step 1									
Gender	.23	2.51	.12	.40	9.68	.003	.31	5.40	.03
Weight (BMI)	-.16	1.13	.29	-.05	0.18	.69	-.33	5.97	.02
Presurgery hip condition	.16	1.29	.26	.40	10.23	.003	.30	5.23	.03
Step 2									
Expectation	.23	2.59	.11	.35	7.73	.008	.23	2.81	.10
Fantasy	-.47	11.00	.002	-.34	7.35	.01	-.34	6.32	.02

Note. BMI = Body Mass Index.

ative predictor even after gender, weight, and presurgery hip condition had been controlled (see Table 2).

No interaction effects were significant (hip joint motion:  $ps > .15$ ; walking on stairs:  $ps > .34$ ; general recovery:  $ps > .16$ ), indicating that the positive relation between expectations and the three indicators of success, as well as the negative relation between fantasies and success, holds for men and women, patients of different weight, and patients of different presurgery hip conditions alike.

*Content analysis: Idealization versus questioning.* Mean idealization ratings were above the middle of the scale (outcome plus process:  $M = 1.23$ ,  $SD = 1.56$ ; outcome:  $M = 1.69$ ,  $SD = 1.80$ ; process:  $M = .78$ ,  $SD = 1.54$ ), and participants idealized outcome more than process,  $t(50) = 5.15$ ,  $p = .001$ . Of most importance, the correlations between the experienced positivity of fantasies and the ratings of idealization were significantly positive, and this was true for idealization of outcome plus process as well as for outcome and process analyzed separately (see Table 3). Apparently, positively experienced fantasies entail descriptions of perfect futures that are effortlessly achieved, whereas comparatively more negatively experienced fantasies question a perfect future and its unencumbered realization. Partial correlations tended to be lower than raw correlations (in parentheses, Table 3), indicating that part of the positive relation between experienced fantasies and idealization was due to expectations. But even after controlling for expectations, the relation between experienced fantasy and ratings of idealization stayed significant ( $ps < .01$ ).

Expectations also correlated positively with idealization. However, after controlling for experienced positivity of fantasies, the correlations significantly decreased ( $ts > 2.40$ ,  $ps < .01$ ; see Table 3), indicating that the positive correlation between ratings of idealization and subjective expectations was mostly due to the experienced positivity of fantasies. In other words, ratings of idealization are linked to the positivity of subjective fantasies rather than to the positivity of expectations.

Finally, when determining the predictive value of expectation, fantasy, and rated idealization for recovery, the patterns of results for expectations and fantasy stayed untouched, whereas the relation between idealization and recovery was nonsignificant (see Table 4). Apparently, the experienced positivity of fantasies rather than the observable contents of these fantasies are responsible for the negative relation between fantasy and successfully realizing one's desired future. Finally, all patterns of results reported above apply regardless of whether fantasies are measured by the index, the positivity scale, or the negativity scale.

Table 3  
*Relations Between Expectation, Fantasy, and Ratings of Idealized Future: Study 4*

Thinking about the future	Outcome and process	Outcome	Process
Expectation	.10 (.24*)	.07 (.21)	.13 (.25*)
Fantasy	.36** (.41***)	.34** (.39**)	.31** (.38**)

*Note.* Partial correlation coefficients controlled for the other predictor variable; raw correlation coefficients are shown in parentheses.  
\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

## Discussion

The reverse relation of expectation and fantasy to actual success was replicated in the health domain, with older participants, with independent raters (physical therapists) recording specific and general criteria of success, and with gender and other possibly confounding variables (i.e., weight, presurgery functional hip condition) statistically controlled. As in Study 3, the presence of positive thoughts and the absence of negative thoughts were precursors of less success, as was the index, demonstrating that the more lopsided (i.e., the more positive than negative) participants experienced their fantasies, the worse the recovery.

Content analyses revealed that although people idealized outcome more than process, idealization of process was common. Further, both idealized outcome and idealized process positively related to experienced positivity of fantasies. Thus positive fantasies contain both outcome and process in its idealized form, that is, successful achievement as well as effortless and unencumbered progress to attaining the desired future.

But even though the correlations between the tone of subjectively experienced fantasies and ratings of idealization were significant ( $rs$  ranged from .31 to .36,  $ps < .01$ ), they still leave variance unexplained. Patients, although entertaining negative fantasies, might have felt hesitant to explicate these fully in writing, because such negative fantasies might cover content that is socially undesirable (e.g., expressing anger, suffering pain, or feeling shame), scary (e.g., having nightmares, feeling lonely, being dependent), or can hurt the feelings of members of the hospital staff (e.g., the doctor making a mistake; the health care provider being unfriendly). Conversely, patients might have entertained positive fantasies, but did not want to express them fully in their writings, fearing that they then might not come true or lead to ridicule from the interviewer. Else, participants varying in acceptance of their daydreams might have differed in how they conveyed the affective tone in their writings, and individuals with poor attention control (Huba et al., 1982; Singer & Antrobus, 1963) might have written more ambiguous texts producing less reliable ratings. Though such factors may have blurred the correlation between rated idealization and experienced tone of fantasies, the correlation suggests that positively experienced fantasies are based on imagining successful outcomes and unencumbered process to reach these outcomes. And of importance, it was the subjectively experienced positive fantasies rather than the expressed idealization as picked up by the raters that predicted low recovery.

## General Discussion

On the basis of William James's (1890/1950) distinction between beliefs and images, we explored the predictive power of thinking about the future in terms of expectations versus fantasies. Across four studies, we observed that positive expectations predicted higher motivation and more success than negative expectations, but positive fantasies predicted lower motivation and less success than negative fantasies.

Experienced positivity of fantasies predicted weak effort and low success over diverse periods of time (from 2 weeks to 2 years), for different measures of fantasies (frequency ratings, semiprojective techniques), for positivity as well as negativity ratings, for different life domains (professional, interpersonal, academic,

Table 4  
*Recovery From Hip-Replacement Surgery as Predicted by Expectation, Fantasy, and Ratings of Idealized Future: Study 4*

Predictor variable	Hip joint motion			Walking on stairs			General recovery		
	$\beta$	<i>F</i>	<i>p</i>	$\beta$	<i>F</i>	<i>p</i>	$\beta$	<i>F</i>	<i>p</i>
Expectation	0.26	3.51	.07	0.37	6.79	.01	0.29	4.19	.05
Fantasy	-0.50	11.14	.002	-0.44	8.46	.006	-0.42	7.61	.008
Rated idealization	0.09	0.42	.52	0.17	1.36	.25	0.25	2.99	.09

health), in samples of different ages (young adults, elderly), in samples tested in the laboratory and in institutions (classroom, hospital), and in samples embedded in different countries (Germany, United States). The findings also support the notion that weak effort mediates the relation between positive fantasy and little success.

All four studies pertained to the mastery of life tasks (Cantor & Kihlstrom, 1987). As failures to solve impending life tasks affect the mastery of subsequent life tasks (Havighurst, 1948/1972), our findings imply that positive fantasies can have long-term costs with respect to a person’s personality development (Cantor & Harlow, 1994). For example, the first job is the basis for successive job positions a person holds during his or her life (Super & Hall, 1978), with both status and wages increasing over time. Thus our findings of positive fantasies predicting low success in entering professional life imply that positive fantasies may be problematic not only for the life task of beginning a career. Moreover, an enduring transitional period between academic and professional life should adversely affect relations with parents and friends, financial and living conditions, and the advent of starting a family. Similarly, it should strain well-being, high self-esteem, and professional self-efficacy.

*Fantasy-Performance Link: Person Variables*

The present research does not speak to person variables affecting the relation between fantasy and performance. For example, acceptance of one’s own daydreams correlates with reports of frequent positive daydreams (both measured by the Imaginal Processes Inventory; Huba et al., 1981; Singer & Antrobus, 1963). Thus, by facilitating the emergence of positive fantasies, acceptance of daydreams might hinder successful performance. Further, person variables might mediate the fantasy-performance link. For example, hardiness (readiness to confront problems and to change them through effortful action; Kobasa, Maddi, & Kahn, 1982) might be hampered by positive fantasy thus reducing successful performance. Finally, person variables might moderate the fantasy-performance link. For example, repressors (i.e., individuals who notice negative stimuli but do not experience them as negative; Bonanno & Singer, 1993; Weinberger, Schwartz, & Davidson, 1979) might not show the link between fantasy and performance, because they do not experience imagined hardships in a negative way. Indeed, Jensen (1987) found in his study with cancer patients that positive fantasies relate to low recovery more in nonrepressors than in repressors.

*Implications for Research on Thinking About the Future*

*Expectation-fantasy link.* In all four studies, high expectations of success related positively to the positivity of experienced fantasies. High expectations of success might have facilitated positive fantasies about the future (Klinger, 1977), and positive fantasies (thoughts and images) might have raised respective expectations of success (Anderson & Godfrey, 1987; summary by Tversky & Koehler, 1994). Regardless of how the positive relation between expectations and fantasies emerged, the observed mutual suppressor effects suggest that future research should benefit from measuring both expectations and fantasies, because they will predict behavior most clearly when the other type of thinking about the future is assessed and (in case of a positive correlation) statistically controlled.

The mutual suppressor effects further suggest that a combination of positive expectations and negative fantasies might be particularly motivating. Future studies need to investigate when and how people entertaining positive expectations spontaneously generate negative fantasies geared at preparing themselves for upcoming difficulties and hindrances. Aspinwall (1998) reports that people with illusory optimism readily turn their focus to negative information when the negative information is serving their goal pursuit, suggesting that people who feel confident about attaining their goals might be in a good position to imagine relevant hindrances and hardships.

*Potential benefits of positive fantasy.* Positive fantasies do not always need to limit a person’s effort and successful performance. When it comes to mentally exploring one’s possibilities to grow and one’s opportunities to act—that is, when one wants to discover one’s possible selves (Markus & Nurius, 1986)—positive fantasies might become useful because they are not closely tied to the hardships of reality. Fredrickson (1998, 2001), in her broaden-and-build theory of positive emotions, finds that emotions such as joy, interest, contentment, pride, and love broaden people’s thought-action repertoires, widen their array of thoughts and possible actions, and thus build their personal resources. Fredrickson explicitly contrasts this broaden-and-build function of positive emotions with models on specific action tendencies that see negative emotions promoting quick and decisive actions. Positive fantasies should help people mentally experience the various possibilities and opportunities the future might bring, thereby broadening and building a person’s thought-action repertoire; negative fantasies orienting the person to the necessities of the here and now, then, help translate such a repertoire into effortful action and achieving success.

*Potential harm of negative fantasy.* Just as positive fantasies might at times be beneficial, so can negative fantasies be detrimental. Ruminative coping with depressed mood, for example, is a risk factor for severe and prolonged periods of depressive mood (Nolen-Hoeksema, 1991; Nolen-Hoeksema, Parker, & Larson, 1994). Ruminative thoughts to depression have been conceptualized as thoughts that focus one's attention on one's depressive symptoms and their personal consequences, thus prolonging and extending the miserable current status quo into the far future. Thus ruminative thoughts make people behave passively and keep them in extensive worries.

In contrast, negative fantasies about a desired future depict potential problems and setbacks related to an improved future. Though negative in tone, they should fail to be linked to depression and passivity, because they pertain to a constructive road to a better future. These negative fantasies about a desired future, then, seem to have the reverse effects than ruminative thoughts about one's present depressive mood. Future studies have to disentangle the links between negative fantasies about a desired future, ruminative thoughts, and various indicators of depression.

*Culture and future thought.* Finally, the motivational consequences of positive fantasies might depend on the cultural context. People in cultures in which their cultural products (e.g., myths, legends, language) foster a long-term time perspective as well as tight cultural values (i.e., favor many norms that apply across situations and over time; Triandis, 1996) might benefit from positive fantasies about a distant future (Oettingen, 1997), because they should help to mentally escape the dire and restricted reality. Conversely, in such cultures, people might benefit less from positive expectations as the basis of behavior, because cultural values and norms largely determine action (who interacts with whom, when, in what way, and with what kind of outcome; Oettingen, 1997; Triandis, 1996). Thus research that assumes positive expectations as the basis for motivation and action (summary by Oettingen & Gollwitzer, 2001) might not apply to highly norm-oriented cultural contexts. Here, positive fantasies might play a comparatively more important role for motivation and action.

## Conclusion

Four studies investigated the predictive power of thinking about the future in terms of positive expectations versus positive fantasies. As positive expectations reflect past successes, they signal that investment in the future will pay off. Positive fantasies, to the contrary, lead people to mentally enjoy the desired future in the here and now, and thus curb investment and future success. In studies on four different life tasks, positive expectations predicted high effort and performance, whereas positive fantasies predicted low effort and performance. Content analyses showed that positive fantasies are linked to idealizing a desired future outcome as well as the process to get there, and that it is the experience of high positivity generated by thoughts and images that predicts low effort and little success.

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