MENTAL CONTRASTING AND THE SELF-REGULATION OF HELPING RELATIONS

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While mental contrasting of positive future and negative reality promotes commitment to feasible goals, it has not been tested whether it also promotes the choice of suitable means. In two studies we examined the effects of mental contrasting (Oettingen, 2000) on seeking and giving help as means to an end. For college-age students, mental contrasting about attaining academic help led to expectancy-dependent commitment to seek help (Study 1), while for critical care nurses, mental contrasting about helping patients' relatives led to expectancy-dependent commitment to give help (Study 2). Results speak to two neglected topics: The self-regulation of selecting means to goals and the self-regulation of helping relations.

Although the antecedents, mechanisms, and consequences of helping relations have largely been the focus of helping research over the last 40 years (e.g., Batson, 1998; Dovidio, Piliavin, Schroeder, & Penner, 2006; Karabenick & Newman, 2006; Krebs, 1970; Nadler, 1991; Wills & DePaulo, 1993; Weiner, 1980), very little attention has been given to the self-regulation of these behav-

iors. The present research sheds light on this gap in the helping literature by examining the influence of the self-regulation strategy of mental contrasting on seeking and offering help.

By doing so, the present research also elucidates the psychology of goal pursuit. So far, research on goals has focused on the self-regulation of goal setting and goal striving (summaries by Bargh, Gollwitzer, & Oettingen, 2010; Oettingen & Gollwitzer, 2001, in press). Drawing on goal systems approaches that analyze how means and goals work together in activating each other (summaries by Kruglanski & Kopetz, 2009; Newell & Simon, 1972), the present investigations focus on the self-regulation of using effective means to a goal. Help seeking and help giving are viable means to attain goals. People use help seeking as a mean for completing projects, learning from others, and making clever decisions. In the interpersonal domain, help seeking is used for settling conflicts, supporting others, and making new contacts. Similarly, help giving is used to foster communication, and to build cooperation and teamwork. In the interpersonal domain, help giving is a pivotal mean to initiate and strengthen short-term and long-term relationships as well as to build personal identities (Ames, 1983; Batson, 1998; Butler, 1998; Nadler, 1991).

In the present research, we hypothesize that mentally contrasting successful help-seeking behaviors and successful help-giving behaviors will lead people to use these means when they are perceived as instrumental and feasible. Specifically, we hypothesize that mental contrasting will commit people to seeking help when it is perceived as likely to be offered, but disengage when it is perceived as unlikely to be offered (Study 1). Similarly, we hypothesize that mental contrasting will commit people to giving help when they can spare it, but disengage when they perceive themselves as unable to spare it (Study 2). To the contrary, one-sided thinking, either only focusing on successfully using helping means or only focusing on its impeding realities, will lead people to commit to help seeking and help giving irrespective of the means' instrumentality and feasibility, respectively.

In short, these experimental studies add to the literature on helping relations by identifying a strategy that regulates the effective use of help seeking and help giving. They add to the research on goal pursuit by testing whether mental contrasting is a strategy that can regulate the commitment to a means to an end like it regulates the commitment to the end itself (Oettingen et al., 2009; Oettingen, Mayer, & Thorpe, in press; Oettingen, Pak, & Schnetter, 2001).

HELP SEEKING AND HELP GIVING

Seeking help when necessary is generally considered a legitimate means of dealing with challenges to goal attainment (e.g., Marchand & Skinner, 2007; Nadler, 1987). However, help is often a mixed blessing: seeking help may enable one to reach otherwise unreachable goals, but people asking for help often put themselves at risk of being rejected, becoming indebted and dependent, appearing uncertain, unsure, or needy, relinquishing autonomy, and exposing weaknesses (e.g., Butler, 1998; Greenberg & Westcott, 1983; Merton, Merton, &

Barber, 1983; Nadler, 1987; Nadler, 1991). For these reasons, individuals may be reluctant to commit to seeking help (Nadler, 1991). Therefore, it makes sense for them to commit to seeking help only when it is likely that they actually will obtain it, but to abstain from seeking help when that is unlikely.

Like help seeking, offering help to others in need is generally accepted as a humane and appropriate social interaction pattern (Baltes, Neumann, & Zank, 1994; Krebs, 1970). However, while helping others may be internally rewarding and may lay the foundation for a trusting partnership, not every person has the resources and skills to provide such help (Bartlett & DeSteno, 2007). For example, those who assume the role of help giver run the risk of enduring emotional arousal or distress (Piliavin, Piliavin, & Rodin, 1975), missing other important opportunities (Schaps, 1972), discovering personal limitations or simply not having the time and competence to give help (Bartlett & DeSteno, 2007; Nadler, 1987). Thus it makes sense for them to commit to helping only when it is likely that they actually will have the resources to follow through effectively, but to refrain from giving help when they are not confident that they will be able to do so. If seeking help and giving help are beneficial means to reach goals, then the question of what people can do to regulate their commitment to these helping behaviors is critical. How can people adjust their commitment toward seeking help to their likelihood of successfully receiving it? And, how can people adjust their commitment toward giving help to their likelihood of successfully providing it? In short, what strategies may people use to regulate their helping relations? The present article focuses on the self-regulatory strategy of mental contrasting. We hypothesize that, unlike indulging and dwelling, mental contrasting makes people commit to effective help seeking (Study 1) and effective help giving (Study 2).

SELF-REGULATION OF COMMITMENT

Research on the self-regulation of commitment has so far focused on commitment to goals. "Goal commitment refers to one's attachment to or determination to reach a goal" (Locke, Latham, & Erez, 1988, p. 24). Commitment to goals is a prerequisite to successful goal striving, especially when goals are difficult to achieve (Locke & Latham, 1990; summary by Klein, Wesson, Hollenbeck, & Alge, 1999). Since people have little insight into their own commitments (Brunstein & Gollwitzer, 1996; Klinger, 1975), commitment is often assessed through indirect measures, whereby affective, cognitive, and behavioral indicators are used (summaries by Klein et al., 1999; Locke & Latham, 1990; Oettingen & Gollwitzer, 2001). For example, participants can rate their interest or enthusiasm in reaching the goal (affective indicator), or report the frequency of thinking about attaining the goal (cognitive indicator). Behavioral indicators measuring a participant's actions in the service of attaining a goal are considered to be particularly valid (Locke et al., 1988).

Commitment, like motivation, is determined by expectations and incentive value. Also, commitment, like motivation, implies energization and direction (Ajzen, 1991; Atkinson, 1957; Heckhausen & Gollwitzer, 1987; Hull, 1943;

Locke & Latham, 1990). However, in contrast to motivation, commitment does not depend solely on expectation and value. Self-regulation strategies in the form of cognitive procedures are necessary to guarantee that high expectations of success translate into the determination that is characteristic of commitment (Bargh et. al., 2010; Oettingen, 1999, 2000; Oettingen & Gollwitzer, 2001, in press). Such determination or commitment has also been conceptualized as an implemental or action mind-set (Gollwitzer, 1990), as a current concern (Klinger, 1975), as the state after a change decision (Heckhausen & Gollwitzer, 1987), or the state after crossing the Rubicon (Heckhausen & Gollwitzer, 1987; Heckhausen & Kuhl, 1985).

What self-regulation strategy may people use to form such a determination or commitment? Assuming expectations and incentive value are high, people may use the strategy of mental contrasting. Here, people mentally contrast a valued, positive future with the negative reality impeding its realization. Consequently, expectations of success are activated. If expectations of success are high, people will commit to realizing the positive future, when expectations are low they stay away from such a commitment. This two-sided strategy differs from one-sided strategies such as merely indulging in the positive future or merely dwelling on negative reality. Like applying no self-regulation strategy, the latter two strategies fail to activate expectations which then play no role in guiding people's commitment to goals (Oettingen, 2000; Oettingen et al., 2001, in press).

In sum, perceiving the envisioned future as desirable (positive attitude or high incentive value) and feasible (high perceived control or efficacy expectations; Ajzen, 1991; Bandura, 1997; Gollwitzer, 1990) is necessary but not sufficient to ensure commitment. People need to translate these positive attitudes and high expectations into binding commitments, a process which is facilitated by using the self-regulation strategy of mentally contrasting the positive future with negative reality. These hypotheses have been supported in experimental studies of widely different content and employing different paradigms (e.g., interpersonal, achievement, and health content; Oettingen, 2000; Oettingen et al., 2001, 2009, in press).

Though there is evidence that mental contrasting helps to regulate commitment to goals, it is much less clear how commitments to means are formed. The present article focuses on the latter question. Specifically, it analyzes whether mental contrasting of future and reality can also be used to instill expectancy-dependent commitment to means that serve respective ends or goals.

MENTAL CONTRASTING VS. INDULGING AND DWELLING

When people use the self-regulation strategy of mental contrasting they first imagine a desired future (e.g., running a half-marathon) and then reflect on the respective negative reality (e.g., inconsistent training). The conjoint elaboration of the positive future and the negative reality makes both the future and reality simultaneously accessible and forms an association between them so that the reality is perceived as standing in the way of realizing the desired future. This

occurs even when participants are not explicitly told to mentally contrast the future with the reality. Mental contrasting commits people to realizing the desired future by scrutinizing the feasibility of its attainment (e.g., can I train sufficiently for a marathon? Oettingen, 2000; Oettingen et al., 2001, 2009, in press; Oettingen, Mayer, Thorpe, Janetzke, & Lorenz, 2005). When perceived feasibility is high, they strongly commit to attaining the goal of realizing the desired future; when perceived feasibility is low, they disengage from the idea of realizing the desired future. Consistent with Newell and Simon's (1972) theory of problem solving, for those who engage in the strategy of mental contrasting, the subjective problem space (defined as the internal subjective representation of the problem at hand) matches the objective problem space (defined as the objective task demands posed by the environment), encompassing both the mental representation of the desired future and the impediments obstructing its attainment. As a result, this strategy enables one to recognize that measures need to be taken to overcome the negative reality in order to achieve the desired future. Therefore, the perceived feasibility (expectations) of attaining the desired future should determine the person's goal commitment.

However, when the subjective problem space only entails part of the objective problem space, as is the case for those who either solely indulge in the positive future or solely dwell on the negative reality, one fails to recognize that measures need to be taken to overcome the reality to achieve the desired future. As a consequence, expectations are not consulted and goal commitment fails to be expectancy-dependent. Instead, goal commitment is determined by the prior commitment to attaining the desired future. Thus, only the self-regulatory strategy of mental contrasting succeeds in raising commitment when expectations of success are high and in lowering commitment when expectations of success are low.

A series of experimental studies measuring goal commitment as the dependent variable supports these hypotheses (Oettingen, 2000; Oettingen et al., 2001, 2005, 2009, in press). In these studies, participants were randomly assigned to one of at least three conditions where they either mentally elaborated both the desired future and negative reality (without being explicitly instructed to mentally contrast future and reality; mental-contrasting condition), only the desired future (indulging condition), or only the negative reality (dwelling condition). In one experiment with vocational education students, participants were asked to mentally contrast the positive future of excelling in mathematics (participants imagined, e.g., feelings of pride, increasing their job prospects) with the respective negative reality standing in the way of fantasy realization (participants reflected on, e.g., being distracted by peers, feeling lazy). Two weeks after the experiment, students in the mental-contrasting condition with initially high expectations that they could achieve the desired change (i.e., excel in math) received better course grades and were rated by their teachers as exerting more effort than those students in the indulging and dwelling conditions (Oettingen et al., 2001, Study 4). The same pattern of results emerged in school children starting to learn a foreign language (Oettingen, Hönig, & Gollwitzer, 2000, Study 1), in students wishing to solve an interpersonal problem (Oettingen et al., 2001, Studies 1 and 3), and in students offered the opportunity to get to know an at-

tractive stranger (Oettingen, 2000, Study 1). In these studies, mental contrasting turned out to be an easy-to-apply self-regulation tool, as the described effects emerged even when participants only very briefly elaborated the desired future and the negative reality (Oettingen et al., 2000, Study 1).

PRESENT RESEARCH

The present experimental studies investigate in two different life domains (academic, health/interpersonal) whether mental contrasting produces expectancy-dependent commitment in applying behavioral means to an end. Answering this question is important as differentiating between means that are instrumental and feasible versus those that are not instrumental and not feasible will determine success in goal pursuit and will save important resources such as time, money, and effort. Specifically, we investigated whether mental contrasting leads to expectancy-dependence in help seeking (Study 1) and help giving (Study 2) as two critical and commonly used means to reach desired end states (Batson, 1998; Batson, Eklund, Chermok, Hoyt, & Oritz, 2007; Karabenick & Newman, 2006; Nadler, 1991). We used behavioral indicators of commitment, as they are considered to be the most reliable when measuring strength of commitment (Locke & Latham, 2002).

STUDY 1: SELF REGULATION OF COMMITMENT TO HELP SEEKING

Study 1 investigates whether mental contrasting produces expectancy-dependent commitment to seeking help from others that would facilitate reaching a desired future. Although help seeking can be a beneficial strategy for reaching one's goals, people often refrain from asking for needed help in large part because they are afraid they won't receive it (e.g., Butler & Neuman, 1995; Good, Slavings, Harel, & Emerson, 1987; Newman, 1990). In Study 1, we first asked participants in three different conditions (indulging, dwelling, and mental contrasting) to name a pressing problem where help would be necessary and then to identify a not-easily-approached person who could potentially provide this help. Two weeks after the experiment, we measured to what degree the named person's help had contributed to successfully solving the problem. While mental contrasting participants should show expectancy-dependent success in solving the problem with the help of the specified person, this should not be true for indulging and dwelling participants.

METHOD

Participants and Design. One hundred thirty-five (100 females, 35 males) undergraduate students at a large German university participated either individually or in groups of 10 to 15, earning either 5 Euros or no monetary reward. The study entailed three experimental conditions: a mental-contrasting condition, an indulging condition, and a dwelling condition. We assessed the

dependent variable (i.e., attainment of effective help) two weeks after the experiment.

Procedure. The experimenter introduced the materials and explained the procedure, assured confidentiality, and stressed that participation was voluntary. Additionally, the experimenter informed all participants about a short follow-up questionnaire they would receive in the mail two weeks after the experiment. To assure anonymity, participants used a personal code instead of their names, provided their addresses on an index card and deposited this card into a box.

The questionnaire consisted of three parts and purportedly investigated how thoughts and images express themselves in writing. To begin, participants identified an important academic problem that they would like to solve or improve within the next two weeks (participants named, e.g., passing a hard exam, finding an internship) and named a person who could provide effective help. Participants were asked to refer to the selected person as *Person X* for the remainder of the questionnaire. To measure relevant expectations participants responded to the question "How likely is it that Person X will help you?" on a 7-point scale, ranging from 1 (*not at all*) to 7 (*very*).

In the second part of the questionnaire, all participants had to quickly jot down key words associated with four positive aspects of successfully seeking help from Person X (participants listed, e.g., time is used sensibly, feeling relieved) and four negative aspects of the reality standing in the way of successfully seeking help from Person X (participants named, e.g., feeling uncomfortable, being rejected). Participants then ranked their positive future and negative reality aspects in order of importance.

The third part of the questionnaire established the three experimental conditions. In the mental-contrasting condition, participants transferred the second most important positive fantasy key word pertaining to successfully seeking help to the top of a new sheet of paper. Then they received these instructions:

> 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 thoughts and images free rein. Take as much time and space as you need to describe the scenario.

After participants finished with the key word on the upper half of the page, they transferred the second most important key word pertaining to the negative reality to the middle of the page. Then they received the same instructions as described above. After completing the first sheet, participants moved on to a second sheet with the same two sets of instructions, although this time they elaborated and wrote about the most important positive future aspect of successfully seeking help and the most important negative reality aspect that may impede it.

Participants in the indulging (positive fantasy only) condition mentally elaborated and wrote only about their four positive aspects of successfully seeking help, in the order of fourth, third, second, and finally the most important aspect. Participants in the dwelling (negative reality only) condition

elaborated and wrote about only their four negative aspects of reality, in the order of fourth, third, second, and most important aspects.

Dependent Variables. Two weeks after the experiment, all participants received a short follow-up questionnaire in the mail. Participants first wrote down their problem from the previous 2 weeks and then were to think once again about Person X. To assess attainment of help, they indicated on a 7-point response scale, ranging from 1 (*not at all*) to 7 (*very*), how much their problem had been solved or improved through the help of Person X. After responding to the follow-up questions, participants received an e-mail debriefing them about the study and encouraging them to contact us in case they had any questions.

Eighty-nine (65 females, 24 males) out of the total sample of 135 participants (66%) completed the follow-up questionnaire. Of the 46 participants who did not send back the follow-up form, 13 were in the mental-contrasting condition, 18 were in the indulging condition, and 15 were in the dwelling condition. Expectations did not differ between participants with or without follow-up questionnaires ($p > .97$).

RESULTS

Descriptive Analyses. Mean expectations of receiving effective help from Person X were above the midpoint of the 7-point scale ($M = 4.94$, $SD = 1.73$). The mean of the dependent variable, attainment of help, was below the midpoint of the 7-point scale ($M = 3.24$, $SD = 2.06$).

Attainment of Help. We hypothesized an interaction effect between condition and our continuous measure of expectations in predicting attainment of help. To test this hypothesis we used General Linear Model analyses with attainment of help as the dependent variable, condition as a fixed between-subject factor, and the continuous expectation measure as independent variable entered in the first step; the interaction term of condition by the continuous expectation measure was entered as independent variable in the second step (Hardin & Hilbe, 2001).

We observed significant main effects of condition, $F(2, 85) = 4.79$, $p < .02$, and expectation, $F(1, 85) = 6.69$, $p < .02$, which were qualified by the predicted interaction effect, $F(2, 83) = 4.83$, $p < .02$. When comparing the relation between expectation and attainment of help, the relation was stronger in the mental-contrasting condition versus the indulging condition, $t(83) = 2.64$, $p < .02$, and the dwelling condition, $t(83) = 2.43$, $p < .02$; the latter two conditions did not differ from each other, $t(83) = .74$, $p > .45$ (Figure 1).[1] When expectations of success were high, participants in the mental-contrasting condition attained more effective help than those in the indulging and dwelling conditions, ts(83) > 2.58, ps < .02. When expectations were low, participants attained less effective help than those in the indulging condition, $t(83) = 2.21$, $p < .04$; the difference between those in the mental-contrasting condition with low expectations and those in the dwelling condition did not reach significance.

1. Relations between expectation and dependent variables depicted in the Figures all differ significantly from zero in the mental-contrasting conditions, but none of them differ significantly from zero in the other conditions; Figure 2 shows predicted values with incentive value held constant at its mean.
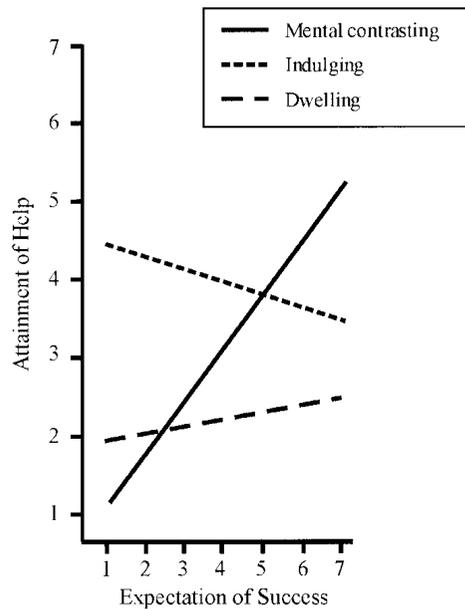
FIGURE 1. Study 1: Regression lines depicting the link between expectation and reported attainment of help as a function of mental contrasting, indulging, and dwelling.

DISCUSSION

Mental contrasting led to successful attainment of effective help when participants had high expectations that another person would help them, but it led to little success in attaining help when participants had low expectations. To the contrary, expectations did not determine attainment of help in the indulging and dwelling conditions.

Compared to participants in the indulging condition, the mean level of attaining help was significantly lower in the dwelling condition, $F(1, 53) = 8.19$, $p < .01$ (Figure 1). This finding deviates from previous studies where similar mean levels of goal commitment were found in the indulging and dwelling conditions. In the present study, the comparatively low level of commitment in the dwelling group may be due to the fact that attaining help is not determined only by the help seeker's efforts, but also by the approached person's willingness to give help. Considering that attractiveness of the help-seeking person is one determinant influencing whether others are willing to help or not (e.g., physical attractiveness, Benson, Karabenick, & Lerner, 1976; friendliness and posture, Lynn & Mynier, 1993), it is also plausible that individuals in the dwelling condition came across as less worthy of being helped than those in the indulging condition. It is important to note, however, that even though the level of attaining help differed between the indulging and dwelling conditions in the present study, it still was independent of participants' expectations in both cases.

STUDY 2: SELF-REGULATION OF COMMITMENT TO HELP GIVING

Study 2 investigated whether mental contrasting produces expectancy-dependent commitment to giving help to others. We examined help giving in critical care pediatric nurses. Within the nursing profession, the pediatric critical care unit is considered one of the most demanding stations. For instance, critical care pediatric nurses are responsible for providing care to critically ill or injured children, managing acute physical health problems, and educating and consulting families and health providers. Critical care pediatric nurses' daily responsibilities are further complicated by the constant vigilance necessary to assure patient safety and the time demands to learn new technologies for treating medically complex patients (Haycock-Stuart, 1998; Kerfoot, 2000).

Two of the most frequent help-giving concerns of pediatric nurses are supporting parents in coping with their hardships and improving communication behaviors with them (Knigge-Demal, 1998). These help-giving behaviors are an important means to the goal of improving care for the children. For example, improved communication will reduce conflict, involve parents in instrumental care, make parents feel needed, and ease their anxieties (Knigge-Demal, 1998). In addition, improved communication with relatives strengthens nurses' professional pride and identity development (De Lucio, Lopez, Lopez, Hesse, & Vaz, 2000). However, improving communication with the relatives may be unfeasible or too costly. Nurses may have limited resources for providing this type of help. For example, they might not find the patience and time to establish a personal relationship with the patients' relatives amidst life-threatening situations (Hall, Rotter, & Katz, 1988) and they might be pressed to complete alternative tasks (e.g., relating to the children themselves). Thus it is advisable for nurses to invest in improving communication with patients' relatives only if they are confident that they will be able to effectively give this type of help. Study 2 analyzed the strength of nurses' commitment to improving communication with the patients' relatives as a function of mental contrasting versus indulging and dwelling. We measured strength of commitment by asking participants how much effort they had exerted and how many steps they had taken to improve communication with relatives over a 2-week period.

METHOD

Participants and Design. Ninety-seven female nurses from a pediatric critical care unit in a large hospital in Germany participated in groups of 6 to 10 without monetary reward. Their mean age was 34 years (*SD* = 10.74), ranging from 22 to 59 years. There were three experimental conditions: a mental-contrasting condition, an indulging condition (positive fantasy only), and a dwelling condition (negative reality only).

Procedure. The female experimenter gave an overview of the procedure, assured confidentiality, and stressed that participation was voluntary. Participants learned that they would receive a short follow-up questionnaire 2 weeks after the experiment. To guarantee anonymity, participants provided a per-

sonal code instead of their names. After giving informed consent, they read the cover story. It explained that the study was an investigation of daydreams in people of various professions and was part of a larger research program on personal and professional development. Specifically, participants learned that the present study would ask them to generate daydreams about patients and patients' relatives.

Similar to Study 1, the questionnaire consisted of three parts. In the first part, participants indicated on a 7-point response scale, ranging from 1 (*not at all*) to 7 (*very*), their expectations of success ("How confident are you that you can improve communication with patients' relatives?") and incentive value ("How important is it to you to improve communication with patients' relatives?").

In the second part of the questionnaire, participants quickly jotted down key words associated with four positive aspects of improving communication with their patients' relatives (participants named, e.g., job satisfaction, harmony) and four negative aspects of the reality standing in the way of improving communication with their patients' relatives (participants named, e.g., parents becoming needy, lack of energy, lack of time). Participants then ranked their positive aspects of improving communication and the negative aspects of present reality in order of importance. Thereafter, we randomly assigned participants to the three experimental conditions with instructions analogous to those reported in Study 1.

Dependent Variables. Two weeks after the experiment, all participants received a follow-up questionnaire. To assess exerted effort, participants indicated on 7-point scales, ranging from 1 (*not very much*) to 7 (*very much*) and 0 (*no steps*) to 7 (*seven or more steps*), how much they tried to improve communication with patients' relatives and how many steps or actions they had taken to improve communication with patients' relatives. As internal consistency was high (Cronbach's $\alpha = .70$), we combined the two items to create an index of reported effort (*z*-transformed). Sixty participants (62%) responded to the follow-up letter. Expectations and incentive value did not differ between participants with and without follow-up questionnaires ($ps > .52$). All nurses were debriefed in a final letter explaining in detail the purpose, hypothesis, and design of the experiment. Additionally, the nurses were encouraged to contact us at any time if they had further questions and if they wanted to learn a different self-regulation strategy than the one experienced during the experiment.

RESULTS

Descriptive Analyses. Mean expectation of improving communication with patients' relatives was above the mid-point of the 7-point scale ($M = 4.45$, $SD = 1.37$), while mean incentive value was at the upper third of the 7-point scale ($M = 5.18$, $SD = 1.48$). Expectation and incentive value tended to correlate positively ($r = .23$, $p < .08$). To assure that the pattern of results was not due to variations in incentive value, we statistically controlled for incentive value in the following analyses.

Reported Effort. Like in Study 1, we specified a set of GLM analyses in which we, in a first step, entered condition as a fixed between-subject factor and the
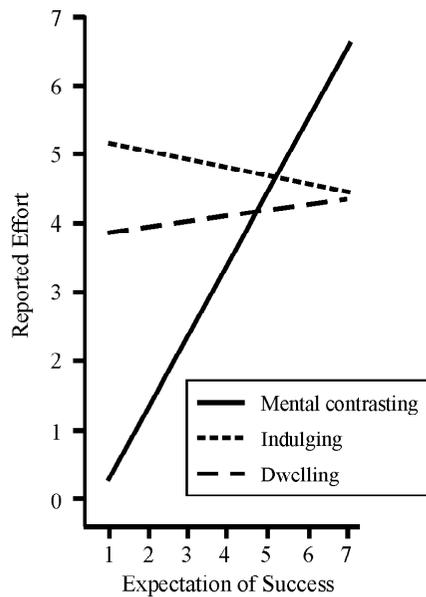
FIGURE 2. Study 2: Regression lines depicting the link between expectation and reported effort as a function of mental contrasting, indulging, and dwelling.

continuous expectation measure as independent variable; in a second step, we entered the interaction term of condition and the continuous expectation measure as independent variable. We observed a nearly significant main effect of expectation, $F(1, 55) = 3.61$, $p < .07$, which was qualified by the predicted interaction effect, $F(2, 53) = 5.11$, $p < .01$. There was no main effect for condition, $F(2, 55) = .77$, $p > .46$. The link between expectation and reported effort was stronger in the mental-contrasting condition than both the indulging condition, $t(53) = 3.05$, $p < .005$, and the dwelling condition, $t(53) = 2.18$, $p < .04$; the latter two conditions did not differ from each other, $t(53) = .54$, $p > .59$ (Figure 2).

When expectations of success were high, those in the mental-contrasting condition (in comparison to the indulging and dwelling conditions) reported having invested more effort in giving help, $ts(53) > 2.34$, $ps < .03$, whereas when expectations of success were low they reported having invested less effort, indulging: $t(53) = 3.01$, $p < .01$; dwelling: $t(53) = 1.72$, $p < .05$ (one-tailed).

DISCUSSION

Nurses who mentally contrasted their fantasies of improving communication with patients' relatives with the impeding reality reported most commitment to the means of giving help when their expectations of being able to use this means were high and the least commitment when their expectations were low. Nurses who either indulged in fantasies of help giving or dwelled on the reality standing in its way reported moderate commitment to help giving irrespec-

tive of their expectations. Apparently, indulging and dwelling participants invested too little effort when they perceived themselves as able to give help and too much effort when they perceived themselves as less able.

GENERAL DISCUSSION

In two experimental studies tapping two unrelated domains, we hypothesized and observed that mental contrasting makes people effectively commit to use means to an end. Specifically, it induced commitment to help seeking (Study 1) and help giving (Study 2) when these two means seemed instrumental or feasible, but at the same time it made people let go of these means when they seemed unpromising or unfeasible. Specifically, over a period of two weeks, college students who used mental contrasting successfully attained the help of a difficult-to-approach person only when they expected that the person would accede to their request (Study 1). Further, critical care pediatric nurses who used mental contrasting made more efforts to improve communication with patients' relatives only when they expected that such help giving lay within their limits (Study 2).

Participants in the indulging and dwelling conditions demonstrated moderate commitment to use these means. They neither fully committed nor disengaged from help seeking or help giving, irrespective of their perceived chances of successfully applying these means. Thus, it was only through the use of the strategy of mental contrasting in conjunction with high expectations of successfully applying these means that participants were able to strongly commit to helping as a means to their ultimate goals.

MENTAL CONTRASTING AND HELP SEEKING

In Study 1 we found that students who engaged in mental contrasting committed to and sought help from a difficult-to-approach other in line with their expectations of getting necessary help. That is, when students thought it was likely that another person would help they reported that their problem was actually solved or improved by Person X. Conversely, students who engaged in mental contrasting and thought it unlikely that Person X would provide help reported that their problem had not been solved or improved via this person. Students actually sought the help they needed in the face of relevant obstacles (e.g., feelings of discomfort; revealing weaknesses), but only when they expected the other person to provide help. Implied in this finding is that the self-regulatory strategy of mental contrasting enabled students to discriminate between situations in which help would be likely, versus unlikely, and only thereafter committed congruously to getting the help they needed. The discriminative competence afforded after mental contrasting ensured that those who needed help sought it from someone who could offer it and refrained from seeking it from someone who wouldn't. The help-seeking behavior induced as a result of mental contrasting represents a motivationally beneficial response in that expectations, rather than ego-threatening variables, although present, guided subsequent commitment to seeking help.

MENTAL CONTRASTING AND HELP GIVING

In Study 2 we found that critical care nurses who engaged in mental contrasting committed to and invested effort in improving communication with their patients' family members in line with their expectations about improving this important help-giving behavior. Specifically, when nurses who were confident that they could improve communication with patients' relatives (that is, when they considered themselves to have the respective resources) did the mental contrasting exercise, later on they reported investing more effort, both in terms of commitment to the behavior and in terms of the actual number of steps taken toward improving the behavioral means. To the contrary, nurses who engaged in mental contrasting and were not confident they could improve communication with patients' relatives reported investing the least amount of effort in this endeavor. Nurses who indulged or dwelled moderately invested in improving communication without consideration for their resources.

Though the help-giving literature should predict that nurses working in the critical care unit would be disinclined to invest effort in the resource-intensive helping behavior of improving communication with patients' family members, our findings highlight how the self-regulatory strategy of mental contrasting enables even people with highly demanding jobs to use their expectations to guide help-giving behavior. Specifically, those nurses who were confident they would have the resources to improve communication with relatives did so, even in light of perceived impediments (e.g., little time, additional job demands); those who were not confident they had the resources to improve communication invested little effort, or perhaps disengaged from this job demand and instead invested effort in other places where it was more urgently needed (e.g., learning new medical technologies or solving organizational demands). Once again these findings call attention to the heightened discriminative competence afforded to those who use the self-regulatory strategy of mental contrasting: Those who felt confident about acting prosocial and giving help did so; those who felt less confident withheld expending their resources, potentially investing them elsewhere.

IMPLICATIONS FOR GOAL PURSUIT

The findings from the two studies presented here suggest that mental contrasting instills discriminative competence not only when it comes to goal setting (Oettingen et al., 2001, 2009), but also when it comes to goal striving. That is, mental contrasting is a self-regulation strategy to select effective means to an end. When expectations about successfully using a salient means were high, people invested effort in that means; when expectations were low, they disengaged—enabling them to reinvest effort in other means. This finding held across different domains and tasks not only in the academic domain with respect to students' help seeking regarding their personal concerns (Study 1), but also in the health domain with respect to help giving through interpersonal exchanges between nurses and their patients' families (Study 2).

In addition, the results show that, for mental-contrasting effects to ensue, it is not necessary to fantasize about an idealized future outcome or end-state; it is enough to fantasize about successfully taking a step on the way to a desired future outcome or end-state. Similarly, it is not necessary to elaborate an obstacle to a future end-state; it is enough to elaborate an obstacle toward taking a step on the way. Apparently, the range of mental-contrasting effects is larger than previously assumed (Oettingen et al., 2001, 2009; Oettingen & Stephens, 2009). Beyond being a self-regulation strategy of goal setting, it is a self-regulation strategy of goal striving that instills the discriminative competence of choosing a viable route to reaching a goal.

Further, earlier mental-contrasting research focused on outcome variables assessed by explicit observation of individual behavior as indicators of commitment. Indicators, for example, were self-report of past performance (Oettingen et al., 2001, Study 3), teachers' ratings of course grades (Oettingen et al., 2000, Study 1), and external raters evaluating the quality of public performance (Oettingen et al., 2009, Study 2). The present research assessed participants' perceptions of how others responded to them. Specifically, in Study 1, participants reported whether Person X provided help that enabled them to solve or improve an academic concern. These findings speak to the potential of this interpersonal measure of perceptions of another's response to one's own behavior as an alternative indicator for assessing commitment.

LIMITS OF MENTAL CONTRASTING EFFECTS

Future research should investigate the limits of mental-contrasting effects on selecting effective means to an end. For example, as commitment to reaching the future end-state (i.e., students solving the academic concern, Study 1; pediatric nurses living up to their professional demands, Study 2) is de-activated, mental-contrasting effects on respective means (e.g., help seeking and help giving, respectively) may vanish. Further, how positive do elaborations of future success in using a certain means need to be and how negative do elaborations of respective realities need to be in order to produce mental-contrasting effects? Moreover, to ensure mental-contrasting effects, to what extent should obstacles pertain to aspects related to resources (e.g., shyness, fear), to important alternative means (e.g., learning medical techniques, care for medical equipment), or even to means serving alternative goals (e.g., taking time off from work)?

Another open question is whether mental-contrasting effects on committing to effective means hinge on high perceived value of the means. Previous findings on goal setting imply that the answer is yes. Specifically, previous findings in female doctoral students have shown that only those who in their positive fantasies valued combining work and having a child showed mental-contrasting effects on committing to this difficult double-task goal (Oettingen, 2000, Study 2). Finally, it would be important to find out whether the effective use of means after mental contrasting will also be observed when expectations are not measured, but manipulated.

MENTAL CONTRASTING AND IMPROVING PRO-SOCIAL BEHAVIOR

Previous research on mental contrasting has focused on setting goals directed toward improving individual performance in various life domains. Our findings speak to mental contrasting as a self-regulation strategy that also fosters pro-social behavior. Specifically, by making people seek help where success is deemed likely and by making people give help where resources are deemed available, mental contrasting not only prevented wasting interpersonal resources, but more importantly, it increased effective pro-social behavior. We measured effective pro-social behavior in the short run. However, mental contrasting may increase pro-social behavior even in the long run by the help seekers' and help givers' improved professional and personal relationships.

Specifically, by mentally contrasting success in seeking help, those trusting in the return of help obtained more help, and by mentally contrasting success in giving help, those trusting in their resources gave more help. One might speculate that by seeking and giving help, people may benefit not only in the short term but also on a long-term basis. For example, if the helper and the helped do not know each other, the help exchange might initiate a new relationship; if they are acquaintances or friends, the help exchange might deepen the ongoing relationship (e.g., by building trust, by mollifying prejudice). Thus, mental contrasting may lead to increased pro-social behavior on the part of the help giver as well as on the part of the help seeker, short term and long term, in both the professional and the intimate relationship contexts (Anderson & Williams, 1996; Clark, Ouelette, Powell, & Milberg, 1987).

SUMMARY

Using the self-regulatory strategy of mental contrasting, students and nurses were able to commit to establishing helping relations, using their expectations as their guide. As people are sometimes reluctant to overcome the obstacles associated with seeking and giving help, the present research may also open new doors for help-, motivation-, and applied-researchers interested in fostering pro-social behavior. Importantly, however, the present findings show that mental contrasting makes people commit to investing their resources in promising and feasible means and guards them from wasting their resources in unpromising and unfeasible means.

CONCLUSION

Audrey Hepburn once said: "Remember, if you ever need a helping hand, you'll find one at the end of your arm. As you grow older you will discover that you have two hands. One for helping yourself, the other for helping others." As our research illustrates, age is not the only factor enabling people to discover the two hands at the ends of their arms—through the use of mental contrasting as a self-regulatory strategy, people can also learn to effectively use

their two hands. They can reach out a hand when they need help and help is likely to be provided, and they can offer help when they have the resources to give a helping hand.

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50,* 179-211.

Ames, R. E. (1983). Help-seeking and achievement orientation: Perspectives from attribution theory. In B. M. DePaulo, A. Nadler, & J. D. Fisher (Eds.), *New directions in helping: Vol. 2, Help-seeking* (pp. 165-186). New York: Academic Press.

Anderson, S. E., & Williams, L. J. (1996). Interpersonal, job, and individual factors related to helping processes at work. *Journal of Applied Psychology, 81*, 282-296.

Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review*, *64*, 359-372.

Baltes, M. M., Neumann, E., & Zank, S. (1994). Maintenance and rehabilitation of independence in old age: An intervention program for staff. *Psychology and Aging, 9*, 179-188.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Bargh, J. A., Gollwitzer, P. M., & Oettingen, G. (2010). Motivation. In S. Fiske, D. T. Gilbert, & G. Lindzay (Eds.), *Handbook of social psychology* (5th ed., pp. 268-316). New York: Wiley.

Bartlett, M. Y., & DeSteno, D. (2007). Gratitude and prosocial behavior: Helping when it costs you. *Psychological Science, 17,* 319-325.

Batson, C. D. (1998). Altruism and prosocial behavior. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., pp. 282-316). New York: McGraw-Hill.

Batson, C. D., Eklund, J. H., Chermok, V. L., Hoyt, J. L., & Oritz, B. G. (2007). An additional antecedent of empathetic concern: Valuing the welfare of the person in need. *Journal of Personality and Social Psychology, 93,* 65-74.

Benson, P. L., Karabenick, S.A., & Lerner, R. M. (1976). Pretty please: The effects of physical attractiveness, race, and sex on receiving help. *Journal of Experimental Social Psychology, 12*, 409-415.

Brunstein, J. C., & Gollwitzer, P. M. (1996). Effects of failure on subsequent performance: The importance of self-defining goals. *Journal of Personality and Social Psychology*, *70*, 395-407.

Butler, R. (1998). Determinants of help-seeking: Relations between perceived reasons for classroom help-avoidance and help-seeking behaviors in an experimental context. *Journal of Educational Psychology, 90,* 630-643.

Butler, R., & Neuman, O. (1995). Effects of task and ego achievement goals and help-seeking behaviors and attitudes. *Journal of Educational Psychology, 87,* 261-271.

Clark, M. S., Ouellette, R., Powell, M. C., & Milberg, S. (1987). Recipient's mood, relationship type, and helping. *Journal of Personality and Social Psychology, 53*, 94-103.

De Lucio, L. G., Lopez, F. J. G., Lopez, M. T. M., Hesse, B. M., & Vaz, M. D. C. (2000). Training programme in techniques of self-control and communication skills to improve nurses' relationships with relatives of seriously ill patients: A randomized controlled study. *Journal of Advanced Nursing*, *32*, 425-431.

Dovidio, J. F., Piliavin, J. A., Schroeder, D. A., & Penner, L. A. (2006). *The social psychology of prosocial behavior.* Mahwah, NJ: Erlbaum.

Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motiva-*

tion and cognition (Vol. 2, pp. 53-92). New York: Guilford.

Good, T. L., Slavings, R. L., Harel, K. H., & Emerson, H. (1987). Student passivity: A study of question asking in K-12 classrooms. *Sociology of Education, 60,* 181-199.

Greenberg, M. S., & Westcott, D. R. (1983). Indebtedness as a mediator of reactions to aid. In B. M. DePaulo, A. Nadler, & J. D. Fisher (Eds.), *New directions in helping* (Vol. 1, pp. 85-112). New York: Academic.

Hall, J. A., Rotter, D. L., & Katz, N. R. (1988). Meta-analysis of correlates of provider behavior in medical encounters. *Medical Care, 26*, 657-675.

Hardin, J. W., & Hilbe, J. M. (2001). *Generalized linear models and extensions*. College Station, TX: Stata Press.

Haycock-Stuart, E. (1998). Reducing child accidents: Lessons from down under. *Professional Care of Mother and Child, 8,* 161-163.

Heckhausen, H., & Gollwitzer, P. M. (1987). Thought contents and cognitive functioning in motivational vs. volitional states of mind. *Motivation and Emotion*, *11*, 101-120.

Heckhausen, H., & Kuhl, J. (1985). From wishes to action: The dead ends and short cuts on the long way to action. In M. Frese and J. Sabini (Eds.), *Goal directed behaviour* (pp. 78-94). Hillsdale, NJ: Erlbaum.

Hull, C. L. (1943). *Principles of behaviour*. New York: Appleton-Century-Crofts.

Karabenick, S. A., & Newman, R. S. (Eds.) (2006). *Help-seeking in academic setting: Goals, groups, and contexts.* Mahwah, NJ: Erlbaum.

Kerfoot, K. (2000). TIQ (Technical IQ)—A survival skill for the new millennium. *Pediatric Nursing, 26*, 102-104.

Klein, H. J., Wesson, M. J., Hollenbeck, J. R., & Alge, B. J. (1999). Goal commitment and the goal setting process: Conceptual clarification and empirical synthesis. *Journal of Applied Psychology, 84*, 885-896.

Klinger, E. (1975). Consequences of commitment to and disengagment from incentives. *Psychological Review, 82*, 1-25.

Knigge-Demal, B. (1998). Children experiencing pain and coping with it in situations of invasive diagnostics, therapies and care. *Pflege, 11*, 324-329.

Krebs, D. L. (1970). Altruism: An examination of the concept and a review of the literature. *Psychological Bulletin, 73*, 258-302.

Kruglanski, A. W., & Kopetz, C. (2009). The role of goal-systems in self-regulation. In E. Morsella, J. A. Bargh, & P. M. Gollwitzer (Eds*.), The psychology of action (Vol 2): The mechanisms of human action* (pp. 350-367). New York: Oxford University Press.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance.* Englewood Cliffs, NJ: Prentice Hall.

Locke, E. A., & Latham, G. P. (2002) Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, *57*, 705-717.

Locke, E. A., Latham, G. P., & Erez, M. (1988). The determinants of goal commitment. *Academy of Management Review*, *13*, 23-39.

Lynn, M., & Mynier, K. (1993). Effect of server posture on restaurant tipping. *Journal of Applied Psychology, 23*, 678-685.

Marchand, G., & Skinner, E. A. (2007). Motivational dynamics of children's academic help-seeking and concealment. *Journal of Educational Psychology, 99,* 65-82.

Merton, V., Merton, R. K., & Barber, E. (1983). Client ambivalence in professional relationships: The problem of seeking help from strangers. In B. M. DePaulo, A. Nadler, & J. Fisher (Eds.), *New directions in helping: Vol. 2. Help-seeking* (pp. 14-44). New York: Academic.

Nadler, A. (1987). Determinants of help-seeking behavior: The effects of helper's similarity, task centrality and recipients' self-esteem. *European Journal of Social Psychology, 17*, 57-67.

Nadler, A. (1991). Help-seeking behavior: Psychological costs and instrumental benefits. In M. Clark (Ed.), *Prosocial behavior. Review of personality and social psychology* (Vol. 12, pp. 290-311). Thousand Oaks, CA: Sage.

Newell, A., & Simon, H. A. (1972). *Human problem solving*. Englewood Cliffs, NJ: Prentice-Hall.

Newman, R. S. (1990). Children's help-seeking in the classroom: The role of motivational factors and attitudes. *Journal of Educational Psychology, 82,* 71-80.

Oettingen, G. (1999). Free fantasies about the future and the emergence of developmental goals. In J. Brandtstaedter & R. M. Lerner (Eds.), *Action and self-development: Theory and research through the life span* (pp. 315-342). Thousand Oaks, CA: Sage.

Oettingen, G. (2000). Expectancy effects on behavior depend on self-regulatory thought. *Social Cognition, 18,* 101-129.

Oettingen, G., & Gollwitzer, P.M. (2001). Goal setting and goal striving. In A. Tesser & N. Schwarz (Eds.), *Intraindividual processes. Volume 1 of the Blackwell handbook in social psychology* (pp. 329-347). Oxford: Blackwell.

Oettingen, G., & Gollwitzer, P. M. (in press). Strategies of setting and implementing goals: Mental contrasting and implementation intentions. In J. E. Maddux & J. P. Tangney (Eds.), *Social psychological foundations of clinical psychology*. New York: Guilford.

Oettingen, G., Hönig, G., & Gollwitzer, P. M. (2000). Effective self-regulation of goal attainment. *International Journal of Educational Research, 33,* 705-732.

Oettingen, G., Mayer, D., Sevincer, T., Stephens, E.J., Pak, H., & Hagenah, M. (2009). Mental contrasting and goal commitment: The mediating role of energization. *Personality and Social Psychology Bulletin, 35,* 608-622.

Oettingen, G., Mayer, D., & Thorpe, J. (in press). Self-regulation of commitment to reduce cigarette consumption: Mental contrasting of future and reality. *Psychology and Health*.

Oettingen, G., Mayer, D., Thorpe, J., Janetzke, H., & Lorenz, S. (2005). Turning fantasies about positive and negative futures into self-improvement goals. *Motivation and Emotion, 29,* 236-266.

Oettingen, G., Pak, H., & Schnetter, K. (2001). Self-regulation of goal setting: Turning free fantasies about the future into binding goals. *Journal of Personality and Social Psychology, 80,* 736-753.

Oettingen, G., & Stephens, M. E. J. (2009). Fantasies and motivationally intelligent goal setting. In G. B. Moskowitz & H. Grant (Eds.), *The psychology of goals* (p. 153-178). New York: Guilford.

Piliavin, I. M., Piliavin, J. A., & Rodin, J. (1975). Costs diffusion and the stigmatized victim. *Journal of Personality and Social Psychology, 32,* 429-438.

Schaps, E. (1972). Cost, dependency, and helping. *Journal of Personality and Social Psychology, 21,* 74-78.

Weiner, B. (1980). A cognitive (attribution)-emotion-action model of motivated behavior: An analysis of judgments of help-giving. *Journal of Personality and Social Psychology, 39,* 186-200.

Wills, T. A., & DePaulo, B. M. (1993). Interpersonal analysis of the help-seeking process. In C. R. Snyder & D. R. Forsyth (Eds.), *Handbook of social and clinical psychology* (pp. 350-375). New York: Pergamon.