

Deliberative versus Implemental Mindsets in the Control of Action

PETER M. GOLLWITZER
UTE BAYER

The distinction between deliberative and implemental mindsets is a dual-process notion in the realm of goal pursuit. It is assumed that the course of goal pursuit entails the distinct tasks of choosing between potential action goals and promoting the implementation of chosen goals. When people get involved in these tasks, different cognitive orientations (deliberative and implemental mindsets) emerge that affect the processing of information and the control of action. In the present chapter, empirical research is reviewed that analyzes the differences in information processing between the two mindsets: the degree of receptiveness to available information, the cognitive tuning toward preferential processing of task-congruent information, the partial versus impartial analysis of desirability-related information, and the realistic versus overly positive illusory analysis of feasibility-related information. Finally, the reported mindset research is related to the debate about realism versus optimism and to the discussion of self-evaluative motives. Moreover, it is pointed out that mindsets affect not only cognition, but also behavior. The deliberative and implemental mindsets are seen as functional to effective goal pursuit, as they provide the cognitive orientations most useful to

solving the tasks of choosing between potential goals and implementing chosen goals, respectively.

THEORIZING ON THE CONTROL OF GOAL-DIRECTED ACTION

According to modern goal theories, whether people meet their goals depends on both how goal content is framed and how people regulate the respective goal-directed activities (Gollwitzer & Moskowitz, 1996). Content theories focus on the thematic and structural properties of set goals and on how these affect the regulation of goal pursuit and actual goal achievement. Such theories attempt to explain differences in goal-directed behaviors in terms of what an individual specifies as the goal, because the content characteristics of the goal are expected to affect the person's successful goal pursuit. Goal content has been considered in terms of both the different needs (e.g., autonomy needs vs. materialistic needs; Deci & Ryan, 1991; Kasser & Ryan, 1994) and the implicit theories (e.g., entity theories vs. incremental theories of ability; Dweck, 1991, 1996) on which it is based. Numerous relevant structural aspects of goal content have

also been suggested, such as specific versus abstract (Emmons, 1992; Locke & Latham, 1990), proximal versus distal (Bandura & Schunk, 1981), and positive versus negative outcome focus (Higgins, Roney, Crowe, & Hymes, 1994).

Self-regulation theories of goal striving, on the other hand, focus on the question of how people overcome certain implementational problems. Having set a goal is considered to be just a first step toward goal attainment; it is followed by a host of implementational problems that need to be solved successfully. These problems are manifold, as they pertain to initiating goal-directed actions and bringing them to a successful ending. Various theoretical notions (in parentheses below) have addressed these issues in particular, have delineated useful self-regulatory strategies, and have addressed questions of why and how these strategies are effective. Typical self-regulatory problems of goal pursuit are, for instance, warding off distractions (e.g., action control strategies—Kuhl, 1984; Kuhl & Goschke, 1994), flexibly stepping up efforts in the face of difficulties (e.g., effort mobilization theory—Wright & Brehm, 1989), compensating for failures and shortcomings (e.g., self-regulation of motivation—Bandura, 1991; discrepancy reduction—Carver & Scheier, 1981; symbolic self-completion—Wicklund & Gollwitzer, 1982), and negotiating conflicts between goals (e.g., intelligent pursuit of life tasks—Cantor & Fleeson, 1994).

Both content theories and self-regulation theories start analyzing goal pursuit at the point in time when a goal has been set. They do not concern themselves with the question of how people arrive at setting themselves goals. One approach, however, takes a comprehensive view that extends from a person's wishes and desires to turning them into goals, and to finally realizing these goals. In their model of action phases, Heckhausen and Gollwitzer (1987; Gollwitzer, 1990; Heckhausen, 1991) suggest that successful goal pursuit means solving four consecutive tasks. The first task is setting preferences among a person's wishes and desires by deliberating their desirability and feasibility. As people's motives and needs produce more wishes and desires than can possibly be realized, the individual is forced to choose among

these desires and thus to turn them into goals. Once goals are set, the individual faces the second task, which is getting started with goal-directed behaviors. This may be simple if the necessary goal-directed actions are well practiced and routine, or complex if the individual is still undecided about where and how to act. In such complex cases, the execution of goal-directed action needs to be planned by deciding on when, where, and how to act. The third task is bringing the initiated goal-directed action to a successful ending, and this is best achieved by determined and persistent pursuit of goal completion. Finally, in the fourth task, the individual needs to decide whether the desired goal has indeed been achieved or whether further striving is needed. This problem is solved by evaluating the achieved action outcomes and comparing them to the originally desired outcomes, as well as by deliberating on which further courses of action to take when a discrepancy has been detected.

The model of action phases speaks of people who are solving the four tasks in the described order as traversing consecutive action phases: the "predecisional" phase, the "(postdecisional) preactional" phase, the "actional" phase, and the "postactional" phase. The model postulates that a person's psychological functioning in each of these phases is governed by different principles. Accordingly, theories of motivation, which have traditionally analyzed issues of goal setting (e.g., Atkinson, 1957, 1974; Lewin, Dembo, Festinger, & Sears, 1944), are said to be ill suited to describe and predict the phenomena that occur at the later phases of goal pursuit (i.e., the preactional, actional, and postactional phases), whereas goal theories (see above) are inappropriate to explicate the issues of the predecisional phase.

This radical statement needed empirical support when it was originally made; therefore, Heckhausen and Gollwitzer (1987, Study 2) conducted an early experiment aimed at demonstrating that individuals placed in the predecisional phase evidence different cognitive functioning than individuals placed in the (postdecisional) preactional phase do. Assuming that deliberation of the desirability and feasibility of wishes and desires (the task of the predecisional phase) is cognitively more demanding than committing

oneself to a plan that specifies, when, where, and how one wants to initiate goal-directed actions (the task of the preactional phase), Heckhausen and Gollwitzer expected that deliberating persons experience a higher cognitive load than planning persons. They therefore interrupted experimental participants who were either deliberating a choice between two different tests that presumably measured their creative potential or planning how to perform one of the chosen tests, and then asked them to take a short-term memory test (i.e., a noun span test, which presented nouns that were irrelevant to the creativity tests at hand). It was expected that deliberating participants (because of heightened cognitive load) would evidence a reduced noun span, compared to their span as measured at the beginning of the experiment. It was also expected that deliberating participants would evidence a reduced noun span, compared to that of planning participants (because planning was expected to take up less cognitive resources than deliberating). However, the results were just opposite of what had been expected: The deliberating participants showed an *increase* in their short-term memory capacity, compared to both their own earlier span and the span of the planning participants.

In an effort to account for the unexpected finding that the deliberating participants' short-term memory capacity had increased and not decreased, Heckhausen and Gollwitzer (1987) returned to the classic concept of "mindset" as originally advanced at the turn of the century by the German psychologists Külpe (1904), Marbe (1901, 1915), Orth (1903; Mayer & Orth, 1901), and Watt (1905), all members of the Würzburg school. These early cognitive psychologists discovered that becoming intensely involved with solving a given task activates exactly those cognitive procedures that help task completion. The created mindset (i.e., the sum total of the activated cognitive procedures) should consist of the cognitive orientation that is most conducive to successful task performance. This notion allowed Heckhausen and Gollwitzer (1987) to interpret the observed pattern of data as follows: Deliberating between potential action goals creates a cognitive orientation (the deliberative mindset) that facilitates the task at hand.

The same is true for planning the implementation of a chosen goal (the implemental mindset). If it is assumed that deliberating between potential goals requires reflecting on the potential action goals' feasibility and desirability, a heightened receptiveness to all kinds of information (open-mindedness) seems appropriate and functional to task solution. However, as planning demands a more focused and selective orientation to processing information, such heightened receptiveness should be dysfunctional in this situation. This postulated difference in receptiveness between deliberating and planning is expressed in the fact that deliberating experimental participants in the Heckhausen and Gollwitzer study (1987) processed the presented information in the noun span task faster than planning participants (i.e., the deliberating participants demonstrated a broader noun span than that of the planning participants).

THE FEATURES OF DELIBERATIVE AND IMPLEMENTAL MINDSETS

In order to detect the special features of the deliberative as compared to the implemental mindset, one needs to analyze the different demands of the tasks of deliberating in the predecisional phase and of planning in the (postdecisional) preactional phase. The task of deliberating in the predecisional phase is to choose, from among various wishes and desires, those few that one wants to realize (Gollwitzer, 1990). The criteria for selection should be the feasibility and desirability of the wishes and desires at issue. The systematic analysis of the chances of realization as well as the desirability of realization, requires that relevant information be preferentially encoded and retrieved. But the cognitive tuning to this information should not suffice, as feasibility-related information needs to be analyzed objectively (and not in a self-serving manner), and desirability-related information needs to be analyzed in an impartial manner (and not in a biased manner). Only if feasibility-related information is analyzed realistically, and the pros and cons are weighed impartially, can the individual turn those desires into binding goals that can potentially be realized and possess a genuine attractiveness. Moreover, deliberating requires a general

open-mindedness (as was demonstrated in the Heckhausen and Gollwitzer [1987] study described above) with respect to available information, as undecided individuals do not know yet in which direction their decision will finally take them.

Once a goal decision has been made, the task of planning is to promote the initiation of goal-directed behaviors. This requires committing oneself to when, where, and how to get started. Accordingly, one needs to discover good opportunities and link them to appropriate goal-directed actions, thus creating plans for action. For this purpose, cognitive tuning toward implementational issues should be beneficial. Feasibility-related and desirability-related issues should no longer matter, and, if forced on the individual, they are avoided by distorting the relevant information in support of the goal decision made: The person sees the feasibility of the chosen goal in an overly optimistic way, and views the desirability of the chosen goal in a partial manner (i.e., pros exceed cons). Finally, processing all of the available information in an open-minded manner should be dysfunctional, as it might derail the individual from the chosen course of action. Accordingly, a reduced open-mindedness (closed-mindedness) favoring the selective processing of information in support of the chosen goal is to be expected.

Given these different features of the cognitive orientations of the deliberative and implemental mindsets, one should not forget that the two different mindsets also possess similar attributes. We assume that the deliberative and implemental mindsets become more pronounced as a person gets more involved with deliberating between potential goals and with planning chosen goals, respectively. Moreover, neither mindset should immediately vanish when the task activity that produced it is ended; instead, the mindset should show a moment of inertia. This implies that the cognitive orientations associated with the deliberative and implemental mindsets can be detected in their effects on performing temporally subsequent tasks of a different nature.

These ideas have been used to develop a research program aimed at testing the proposed different cognitive features of the deliberative and implemental mindsets. In this research, the following method of inducing the deliberative and implemental mindsets has

commonly been used: Experimental participants are asked either to extensively deliberate an unresolved personal problem to be named by the participants (who indicate problems such as "Should I move to another city or not?", "Should I change my major?", "Should I buy a new car?", or "Should I get involved with somebody?") or to plan the implementation of a chosen goal indicated by the participants (projects such as "I will move to another city," "I will change my major," etc., are named). These requests create a deliberative and an implemental mindset, respectively. Deliberating participants are asked to list the short-term and long-term pros and cons of making and not making a decision, in order to get heavily involved with deliberating. Planning participants, on the other hand, are asked to list the five most important steps of implementing the chosen goal, and then to specify when, where, and how they intend to execute each step; all of this serves the purpose of creating an intensive involvement with planning. Thereafter, both the deliberating and the planning participants are asked to perform presumably unrelated tasks (usually presented by a different experimenter in a different situational context), which are designed to measure the very cognitive features hypothesized to differ between the deliberative and implemental mindsets. The manipulations of the deliberative and implemental mindsets are introduced to participants with the cover story that the respective mental exercises are designed to improve people's action control.

Mindsets and Cognitive Tuning

The hypothesis that the deliberative mindset creates cognitive tuning toward information relevant to making goal decisions (information on feasibility and desirability), whereas the implemental mindset tunes a person's cognitions to implementation-related information (information on where, when, and how to act), was tested in the following two ways. The first approach assessed the participants' thoughts while they were either in a deliberative or an implemental mindset. In the second approach, deliberating and planning participants' readiness to encode and retrieve mindset-congruent information was assessed. Following the first approach, Heckhausen

and Gollwitzer (1987, Study 1), for instance, asked participants either to deliberate on choosing between potential tasks (i.e., two versions of a creativity test) or to plan to perform the chosen task (i.e., the chosen creativity test), and disrupted participants in the middle of their deliberating or planning. Participants were requested to report on the thoughts they had entertained shortly before the disruption. Content analysis of participants' reported thoughts revealed that deliberating participants were much more concerned with the goal's desirability (e.g., "Reaching the goal is important because . . .") and feasibility (e.g., "I should be able to reach the goal because . . .") than were planning participants. The latter, on the other hand, reported more implementation-related thoughts (e.g., "I will get started with X and then do Y") than the former.

This study, however, was not all that convincing, as one can argue that participants simply did what they were asked to do (i.e., to deliberate or to plan, respectively); if anything, the working of a task set but not of a mindset was demonstrated. A more convincing demonstration of the cognitive-tuning effects of mindsets on thought production requires the procedure followed by Gollwitzer, Heckhausen, and Steller (1990, Study 1). Participants were placed into either a deliberative or an implemental mindset by having them deliberate on unresolved personal problems or plan chosen goal projects, respectively (the standard procedure described above was used). In a presumably unrelated second part of the experiment, participants were presented with the first few lines of a number of novel fairy tales and were instructed to complete each tale. Even though participants were allowed to continue the stories in any way they liked, deliberating participants had the protagonists of the tales reflect on reasons for choosing or not choosing certain action goals to a greater degree than planning participants did. Thoughts about how to accomplish a chosen goal, however, were more frequently attributed to the protagonists by planning participants than by deliberating participants.

Focusing on the encoding and retrieval of mindset-congruent information, Gollwitzer et al. (1990, Study 2) conducted an experiment in which participants had to recall the presented deliberative and implemental thoughts

of others. Participants were placed into either a deliberative or an implemental mindset by having them choose between potential task goals (i.e., two forms of a creativity test) or plan to perform a chosen task. While participants were involved in deliberating or planning, slides were presented that depicted different persons mulling over personal decisions. For example, an elderly lady was thinking of the pros (i.e., "It would be good because . . .") and cons (i.e., "It would be bad because . . .") of having her grandchildren spend their summer vacation at her home. For each of these slides, next to the pros and cons of making a decision, potential plans of implementation were also presented. These specified how the person would get started with the particular goal-directed actions (i.e., "If I decide to do it, then I will first . . . and then . . ."; "If I decide to do it, then I won't . . . before . . ."). A cued-recall test of this information was given following a distractor task; it provided participants with the pictures of the persons they had viewed and the stems of the sentences (see above) describing their thoughts. The deliberating participants, who had to view the slides and to recall the information depicted on the slides prior to making a decision about the two types of creativity tests, recalled pros and cons better than they recalled information on the when, where, and how of implementation. The recall performance of the planning participants, who had received and recalled the information after a decision on the creativity tests had been made, showed the reverse pattern.

All of these findings corroborate the cognitive-tuning hypothesis. Still, one wonders how the differential recall performances observed in the last study (Gollwitzer et al., 1990, Study 2) came about. If we assume that individuals' retrieval attempts necessitate constructing descriptions of what they are trying to retrieve (Bobrow & Norman, 1975; Norman & Bobrow, 1976, 1979), it seems possible that mindsets provide perspectives (Bobrow & Winograd, 1977) that allow the easy construction of specific descriptions. The deliberative mindset, for instance, should favor descriptions phrased in terms of pros and cons, benefits and costs, and so forth. In other words, the deliberative mindset supports the ready construction of

descriptions that specify desirability-related information, whereas the implemental mindset supports the construction of descriptions that specify implementation-related information. As Norman and Bobrow (1979) point out, quick construction of specific descriptions at the time of retrieval facilitate further successful retrieval. Norman and Bobrow also assume that whenever the description of the information sought matches the elaboration of the information at the time of encoding, recall performance is particularly enhanced. It seems possible, then, that deliberative and implemental mindsets favor congruent recall through both congruent elaboration at the time of encoding and ready construction of congruent descriptions at the time of retrieval.

The cognitive-tuning studies presented remind us of studies that demonstrate the transfer of cognitive procedures activated by a first task to an ostensibly unrelated second task. For instance, Chaiken, Giner-Sorolla, and Chen (1996; Chen, Shechter, & Chaiken, 1996), as a first task, gave their experimental participants a scenario to read in which the target person was portrayed as being concerned either with accurately understanding what was going on or with making a good first impression. In the apparently unrelated second task, participants were given an attitude issue (e.g., gun control) that they would have to discuss with another experimental participant, who was described as holding either a "pro" or a "con" position on that issue. Participants then read an essay containing arguments on both sides, and finally gave their own attitude on the issue. Participants who in the first task had read the scenario describing an impression-managing target person reported attitudes that were closer in line to the anticipated other experimental participant's attitude, compared to the expressed attitudes of participants who had read the scenario describing the target person as concerned with accurately understanding what was going on. Similar to the studies reported above in support of deliberative and implemental mindsets, the Chaiken et al. (1996) study demonstrates that cognitive procedures activated in response to becoming involved in a task are readily transferred to subsequent cognitive tasks. So the effects of prior tasks on the performance of a second task can

be used to infer the type of cognitive orientation associated with the first task.

Mindsets and Open-Mindedness

The analysis of the task demands of making a goal decision versus preparing the implementation of a chosen goal reveals that the deliberative mindset should be associated with heightened receptivity for available information, whereas the implemental mindset should be associated with reduced receptivity. As noted above, the study by Heckhausen and Gollwitzer (1987, Study 2) found that deliberating participants showed wider noun spans than planning participants did. Dempster (1985) and others (Case, Kurland, & Goldberg, 1982; Chi, 1976) have pointed out that the noun span task is a good indicator of the speed of processing heeded information. In a typical noun span experiment, participants are read a list of words presented less than 1 second apart. When the experimenter has read the last word of the list, participants are requested to immediately repeat all of the words in the order presented. The faster a person's word identification, the more words can be encoded and thus reproduced correctly.

But heightened receptivity should not only be expressed in a high speed of processing of heeded information; it should also relate to a person's readiness to process peripherally presented information. To explore this idea, a so-called "test of central-incident memory" was used (Gollwitzer, Bayer, & Wasel, 1998, Study 1). Participants were asked to watch a series of slides that centrally displayed a meaningful sentence and peripherally (in the upper left-hand and lower right-hand corners) displayed isolated unrelated two-syllable nouns. The participants were told to memorize the story that was described by the centrally displayed sentences of these slides. Later on, the participants not only had to recall the centrally presented information, but also had to perform an unexpected recognition test containing the peripherally presented information.

Deliberative and implemental mindsets were created by having participants either make a mock hiring decision (participants were to play the part of a personnel manager, and the problem at hand was to hire one of

two applicants for the position of a product manager) or plan the implementation of such a decision. Deliberating participants recognized the incidental information significantly better than planning participants did. In addition, the centrally presented and heeded information was recalled better by deliberating than by planning participants. The latter finding replicated the superior processing of heeded information in the deliberative mindset, as shown in the Heckhausen and Gollwitzer (1987, Study 2) noun span study. However, in the present study an alternative explanation of the deliberating participants' superior recognition of the peripherally presented information was possible. It might not have been caused by the hypothesized heightened readiness to process peripheral information; instead, it might be a simple consequence of the fact that the deliberating participants processed the heeded central information comparatively more effectively (which gave them more time to explore the rest of the slides).

In order to get around this problem, we have started to run mindset experiments that

use viewing modified Müller-Lyer figures as the dependent variable (Gollwitzer et al., 1998, Studies 2a/b). In a classic Müller-Lyer figure (see Figure 20.1, left side), shorter illusions are produced by adding wings to a given line and pointing them inward; longer illusions are achieved by pointing the wings outward. The comparison line is presented below or above. We have modified the Müller-Lyer figure by first marking the critical distance and the comparison distance with three dots in a horizontal line. Then we have placed both a set of inward and a set of outward wings on the dot located at the left. Depending on whether one looks at the wings that are pointed inward or the wings that are pointed outward, a shorter or a longer illusion is achieved, respectively (see Figure 20.1, right side).

In the first study (Gollwitzer et al., 1998, Study 2a), participants were placed in either a deliberative or an implemental mindset by use of the standard manipulation. In a presumably independent second task, participants viewed a series of modified Müller-Lyer figures (the angle of the wings and the length of

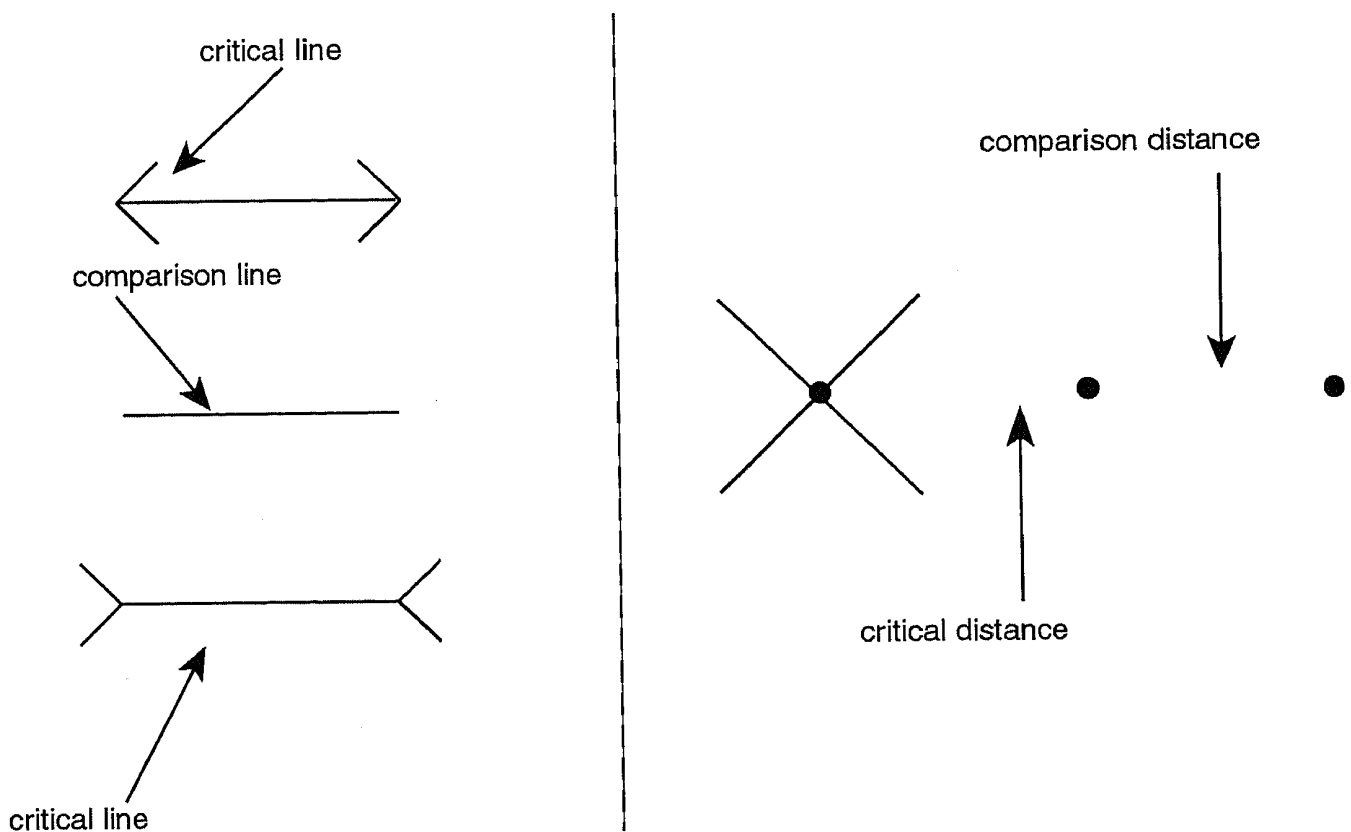


FIGURE 20.1. Classical (left) and modified (right) Müller-Lyer figures. From Gollwitzer, Wasel, and Bayer (1998, Studies 2a/b).

the distances between the dots were varied). For each individual figure, participants had to indicate their perception of how many millimeters shorter or longer the critical distance was than the comparison distance. Prior to each slide presenting a modified Müller-Lyer figure (presentation time was 5 seconds), a focusing slide was presented (for 3 seconds) that showed a cross right in the middle of the slide. The Müller-Lyer figure on the subsequent slide was drawn in such a way that the point separating the critical distance from the comparison distance was placed exactly where the preceding focusing slide had shown the cross. Even though all participants perceived the critical distance as shorter than the comparison distance, the planning participants did so to a significantly greater degree than the deliberating participants; this suggested that the planning participants primarily looked at the center of the modified Müller-Lyer figures, whereas deliberating participants also explored the periphery.

Before replicating this study, we examined (Gollwitzer et al., 1998) whether the strength of shorter illusions was indeed related to a preference for focusing on the center of the presented figures. A new group of participants was asked to perform two tasks: to view the Müller-Lyer figures as our participants had done in the study described above, and to read a large number of presented nouns as fast as possible. For half of the participants, the Müller-Lyer task came first and the fast reading of nouns came second; for the other half, the order was reversed. The nouns were presented in the same way as the Müller-Lyer figures (i.e., a focusing slide preceded each noun). As it turned out, a positive correlation emerged between reading speed and the degree of a person's shorter illusions. This observation supported the assumption that shorter illusions indicated a focus on centrally presented information.

In the replication study (Gollwitzer et al., 1998, Study 2b), we used a within-subjects design and a slightly modified procedure for viewing the Müller-Lyer figures. All participants were placed into both a deliberative and an implemental mindset by means of the standard procedure. Half of the group started with the deliberative mindset and then experienced an implemental mindset; for the other half, this order was reversed. After each

mindset manipulation, participants viewed a series of Müller-Lyer figures. This time the size of the figures was reduced (by about 50%), and the participants had to indicate only whether they perceived the critical distance as either shorter or longer than the comparison distance. When we compared the number of shorter illusions and longer illusions of participants in a deliberative as compared to an implemental mindset, deliberating participants reported more longer illusions and fewer shorter illusions than planning participants (even though, overall, shorter illusions were more frequent than longer illusions). The order of mindset induction did not moderate this pattern of findings.

It appears, then, that the deliberative mindset creates a higher receptiveness for available information—not only by a heightened speed of processing heeded information, but also by an increased readiness to process peripheral information. In the experiments using modified Müller-Lyer figures, the wings pointing outward were located at the periphery of the figure, whereas the wings pointing inward were located at the center. Consequently, deliberating participants experienced fewer and less pronounced shorter illusions than did planning participants, who were characterized by a reduced receptiveness for available information and thus a reduced readiness to process peripheral information.

Mindsets and Biased Inferences

The two types of mindsets are also assumed to differentially affect the way in which feasibility-related and desirability-related information is handled. In a deliberative mindset, information related to desirability should be analyzed impartially; in an implemental mindset, an analysis partial to the chosen goal is expected. Also, feasibility-related information is expected to be analyzed rather accurately in a deliberative mindset, whereas optimistic inferences that overestimate the actual feasibility of the chosen goal are expected in an implemental mindset.

Desirability-Related Information

Female university students were asked to name a personal problem that they wished to

solve but for some reason had not solved yet (Gollwitzer & Hammelbeck, 1998, Study 1). Then participants were asked to achieve clarity on whether they wanted to make an affirmative decision or not. This instruction was expected to trigger intensive deliberation and create a deliberative mindset. Participants were also asked to report back to the experimenter when they felt that further deliberation would not achieve greater clarity. At this point participants were handed a thought-sampling questionnaire, which requested them to report on the thoughts they experienced in a way that would reveal the temporal order of the flow of thought.

As it turned out, participants showed a certain pattern of thinking about pros and cons. Deliberation started with reflection on the positive consequences of goal attainment, but turned to reflection on the negative consequences at the end of deliberation. By acting as their own "devil's advocates," participants achieved an impartial analysis of the considered pros and cons. This pattern of impartial deliberation was replicated with male students at a military academy (Gollwitzer & Hammelbeck, 1998, Study 2), who considered quite different unresolved personal problems from those of the female university students. Still, it seems very likely that the sole instruction to report on one's flow of thought creates an impartial analysis of pros and cons.

But a recent study reported by Taylor and Gollwitzer (1995, Study 3) contradicts this objection. Participants were asked to name *either* potential goals *or* chosen goals. Thereafter, they were requested to achieve clarity on the question of whether they should make an affirmative decision or had made the correct decision, respectively. Whereas the predecisional participants reported on positive and negative consequences with the same frequency, postdecisional participants failed to do so. The latter reported about five times more thoughts about pros than about cons, indicating a strong partiality in favor of the chosen goal in postdecisional participants.

Moreover, the counterplea pattern of deliberation (first pros, then cons) observed with predecisional participants in the preceding studies (Gollwitzer & Hammelbeck, 1998, Studies 1 and 2) was replicated by the flow of thought reported by the predecisional participants. This particular course of deliber-

ation apparently ensures an impartial analysis of the positive and negative consequences of making a decision. Whereas postdecisional participants, when asked to find clarity about the correctness of the decision made, started and ended with thinking about positive consequences, predecisional participants experienced thoughts about positive consequences at the beginning and responded to them with thinking about negative consequences at later phases of deliberation.

This readiness to think of cons as a response to thinking about pros may be a highly habitual strategy to prevent the spontaneous making of goal decisions. In a recent study by Gollwitzer and Hammelbeck (1998, Study 4), participants were first asked to name either potential action goals (predecisional participants) or chosen goals (postdecisional participants). Then they were primed outside of awareness in support of either moving ahead (in terms of making a decision or acting on the decision made) or stalling (in terms of refraining from making a decision or acting on the decision made). Participants had to perform a scrambled-sentence task that used such words as "start," "get going," and "set out" (in the "moving-ahead" priming condition) or "hesitate," "wait," and "delay" (in the "stalling" priming condition).

Finally, both predecisional and postdecisional participants were asked to achieve clarity about whether they should make a decision or act on the decision made, respectively, and to report about the thoughts they experienced. Participants' thoughts were classified in terms of whether they favored or hindered making a decision or implementing the chosen project, respectively. A counterplea pattern of thought production was expected with predecisional participants; they should respond to the "moving-ahead" priming with thoughts that hindered the making of a decision, and to the "stalling" priming with thoughts that furthered the making of a decision. For postdecisional participants, on the other hand, simple goal-priming effects were expected, as reported in recent studies by Bargh and Gollwitzer (1994) and Chartrand and Bargh (1996). The "moving-ahead" priming should induce thoughts in favor of acting on the decision, and the "stalling" priming should elicit thoughts against acting on the decision.

Indeed, whereas postdecisional participants' flow of thought evidenced goal-priming effects, the thoughts experienced by predecisional participants closely followed the counterplea principle. We interpret this pattern of results as indicating that the impartial analysis of desirability-related information has habituated in predecisional individuals, in the sense that it occurs without a conscious self-regulatory input. Anything that speaks for making a fast decision is counteracted by engaging in thoughts that hinder the making of a decision, and anything that speaks for postponing the making of a decision is counteracted by engaging in thoughts that favor the making of a decision.

Feasibility-Related Information

The hypothesized accurate analysis of information related to issues of feasibility in the deliberative mindset, and the expected overly optimistic assessment in the implemental mindset, were first demonstrated in experiments by Gollwitzer and Kinney (1989) with the contingency-learning task designed by Alloy and Abramson (1979). In this task, participants are asked to determine to what degree they can influence the onset of a target light (outcome) by choosing to press or not to press a button (alternative actions). Participants commonly go through a series of trials (at least 40); the start of each trial is indicated by a warning light. By observing whether or not the target light comes on after they have pressed or not pressed the button, participants estimate how much control they have over the target light onset. The experimenter varies the actual control by manipulating the frequency of the target light onset associated with each of the two action alternatives (pressing or not pressing). The smaller the difference between these two frequencies, the less objective control participants have over the target light onset.

Nondepressed individuals claim to possess control over target light onset that is noncontingent on their actions, whenever the target light onset occurs frequently (e.g., in the "75/75" problem, where the target light comes on in 75% of pressing and 75% of nonpressing responses; see Alloy & Abramson, 1988). Gollwitzer and Kinney (1989,

Study 2) asked deliberating, planning, and control participants to work on a contingency problem that presented frequent and noncontingent target light onset (i.e., the 75/75 problem). Participants were given the instruction to discover how to produce the target light onset. A set of 40 trials was offered, and participants were then asked to judge how much control they could exert over the target light onset.

Deliberating participants showed the most accurate judgment of control; their judgments of control were lower than those of either the control group or the planning group. The planning participants' judgments of control tended to be even higher than those of the control participants. The mindsets were created via the standard procedure described above. A mindset interpretation of these findings is supported by the additional observation that deliberating participants' judgments of control correlated negatively with the personal importance of the unresolved personal problems these participants were mulling over. Apparently, the more involved participants were in deliberating, the more realistic their subsequent judgments of control. A parallel finding was observed for planning participants, whose judgments of control were positively related to the participants' anticipated frustration in case they should fail to implement their chosen goals.

In an effort to explore how powerful deliberative and implemental mindsets are in affecting people's judgments of control, Wulf (1991) analyzed whether the commonly realistic judgments of depressed persons (i.e., depressive realism; see Alloy & Abramson, 1979, 1982) can be elevated to levels of positive illusion by the implemental mindset. Participants of the study were highly depressed patients (Beck Depression Inventory scores between 15 and 45, with a mean of 28.8) who received treatment at either a hospital or a private practice. The creation of the mindsets and the instructions to work on the contingency-learning task were the same as in the Gollwitzer and Kinney (1989) study. After the depressed patients had been placed in one of the two mindsets, they had to work on the 75/75 problem and then judge their experienced amount of control. Participants in the deliberating and in the control conditions experienced the same low amounts of control. This

finding supports the notion of depressive realism. Most interestingly, however, the planning participants reported experiencing extremely high amounts of control, thus showing a strong positive illusion. Apparently the implemental mindset manages to affect the analysis of feasibility-related information in such a way that overly positive judgments are formed, even though depressive patients commonly produce realistic judgments.

In studies reported by Taylor and Gollwitzer (1995, Studies 1 and 2), deliberative and implemental mindsets were also observed to affect people's judgments of the controllability of risks. In the first study, the risks involved being in an automobile accident, becoming divorced, becoming depressed, developing a drinking problem, and being mugged. Participants were college students who had to judge these risks for themselves and for the average college student. Mindsets were induced via the standard procedure just before participants had to judge the named risks. Even though all participants perceived themselves as less vulnerable to these risks than the average college student, deliberating participants did this to a lesser degree than planning participants. This more pronounced illusion of invulnerability in the implemental mindset than in the deliberative mindset was replicated in a second study, in which participants had to rate their vulnerability to risks perceived as controllable (e.g., developing an addiction to prescription drugs, having a drinking problem) versus uncontrollable (e.g., developing diabetes, losing a partner to an early death). For both types of risks, planning participants reported a higher invulnerability as compared to the average college student than deliberating participants did. The fact that mindsets even managed to modify the perceived vulnerability of uncontrollable risks attests again to their enormous influence on the analysis of feasibility-related information.

Summary

Under the assumption that the course of goal pursuit presents itself to the individual as a series of consecutive tasks that need to be solved in order to promote goal attainment, the concept of mindset has been introduced. It has been argued that becoming involved in these tasks leads to characteristic cognitive

orientations (mindsets) that are beneficial for solving these tasks effectively, and the features of the cognitive orientations associated with the tasks of choosing between potential action goals (the deliberative mindset) and preparing the implementation of chosen goals (the implemental mindset) have been spelled out. Finally, a number of experiments have been described that tested the postulated characteristics of the deliberative and implemental mindsets. This research has shown that the deliberative mindset is characterized by cognitive tuning toward desirability-related and feasibility-related thoughts and information; by an accurate analysis of feasibility-related information and by an impartial analysis of desirability-related information; and by a heightened general receptivity to available information. The implemental mindset, on the other hand, is characterized by cognitive tuning toward implementational thoughts and information; by an overly positive analysis of feasibility-related information and a partial analysis of desirability-related information; and, finally, by a comparatively reduced receptivity (closed-mindedness) to available information.

MINDSETS AND SELF-EVALUATION

Assessing the feasibility of potential goals in the predecisional action phase not only requires people to assess accurately whether their actions effectively control desired outcomes (see Gollwitzer & Kinney, 1989); they also need to know whether they are in the position to perform these instrumental actions. To answer this question, they have to assess correctly whether they possess the relevant aptitudes and skills. This implies that people in a deliberative mindset should show a relatively accurate evaluation of their personal attributes. People in an implemental mindset, on the other hand, should benefit from relatively positive self-evaluations, as such positive assessments create the optimism needed for the successful and undelayed initiation of goal-directed actions. Following this line of thought, Steller, Malzacher, and Gollwitzer (1990) asked deliberating and planning participants to agree or disagree with a list of various self-descriptive statements that claimed the possession of talents relevant to profes-

sional or interpersonal success (e.g., "I possess great potential as a leader" or "I can be very sensitive to the feelings of others," respectively). As it turned out, planning participants claimed to possess these attributes to a higher degree than deliberating participants did.

In a study by Taylor and Gollwitzer (1995, Study 2), deliberating and planning participants were also asked to rate themselves on 21 qualities and skills (e.g., cheerfulness, athletic ability, writing ability, popularity, artistic ability) in comparison to the average college student of the same age and gender. Even though all participants perceived themselves as more capable than the average college student, planning participants did so to a higher degree than deliberating participants did. The mindset manipulations also affected the participants' mood, so that the implemental mindset was associated with a more positive mood than the deliberative mindset was. However, the observed differences in self-perception were not mediated by these differences in mood, as the effect of mindset on self-perception remained intact when mood was covaried out.

Mindset Effects on Positive Illusions: Implications for the Debate about Optimism versus Realism

Taylor and Brown (1988) proposed that mentally healthy people are *not* characterized by accurate assessments of their personal qualities, realistic estimates of personal control, and a realistic outlook on the future; instead, they maintain overly positive, self-aggrandizing perceptions of the self, the world, and the future. More specifically, mentally healthy people are said to be characterized by unrealistically positive self-perceptions, an illusion of a high degree of personal control, and unrealistic optimism about the future. Instead of being maladaptive, these positively distorted perceptions foster the criteria normally associated with mental health: positive self-regard, the ability to care for and about other people, the capacity for creative and productive work, and the ability to manage stress effectively (Taylor, 1989; Taylor & Brown, 1994).

Despite empirical support for the model, this portrait raises a disturbing question: If

normal people's perceptions are marked by positive biases, how do they effectively identify and make use of negative feedback they may encounter in the world? If people are capable of explaining away, compartmentalizing, or otherwise dismissing or minimizing negative feedback, as Taylor and Brown (1988) suggest, these self-serving illusions that bolster self-esteem and produce a positive mood in the short run may ultimately set people up for long-term disappointment and failure. This is because they fail to incorporate negative feedback into their goal setting and planning (Colvin & Block, 1994; Weinstein, 1984).

One potential resolution, already offered by Taylor and Brown (1988), is the possibility that there may be times when people are more frank and honest with themselves. Such "time outs" from positive illusions are obviously provided by the deliberative mindset that originates from the consideration of potential goals. People in a deliberative mindset become more modest and realistic in their self-perceptions (e.g., their perceived leadership potential, social intelligence, artistic ability, writing ability); they show reduced illusions of control (e.g., in the contingency-learning task used by Gollwitzer & Kinney, 1989); and they exhibit less unrealistic optimism about the future (e.g., with respect to developing a heart disease, being mugged). Relatively realistic thinking seems to be highly functional when it comes to making decisions about important potential goals (e.g., whether or not to go to graduate school, to get married, to have children). Such decisions deeply affect a person's day-to-day conduct, as well as long-term strivings and aspirations. If positive illusions were in ascendancy during deliberations, they could lead to decisions that are prone to frustrations: People would commit themselves to pursue goals that were too difficult for them and that might lead to outcomes they did not enjoy.

One should not forget, however, that once a course of action has been selected and is being or about to be implemented, an implemental mindset that favors positive illusions prevails. Positively distorting one's resources, one's chances for success, and the given conditions of the environment seems to be beneficial for postdecisional individuals, as

it should enable people to strive longer and harder to reach their goals, thus bringing about a self-fulfilling prophecy. Moreover, unbroken persistence is vital if implementation is to be successful, especially in the face of hindrances and barriers. It is highly functional, then, that people who are in the process of implementing an intended project do not reflect on its feasibility and desirability in a realistic manner (see Taylor & Gollwitzer, 1995, Study 3). Such deliberation would only undermine their illusions and thus hinder efficient goal achievement.

Accordingly, mindset theory offers the following insights to the debate about positive illusions versus realism. First, neither realism nor positive illusions are adaptive in general to a person's psychological functioning. Realistic thinking is functional when it comes to making goal decisions, whereas positive illusions are functional when the chosen goals are to be implemented. Second, people can easily open the window to realism provided by the deliberative mindset. People do not have to go through the effortful mental exercises we have used to create a deliberative mindset; simply trying to achieve clarity in regard to an unresolved personal problem will trigger an intensive deliberation of pros and cons (see Taylor & Gollwitzer, 1995, Study 3). Postdecisional participants, on the other hand, are protected from such deliberation and thus can profit from the enhanced optimism that is associated with starting to implement, or being in the process of implementing, goal-directed actions. It appears, then, that the individual's cognitive apparatus readily adjusts to the various demands of the control of action: Choosing between action goals leads to realism, and implementing chosen goals leads to positive illusions.

Mindsets and Self-Evaluative Motives

Current theorizing on self-evaluation (Sedikides, 1993; Sedikides & Strube, 1995, 1997; Taylor, Wayment, & Carrillo, 1995; Wood, 1996) agrees on the following three self-evaluative motives: a need for self-enhancement, a need for accurate self-assessment, and a need for self-verification. Modern approaches to self-evaluation focus on the question of when the individual serves one of these needs over the other. According

to the model of action phases, different self-evaluative motives should become activated in the predecisional versus postdecisional action phases. Efficient acting requires accurate self-assessment in the predecisional phase and self-enhancement in the postdecisional phase. Accordingly, we hypothesized that the deliberative mindset should promote the need for accurate self-assessments, whereas the implemental mindset should promote the need for self-enhancement; the need for self-verification was expected to be so strongly affected by a person's sense of certainty-uncertainty of possessing a given self-attribute that it should stay unaffected by the deliberative and implemental mindsets.

In order to test these assumptions, we (Bayer & Gollwitzer, 1995) conducted an experiment that analyzed participants' seeking of information about the self. Participants started the experiment with filling out a self-concept scale, which (among many other self-perceptions) assessed whether participants claimed to possess the general ability to make up their minds and come to decisions in everyday life. We deemed this ability to be equally important for deliberating and planning individuals; predecisional persons need to decide which goals they want to pursue, and postdecisional persons need to decide on when, where, and how to get started on the chosen goal.

Thereafter, participants worked on a test that was said to assess various different abilities and skills. After participants had taken this test, the deliberative and implemental mindsets were induced via the standard procedure. Finally, participants were allowed to seek information on their ability to make decisions. The experimenter offered a list of questions, to which she claimed to have prepared answers based on participants' performance on the preceding extensive ability and skill testing. Altogether, 16 questions were offered; 8 were related to the strengths of having the critical ability (e.g., persuasiveness in group discussions), and 8 were related to weaknesses associated with not possessing the critical ability (e.g., nervousness prior to the act of making a decision). Half of the questions were worded in a diagnostic fashion (e.g., "What is the amount of my persuasiveness when it comes to making decisions in groups?"), whereas the other half were

worded in a nondiagnostic manner (e.g., "How do I show my nervousness prior to the act of making a decision?"). Whereas the diagnostic questions aimed at answers that described the exact degree of possessing the critical attribute, the nondiagnostic questions aimed at answers that were silent about the exact degree of the attribute and thus allowed for confirmatory answers. This way of constructing questions allows investigators to assess the need for self-enhancement and the need for accurate self-assessment independently (see Devine, Hirt, & Gehrke, 1990).

From the pool of 16 questions, participants were requested to select those 5 questions they felt most interested in. As a first step, we analyzed the choices of questions of all participants. It was observed that planning participants selected more questions on strengths than on weaknesses related to possessing the ability to make decisions, whereas deliberating participants showed an evenhanded pattern of selection. This interaction effect was in line with the hypothesis that self-enhancement needs would be stronger in the implemental mindset than in the deliberative mindset. The diagnosticity of the questions did not produce a main effect on participants' choice of questions, and neither an interaction of diagnosticity with mindset nor a three-way interaction (diagnosticity \times strengths-weaknesses \times mindset) was observed.

We wondered why deliberating participants did not show a stronger preference for diagnostic questions over nondiagnostic questions than planning participants did. Therefore, as a second step, we analyzed the data separately for participants who were certain about possessing the ability to make decisions (positive self-concept) versus not possessing this ability (negative self-concept). Among participants with a positive self-concept, we observed that deliberating participants preferred diagnostic questions to nondiagnostic questions, and this was true for strengths and weaknesses alike. By contrast, planning participants showed a strong preference for questions about strengths as compared to weaknesses, and this was even more pronounced for nondiagnostic questions than for diagnostic questions. This pattern of results clearly indicates that deliberating participants with a positive self-concept focused on an accurate analysis of their strengths and weaknesses,

whereas planning participants with a positive self-concept were oriented toward self-enhancement.

But what about participants with a negative self-concept? In both the deliberating and planning conditions, more questions on weaknesses than on strengths were chosen, and this was true for diagnostic and nondiagnostic questions alike. When we looked at questions related to strengths only, the deliberating participants preferred nondiagnostic questions to diagnostic questions, whereas the planning participants preferred diagnostic questions to nondiagnostic questions. The seeking of information about the self by persons with a negative self-concept thus seems highly dysfunctional in both the deliberative and implemental mindsets.

Instead of focusing on diagnostic information about strengths and weaknesses in an evenhanded manner, our deliberating participants sought more diagnostic as well as nondiagnostic information on weaknesses than on strengths; with respect to seeking information on strengths, a preference for nondiagnostic information was observed. Given that the task of deliberating persons is to assess their potential accurately in order to choose goals that can be successfully implemented, avoiding diagnostic information on one's strengths should lead to refraining from goal decisions even when chances are high that a goal can be successfully implemented. Moreover, soliciting nondiagnostic information on one's weaknesses may hinder any pragmatic self-assessment aimed at improving future goal choice (see Trope, 1986).

Instead of focusing on information on their strengths and on nondiagnostic information, our planning participants preferred both diagnostic and nondiagnostic information on weaknesses over information on strengths, and the information solicited about strengths was diagnostic. Given that the task of planning persons is to promote goal attainment, this way of soliciting information about the self is also highly dysfunctional, as it precludes overly positive self-perceptions that should promote goal attainment (see the research on positive illusions presented above).

In summary, people with a negative self-concept adhere to a style of soliciting information about the self that does not allow ef-

fective goal choice and goal implementation, and thus prevents the experiences needed to revise a negative self-concept. People with a positive self-concept, on the other hand, solicit information about the self in a manner that leads to effective control of their actions, which will in turn verify their positive self-concepts. This pattern of data is in clear support of Swann's (1990, 1997) theorizing that seeking of information about the self is strongly affected by people's consistency needs. From the perspective of mindset theory, this pattern of data suggests that even though deliberative and implemental mindsets lead to seeking different types of information about the self, these differences are modified by whether people possess a positive or a negative self-concept. In other words, it is only individuals with a positive self-concept who solicit information about the self as predicted by mindset theory. This suggests that the effects of mindsets on soliciting information about the self can be modified by personal attributes such as a negative or positive self-concept. Other potentially relevant personal attributes (e.g., implicit theories about the variability or lack of variability of personal abilities—Dweck, 1996; perceived degree of competence—Harter, 1985) still need to be explored.

MINDSET EFFECTS ON BEHAVIOR

In the research on deliberative and implemental mindsets, the focus has been on analyzing the features of the associated cognitive orientations. A first indication that deliberative and implemental mindsets may also affect behavior came from a study (Bayer & Gollwitzer, 1996) that asked deliberating and planning participants to evaluate another person on attributes related to behavioral energization (e.g., "persistent," "strong," "activated"). More specifically, participants who had been placed into either a deliberative or an implemental mindset by a female experimenter who applied the standard procedure were asked to fill out a so-called "experimenter evaluation sheet" before they departed. The implemental mindset favored more extreme descriptions of the experimenter on aspects related to behavioral energization than the deliberative mindset,

suggesting that the implemental mindset is associated with the determined pursuit of goal-directed actions.

Immediacy of Action Initiation

Recent studies have begun to analyze the behavioral energization generated by mindsets more systematically. If one assumes that the implemental mindset serves the function of getting started with goal-directed actions, situations in which swift action initiation is hindered should benefit greatly from an implemental mindset. Situations that make action initiation difficult are commonly characterized by either one of the following two problems: People do not know whether they should act now or later, or whether they should perform one action or another. In such conflict situations, a person in an implemental mindset should, because of the associated reduced open-mindedness, have less of a problem in initiating actions than a person in a deliberative mindset should.

Following this line of thought, Pösl (1994) conducted an experiment in which participants were asked by a first experimenter to list a number of personal projects they had failed to get started on until now. From this list, participants were requested to select two projects that could easily be initiated by writing a letter to somebody. Finally, they were asked to compose such letters by beginning to put down the names and addresses of the two persons they wanted to write to on two separate sheets of paper. Immediately thereafter, participants were disrupted and moved on to a second experimenter in a different room, who induced either the deliberative or the implemental mindset via the standard procedure. Control participants were asked to perform simple arithmetic tasks during this time.

Finally, all participants were sent back to the first experimenter's room to continue the disrupted experiment. Here, participants found either one or both of their incomplete letters sitting on the desk. Through a one-way mirror, the experimenter watched from an adjacent experimental room when the participants started to write again. It was expected that the implemental mindset would help participants to deal effectively with the difficult action initiation problem associated with the

two-letters situation. Through the one-way mirror, the experimenter observed that control participants took much longer to start writing when they were facing two letters as compared to one letter, and the same effect was observed with the deliberating participants. On the other hand, the planning participants started to write even faster when two letters were sitting on the desk as compared to one. If one only considers participants' resumption of writing in the two-letters condition, the planning participants started significantly faster than either the control or the deliberating participants. In the one-letter condition, however, no significant differences were observed between groups.

Pösl wondered whether the observed pattern of data was caused by planning participants' unwillingness to deliberate the pros and cons of turning to one or the other letter first or by their general closed-mindedness (i.e., effectively ignoring the nonchosen letter while writing on the chosen letter). Additional observations favored the second possibility. While observing when the participants started to write, the experimenter also took notice of when the participants grabbed one of the letters in the two-letter condition, because this was thought to indicate how long it took participants to make up their minds about which of the two letters they wanted to answer first. However, no differences were observed between conditions on this variable. This implies that the differences in getting started with writing had to do with the participants' ability to shield action control with respect to the chosen letter from distractions stemming from the nonchosen letter. Apparently the closed-mindedness associated with the implemental mindset served this purpose well. The fact that the implemental mindset did not facilitate participants' getting started with writing in the one-letter condition is also in line with the general hypothesis that the implemental mindset facilitates the initiation of goal-directed action via the associated closed-mindedness.

Persistence in Goal-Directed Action

Because the implemental mindset creates positive illusions with respect to people's self-perceptions, their perceptions of control over behavioral outcomes, and their expectations about future events (see above), and because

positive illusions foster the successful execution of complex behaviors (e.g., to care for and about other people, to perform creative and productive work, and to manage stress effectively; Taylor, 1989; Taylor & Brown, 1994), one would expect the implemental mindset to promote the determined execution of goal-directed behaviors. Accordingly, Brandstätter and Frank (1997) handed an intricate geometrical puzzle to deliberating and planning participants that, unknown to them, was unsolvable. Brandstätter and Frank predicted a higher persistence in working on this puzzle for planning than for deliberating participants. Indeed, the planning participants did persist longer than the deliberating participants did, and this persistence was mediated by the enhanced perceived desirability of solving the puzzle produced by the implemental mindset.

In a follow-up study, it was discovered that the differences between the deliberative and implemental mindsets in their effects on task persistence were particularly pronounced when the perceived desirability and feasibility of task completion pointed in different directions. When perceived desirability and feasibility were both low, and thus little activity engagement was strongly suggested, the mindset effects on persistence were weak; the same was true when perceived desirability and feasibility were both high, and thus intensive activity engagement was strongly suggested. Only when perceived desirability was low and perceived feasibility was high or vice versa did strong mindset effects emerge, in the sense that the implemental mindset led to more persistence than the deliberative mindset.

We take this observation to mean that the implemental mindset has its positive effects on persistence via the associated positive illusions only when the individual is in doubt on whether to persist or not. This reminds us of the mindset effects observed on action initiation (see Pösl, 1994): The beneficial effects of the implemental mindset could only be observed when participants had the option of resuming one or the other of two disrupted courses of action first (i.e., writing one or the other letter first). Apparently, activated mindsets, like activated semantic concepts (Higgins, 1996), are applicable to certain situations only. Whereas activated semantic concepts are most applicable to ambiguous

information, activated deliberative and implemental mindsets seem most applicable to behavioral conflict situations.

GENERAL SUMMARY AND CONCLUSION

Deliberating potential action goals induces a general cognitive orientation (the deliberative mindset) that favors the effective choice of goals. People in a deliberative mindset are found to be open-minded with respect to available information, to be tuned toward feasibility-related and desirability-related information, to analyze feasibility-related information accurately, and to analyze desirability-related information impartially. The deliberative mindset provides a window to realism, as it can reduce people's pervasive positive illusions, and it serves the accuracy motive when people evaluate themselves. Finally, it hampers action initiation and persistence in behavioral conflict situations.

Planning the implementation of chosen goals induces a general cognitive orientation (the implemental mindset) that favors the effective implementation of goals. People in an implemental mindset are found to be closed-minded to available information, to be tuned toward implementation-related information, to analyze feasibility-related information in an overly positive manner, and to analyze desirability-related information in a partial manner. The implemental mindset enhances people's pervasive positive illusions, and it serves the self-enhancement motive when people evaluate themselves. Finally, it furthers immediate action initiation and strengthens persistence in behavioral conflict situations.

The ideas and research originating within the framework of the notion of deliberative and implemental mindsets constitute a dual-process theory in the realm of goal pursuit. The approach taken is to juxtapose a cognitive orientation that is functional to choosing goals with a cognitive orientation that is functional to the implementation of chosen goals. In other words, the ideal information-processing styles for solving two different tasks that serve one end (i.e., the effective control of action) are analyzed in contrast to each other. This is different from those dual-process models that compare two different styles of information processing in the service

of one and the same task, such as perceiving another person (Bargh, 1984; Brewer, 1988; Fiske & Neuberg, 1990), making attributions (Gilbert, 1989; Gilbert & Malone, 1995; Trope & Gaunt, Chapter 8, this volume), or forming attitudes (Chaiken, Liberman, & Eagly, 1989; Fazio, 1990). The approach taken in those models is to analyze how the two forms of information processing delineated differ in meeting the task at hand.

At the same time, the notion of deliberative versus implemental mindsets seems to be a stage model, like some other dual-process theories (e.g., Gilbert & Malone, 1995). People in everyday life should experience deliberative mindsets, prior to implemental mindsets as people mostly prefer to make plans on how to achieve a goal only after they have made a binding goal choice. In this temporal sense, therefore, the mindset model qualifies as a stage model. This is not true, however, with respect to the quality of cognitive processes associated with the two mindsets. For instance, in the two-step model of the attribution process—a stage model suggested by Gilbert (1989; Gilbert & Malone, 1995)—the first step is simple and automatic (i.e., a quick personal attribution), whereas the second step requires attention, thought, and effort (i.e., adjusting that inference to account for situational influences). The notion of deliberative versus implemental mindsets, however, does *not* assume that the deliberative mindset is associated with more rudimentary cognitive processes than the implemental mindset (or vice versa). In both the deliberative mindset and the implemental mindset, highly complex cognitive procedures are activated that determine the individual's cognitive and behavioral functioning. Moreover, in both mindsets these procedures can but do not need to reach consciousness to unfold their effects (because they can become habitual; see the Gollwitzer & Hammelbeck, 1998), and their effects can but do not have to be detected by the individual (e.g., the illusion of control in the implemental mindset).

Mindset theory sees the deliberative and implemental mindsets as distinct and independent of each other. Whereas it is assumed in some dual-process theories (e.g., Chaiken et al., 1989) that the postulated modes of information processing can operate at the same time, the deliberative and implemental mindsets are assumed to preclude each other. This

is because the strength with which the cognitive procedures associated with the deliberative mindset are activated is positively related to the degree of involvement with the task of choosing between potential goals, whereas the strength with which the cognitive procedures associated with the implemental mindset are activated is positively related to the degree of involvement with the task of planning the implementation of a chosen goal. Because a person cannot become intensely involved in both of these tasks at one and the same time, but only successively, pronounced deliberative and implemental mindsets cannot coexist. They also do not affect each other in the sense that a preceding strong deliberative mindset makes for a strong succeeding implemental mindset (see the description of the studies using the modified Müller-Lyer figures, above); it all depends on how intensely people become involved with solving the task of choosing between potential goals and with planning the implementation of a chosen goal, respectively.

Finally, the effects of the deliberative and implemental mindsets are rather general, in the sense that the processing of all kinds of informational inputs is affected. The deliberative and implemental mindsets can influence control judgments in a contingency-learning task, perceptual illusions, recall of desirability-related information, recall of implementation-related information, speed of processing of heeded information, a person's self-perception, the perceived controllability of risks, and so forth. Even though the mindsets are created via becoming involved in deliberating a specific goal choice or planning the implementation of a specific chosen goal, the activated cognitive procedures affect the processing of all kinds of different informational inputs. The only limit seems to be that these cognitive procedures are applicable to the informational input at hand (see Pösl, 1994).

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