European Journal of Social Psychology
Eur. J. Soc. Psychol. **35**, 313–327 (2005)
Published online in Wiley InterScience (www.interscience.wiley.com). **DOI**: 10.1002/ejsp.247

Mindset effects on information search in self-evaluation

UTE C. BAYER[1]* AND PETER M. GOLLWITZER[1,2]
[1]*University of Konstanz, Germany*
[2]*New York University, USA*

Abstract

Research on mindset theory (Gollwitzer & Bayer, 1999) observed that people in an implemental mindset show an orientation towards positive illusionary self-evaluations, whereas people in a deliberative mindset opt for accurate self-evaluations. In the present study, we tested whether these self-evaluative orientations and the associated search for certain types of self-relevant information (feedback) are moderated by low versus high self-views. With high self-view participants we observed the hypothesized mindset effects on information search, but we obtained the reverse pattern for low self-view participants. The latter finding points to self-defensiveness in low self-view individuals. Implications are discussed in terms of the consequences of accurate versus positive illusionary self-evaluations for the successful control of goal pursuits, and individual differences in mindset effects.

Self-evaluation is guided by different motives or purposes (Pomerantz, Saxon, & Kenney, 2001; Sedikides & Skowronski, 2000; Sedikides & Strube, 1997). First, a concern for self-assessment motivates people to reduce uncertainty about their abilities and personal attributes. This is achieved by performing high diagnostic tasks and searching for diagnostic information (Trope, 1986). Second, people's self-evaluations also serve self-enhancement concerns. The self is protected from negative information by selectively processing positive information. The valence of feedback and the personal importance of the attribute in question are of primary importance. People guided by self-enhancement concerns will thus find information diagnostic of success, high ability, or any other positive personal attribute to be more attractive than information diagnostic of failure, low ability, or any other negative personal attribute (Brown & Dutton, 1995; Kunda, 1990; Taylor & Brown, 1988).

Third, people's self-evaluations are also guided by self-verification concerns which aim at endorsing preexisting self-conceptions. Self-verification applies to both positive and negative aspects of the self. People seek verification of their certain self-concepts to a larger degree than their uncertain self-concepts. What matters is the consistency between self-concept and feedback rather than self-concept valence or feedback valence (Swann, 1990, 1997). Finally, people are motivated to improve their traits, abilities, skills, health status, or well-being. This motive is conceptually different from the

*Correspondence to: Ute C. Bayer, Social Psychology and Motivation, University of Konstanz, Box D39, D-78457 Konstanz, Germany. E-mail: bayer@soz.psychologie.uni-konstanz.de

Received 13 November 2003
Accepted 31 August 2004

other three motives (Taylor, Neter, & Wayment, 1995). Self-improvement focuses on genuine improvement, which does not necessarily include self-concept positivity. Attempts at self-improvement will result in a sense of progress, hope, or growth (Collins, 1996; Wheeler, 1966).

Operating on the basis of one or the other of the four described concerns of self-evaluation has differential consequences for the type of self-knowledge that accrues, each of which comes with its typical advantages and usefulness (Sedikides & Skowronski, 2000). Serving self-assessment concerns leads to accurate self-knowledge which makes it easier for people to select tasks that will not overtax them. Serving self-enhancement concerns, on the other hand, leads to favourable self-concepts which strengthen people's resilience in overcoming barriers to their goal pursuits and in dealing with everyday hardships. Serving self-verification concerns leads to stable self-views that allow for easy predictability of one's future behaviours (and the reactions of others towards us). Finally, self-improvement focuses on self-betterment regardless of self-concept accuracy.

Even though the four self-evaluation concerns listed are rather pervasive and accompany almost all of people's daily pursuits, researchers have started to search for those variables that favour one of these concerns over the other. For instance, it was observed that feeling uncertain about one's abilities (Trope & Bassok, 1982), feeling good about oneself in general (Trope & Neter, 1994), and placing a good deal of importance to be competent in a particular area (Trope & Pomerantz, 1998) strengthen the self-assessment orientation. Self-verification concerns, on the other hand, are the more prevalent the more certain people are of their self-conceptions, as people are motivated to defend their existing self-concepts against threats (Swann & Ely, 1984). With respect to self-enhancement it was observed that this concern is particularly strong in people with high self-esteem (Wayment & Taylor, 1995), and when the personal attribute implied is perceived as fixed and nonmodifiable (Dunning, 1995). Finally, feelings of threat or inadequacy are more likely to instigate the self-improvement motive. It was observed that upwards comparisons for the purpose of self-improvement occur frequently when people have to cope with novel situations (e.g. in coping with cancer, Taylor, Aspinwall, Guilano, Dakof, & Readon, 1993; performance on novel tasks, Buunk, 1995).

MINDSETS AS MODERATORS OF SELF-ENHANCEMENT AND SELF-ASSESSMENT CONCERNS

Taylor and Brown (1988) proposed that a mentally healthy person is characterized not by accurate assessments of her or his qualities but typically by holding mildly self-aggrandizing perceptions of the self. They argued that instead of being maladaptive these positively distorted self-perceptions actually foster positive self-regard, the ability to care for and about other people, the capacity for creative and productive work, and the ability to effectively manage stress. Despite the obvious positive consequences of moderate self-enhancement, these findings raise the disturbing question: How do people with inflated self-concepts effectively identify and make use of negative feedback they may encounter in the world? One potential resolution is the possibility that there may be times when people are more honest with themselves, during which they recognize and incorporate negative feedback.

Mindset theory (Gollwitzer, 1990, 2003) suggests a set of circumstances when such a window to realism opens up. It is argued that successful goal pursuit involves solving four consecutive tasks: choosing between potential goals, planning the implementation of a chosen goal, acting on the chosen goal, and evaluating what has been achieved. When people get involved in these tasks, different cognitive procedures are said to become activated (i.e. different mindsets) which make it easier to live up to the respective task demands. More specifically, it is argued that deliberation in the predecisional phase involves the careful appraisal of whether one could pursue (or not) a potential goal. Therefore,

the pros and cons in regards to the potential goals have to be weighted and the feasibility of these goals has to be assessed. Consequently, the respective cognitive procedure (i.e. the deliberative mindset) should foster relatively even-handed and accurate appraisals of evidence. With respect to self-assessment concerns, mindset theory predicts that the deliberative mindset should foster the accurate analysis of feasibility-related information on potential goals.

Planning the implementation of a chosen goal, however, poses a problem associated with different task demands. Deliberation of the goal in question needs to be ended and people need to look toward implementation. Good opportunities need to be discovered and linked to appropriate goal-directed behaviours (i.e. plans need to be made with respect to when, where, and how one wants to act). Consequently, the respective cognitive procedure (i.e. the implemental mindset) should foster a biased analysis of feasibility and desirability-related information so that deliberation of the goal will not start anew. The person starts to conceive of the feasibility of chosen goals in an overly optimistic way and views the desirability of the chosen goal in a partial manner (i.e. sees more pros than cons). Moreover, people tune in to implementation-related information as it is needed to get started on one's goals.

A research programme aimed at testing the proposed different cognitive features of the deliberate and implemental mindset reported by Gollwitzer and Bayer (1999; Gollwitzer, 2003). In this research, the deliberative mindset was induced by asking participants to either extensively deliberate an unresolved personal problem by listing the short-term and long-term pros and cons of both making and not making a goal decision. For the implemental mindset, participants were asked to list the five most important steps of implementing a chosen goal, and then to specify, when, where, and how they intent to execute each step. Thereafter, both the deliberating and planning participants were asked to perform presumably unrelated intellectual tasks (usually performed by a different experimenter in a different situational context).

Indeed, research participants placed into an implemental mindset (by asking them to plan the implementation of an important life decision they had already made) reported strong illusions of control over frequent, but uncontrollable outcomes in a classic contingency learning task (Alloy & Abramson, 1979), whereas deliberative mindset participants (who had to contemplate the pros and cons of making a major life decision) indicated reduced illusions (Gollwitzer & Kinney, 1989). Taylor and Gollwitzer (1995) explored the influence of deliberative and implemental mindsets on several other self-relevant judgments. It was again observed that participants in the deliberative mindset were in a position to open a window to realism and thus reported a less positive illusionary standing on various personal attributes (e.g. cheerfulness, academic ability), as well as less positive illusionary judgments of their invulnerability to controllable (e.g. divorce, having a drinking problem) and uncontrollable risks (e.g. developing a heart disease, loosing a limb). More recently, Armor and Taylor (2003) reported that implemental mindsets do not only produce enhanced self-efficacy, optimistic outcome expectations, and perceptions of the task at hand as easy, but also could show that these positive illusions helped people to succeed at the task at hand.

INDIVIDUAL DIFFERENCES IN MINDSET EFFECTS: THE IMPACT OF LOW/HIGH SELF-VIEWS

Meanwhile, research on mindsets has addressed individual differences in the activation of deliberative and implemental mindsets and their effects on cognition and behaviour. For instance, mindset effects have been found to be dependent on a person's achievement motivation (Pucca & Schmalt, 2001), social anxiety (Hiemisch, Ehlers, & Westermann, 2002), and goal commitment (Gagné & Lydon, 2001). In the present study, we investigate the impact of a person's low/high self-view as a potential

moderator of mindset effects. More specifically, we investigate the search for self-relevant information by deliberative versus implemental participants holding either a high or low self-view.

As Trope and Neter (1994) have pointed out, the processing of feedback about one's abilities has two types of consequences: At an informational level, people learn about their standing on the respective ability. At an emotional level, positive feedback induces positive feelings (i.e. pride) and negative feedback leads to negative feelings (i.e. self-threat, disappointment, and self-doubts). According to Trope and Neter, people consider such potential costs and benefits of self-relevant information and their processing of self-relevant information guided by these anticipated positive and negative consequences.

Following a cost-benefit perspective, it depends on a person's low versus high self-concept whether self-assessment or self-enhancement concerns are served in deliberative and implemental mindsets. With individuals holding a high self-concept, self-assessment concerns triggered by a deliberative mindset are emotionally not very risky as she or he rightfully anticipates positive feedback. And serving self-enhancing concerns in the implemental mindset is informationally not very risky as positive illusions help the individual to implement the chosen goal (Armor & Taylor, 2003).

Things are quite different with individuals holding low self-views. The accuracy orientation triggered by the deliberative mindset should create a state of self-threat in these individuals, as chances are high that they will have to face weaknesses. Accordingly, they should refuse to process information accurately and instead serve self-improvement/self-enhancement concerns. Moreover, for participants holding a low self-view the positive illusions triggered by the implemental mindset are inconsistent with their self-view and thus should create a fear of invalidity. Accordingly, they should not serve self-enhancement concerns but modestly stick to an assessment orientation.

These predictions are in line with recent research on deliberative and implemental mindsets that looks at individual differences as potential moderators of mindset effects. For example, Pucca and Schmalt (2001) analysed the effects of a person's achievement motive (fear of failure vs. hope of success) on thought content in deliberative and implemental mindsets. Participants either had to deliberate which of two different complex reaction time tasks they wanted to perform (deliberative mindset) or to choose one of these tasks and then plan task performance of the chosen task (implemental mindset). Interestingly, the classic finding of an optimistic bias in thought content in implemental as compared to deliberative individuals (Heckhausen & Gollwitzer, 1987; Taylor & Gollwitzer, 1995, Study 3) was moderated by the achievement motive. Whereas hope of success individuals showed the classic pattern, the reverse was true for fear of failure individuals: The latter reported more thoughts about strengths than about weaknesses in performing the difficult vigilance task in a deliberative mindset, and reported more thoughts about weaknesses rather than strengths in an implemental mindset. Apparently, chronic fear of failure individuals dealt with the self-threat triggered by a deliberative mindset by boosting their self-perception of competence. And chronic fear of failure individuals responded to the optimistic orientation (hopes) triggered by the implemental mindset with intensifying their fear of failure (i.e. thinking of having chosen the wrong task).

Hiemisch et al. (2002) placed people with high versus low social anxiety in deliberative and implemental mindsets and measured their processing of deliberative (i.e. pros and cons of choosing a goal) versus implemental information (i.e. when, where, and how of goal pursuit) in solving a critical interpersonal problem. Low socially anxious people showed better processing of implemental as compared to deliberative information in the implemental mindset and equal processing in the deliberative mindset. High socially anxious people, on the other hand, processed deliberative information better than implemental information in the implemental mindset, whereas the reserve was true for the deliberative mindset. The authors suggest that socially anxious people coped with the threat of the deliberative mindset (having to look not only on strengths but also on weaknesses) by committing themselves to a certain way of solving the interpersonal problem at hand, thus entering an implemental

mindset that protected them from having to look at their weaknesses. Socially anxious people who were in an implemental mindset to begin with, on the other hand, quickly discovered problems of solving the social problem at hand (because of their social anxieties) which in turn triggered deliberation of what kind of alternative goals they had better pursued. Thus, they entered a deliberative mindset which facilitated the processing of deliberative information.

Finally, Gagné and Lydon (2001) suggest that deliberation of goal decisions that have already been made can initiate defensive processing of information rather than accurate processing. In one study, they asked participants highly committed to a romantic relationship to deliberate this relationship decision or a nonrelationship goal decision. They found that when asked to rate how their partner compared with the average, those individuals asked to deliberate over the relationship goal decision gave much higher ratings than those who were asked to deliberate over a nonrelationship goal decision. Of interest, these ratings were also higher than those of implementation participants who had been planning the implementation of the relationship goal.

Gagné and Lydon suggest that the deliberation of a relationship goal decision may have been perceived as threatening, resulting in an enhancement of the partner's positive attributes. Testing this idea, they assessed the degree of commitment participants felt to their relationship in a second study and hypothesized that high commitment participants should feel more threatened by the deliberative mindset than low commitment participants. Indeed, they found that high commitment but not low commitment participants defended against a threat of a deliberative mindset by increasing their positive views of their partner.

SEEKING INFORMATION ON INTELLECTUAL CAPABILITY IN DELIBERATIVE VERSUS IMPLEMENTAL MINDSETS

In the present study, we assess whether high versus low self-view individuals differentially serve self-assessment, self-enhancement/improvement and self-verification concerns when placed in a deliberative versus an implemental mindset. The strengths of these concerns can be assessed via the strategies people use to gather self-relevant information (Kunda, 1990; Trope & Liberman, 1996). For example, in the service of self-enhancement, people spend more time reading favourable than unfavourable information about themselves (Baumeister & Cairns, 1992), and they search for ability-relevant information more intensively when they have reason to believe that they will gain positive rather than negative information about themselves (Brown, 1990). In the service of self-verification, people seek that kind of feedback (positive or negative) that they believe will confirm their self-concepts. For instance, people prefer interaction partners from whom they expect to receive confirmatory feedback with respect to their positive and negative attributes (Swann, Stein-Seroussi, & Giesler, 1992). A diagnostic strategy of information search, on the other hand, leads people to ask high over low diagnostic questions (Trope & Bassok, 1982) or to choose high over low diagnostic tasks (Brown, 1990; Strube et al., 1986). Moreover, a diagnostic orientation is indicated by the extent to which favourable and unfavourable information is sought in an even manner (Trope & Neter, 1994). A self-improvement strategy is commonly investigated in terms of upward social comparisons as such comparisons provide a standard to strive for and offer an inspiration to meet the goal (Collins, 1996).

It is seldom the case that the strength of the different self-evaluation concerns is measured in one and the same study (Sedikides, 1993). In the present study, we constructed a feedback questionnaire that allowed determining the extent to which the participants are guided by self-enhancement, self-verification, or self-assessment concerns. This questionnaire offered favourable and unfavourable feedback, and at the same time varied the diagnosticity of this feedback (Devine, Hirt, & Gehrke,

1990). The personal attribute we focused on was intellectual abilities, and thus we analysed a attribute-specific self-view. We consider this attribute to be of high personal importance. Accordingly, self-defensiveness with respect to having to admit that one is low on this attribute should be rather high.

All participants were informed that they would take part in two different experiments. In the presumed first experiment, they worked on an ostensible personality and ability test which involved questions about five personal attributes including the critical aspect of intellectual skills. In the presumed second experiment, participants worked on a task designed to induce either the deliberative or implemental mindset. Thereafter, we offered the participants feedback on their intellectual abilities. Participants were asked to indicate their preference with respect to eight aspects of possessing or lacking intellectual abilities (four aspects related to strengths, and four to weaknesses; half of the strengths and weaknesses related questions were diagnostic, the other half nondiagnostic).

We interpret a general preference for information on strengths over weaknesses as serving self-enhancement concerns. Serving self-assessment concerns in contrast is indicated if participants choose high diagnostic information over low diagnostic information, and if they choose information about strengths and weaknesses in an even manner. Finally, serving self-verification concerns is indicated when participants with low self-views prefer information on weaknesses over strengths and participants with high self-views prefer information on strengths over information on weaknesses.

We expected that participants holding a high self-view should be guided in their information search by self-assessment concerns in a deliberative mindset and by self-enhancement concerns in an implemental mindset. For participants holding a low self-view we expected an inverse pattern: Their preferences for self-relevant information should be guided by self-defensiveness. Feelings of self-threat triggered in the deliberative mindset should lead to self-enhancement/improvement concerns in the deliberative mindset and fear of invalidity triggered in the planning mindset should lead to assessment concerns in the implemental mindset.

METHOD

Participants

Fifty two students (26 female and 26 male) of a German university participated in this research for a credit of 7.5€ (approx. $7). A questionnaire measured participants' self-view of possessing intellectual capability as done in earlier studies on self-verification (Swann & Ely, 1984; Swann, Pelham, & Chidester, 1988). Only those individuals who scored either in the upper third ($N = 18$; high self-view participants) or the lower third ($N = 18$; low self-view participants) in respective self-ratings were included in the data analysis based on a four-factorial ANOVA (see below); following the research on self-verification theory (Swann et al., 1992), the middle group of participants ($N = 16$; moderate self-view participants) was excluded.

Procedure

Participants were contacted on campus. They appeared at the laboratory in groups of four to six. On arrival, the first experimenter informed participants that during the next hour they would engage in two separate unrelated experiments. Before starting the first study, the experimenter asked all participants if they were willing to take part in an additional survey. She informed participants that the questionnaire was used to learn more about college students. All participants agreed and filled out

the additional questionnaire. One part of the survey included the Self-Attributes Questionnaire (SAQ) developed by Pelham and Swann (1989). This instrument taps people's self-views on five attributes (i.e. intellectual capability, physical attractiveness, social competence, artistic and/or musical ability, and competence in sports). For each of the five SAQ attributes participants rated themselves as compared to other college students of the same age on a scale from 1 (bottom 5%) to 10 (top 5%). Later we analysed their self-ratings in regard to their intellectual capability. When the participants had filled out the survey questionnaire, the experimenter informed the participants that the local organizational psychology research group had developed new intervention programmes to enhance people's performance in work settings. These different kinds of training programmes would first be tested with college students. Half of the participants then received a booklet that entailed instructions on how to deliberate an unresolved personal problem, whereas the other half received a booklet with instructions on how to plan the implementation of a pressing goal project.

The deliberative and implemental mindsets were induced by a procedure developed by Gollwitzer and colleagues (Gollwitzer & Kinney, 1989; Gollwitzer, Heckhausen, & Steller, 1990). To induce a *deliberative mindset*, participants were asked to first name an important unresolved personal problem in their everyday life. It should have the format of 'Should I do x or not?' Moreover, this potential goal should be an important one and acting on it should be rather complex (i.e. several action steps are necessary to realize it). After participants had named their unresolved problem, they were to rate various features of the potential goal: feasibility ('How likely is it that you will attain this potential goal?') and desirability ('How important is it that you will attain this potential goal?'). Answer scales ranged from 1 (not likely or important) to 9 (very likely or important). Participants then started deliberation by writing down immediate and long-term positive and negative consequences of making a change decision (i.e. a decision to attain x). In addition, they were asked to consider immediate as well as long-term positive and negative consequences of a decision to stay with the status quo (i.e. a decision not to pursue x). To help participants follow the instructions, they first practised this deliberation procedure on a sample problem: 'Should I go on a vacation or not?' In addition, participants had to indicate on a straight line (which was marked in the middle with 'point of decision,' at the left end-point with 'far from a decision,' and at the right end-point with 'far after making a decision') where exactly they felt with respect to having made a decision. This procedure was used to detect participants who no longer deliberated an unresolved personal problem.

To induce an *implemental mindset*, participants were asked to name an important personal project they intended to realize in the following 3 months. It should have the format of 'I intend to do x!' It was pointed out that participants should name projects to which they felt committed for quite some time, and refrain from forming new commitments on the spot. After participants had named their projects, we asked for the goal attributes of feasibility and desirability (items were the same as in the deliberative mindset condition). Finally, participants were requested to decide on how they intended to realize their goal projects. They first had to delineate the five most important action steps and then to decide for each of these steps, when, where, and how they wanted to get started with its implementation. To help participants follow instructions, they first had to practise this planning procedure on a sample project: 'I intend to go on a vacation!' On average, participants worked on these presumed training programmes for 20 min. Thereafter, the first experimenter left and the second experimenter entered the laboratory.

The second experimenter informed participants that the purpose of her study would be to develop a new personality and ability test to be performed on a PC. Participants would work on this test in a self-paced manner and they could even choose between test materials depending on what type of skill they wanted to be tested. To learn more about the specific test preferences of each student, she asked participants to fill out a simple questionnaire. This questionnaire consisted of eight questions enquiring about academic skills. Four questions focused on strengths and four on weaknesses. Moreover, two

questions on strengths were highly diagnostic with respect to intellectual capability (e.g. 'Do I quickly find creative solutions?'), the others were low on diagnosticity (e.g. 'Do I talk fast?'). The four questions concerning weaknesses also varied with respect to the diagnosticity of assessing intellectual capability. Two questions were highly diagnostic (e.g. 'Do I have difficulties in understanding complex problems?'), and two were of low diagnosticity (e.g. 'Do I have difficulties in using punctuation marks?'). Participants were asked how interested they were in receiving answers to these questions. They answered each question on a 7 point scale (1 = not interested at all; 7 = very interested). At last, all participants received a final questionnaire including several manipulation check questions. Thereafter, the participants were thoughtfully debriefed with special emphasis on the fact that the test construction cover-story was entirely fictitious.

RESULTS

Equivalence of Groups

In a first step, we tested if the participants chose comparable potential goals and set goals in the deliberative and implemental mindset condition, respectively. Goals were compared in regards to their attractiveness and feasibility, but no significant differences were observed (attractiveness: $M = 6.73$ vs. $M = 7.36$, $p > 0.15$; feasibility: $M = 6.72$ vs. $M = 7.27$, $p > 0.25$).

Differential Prevalence of Self-enhancement, Self-verification, and Self-assessment Concerns in the Deliberative and Implemental Mindsets

We analysed the interest in self-relevant information in relation to mindset, the diagnosticity and valence of information, and participants' self-view computing a four-factorial ANOVA on participants' preferences for information on their intellectual capability. The two between-factors were mindset (deliberative vs. implemental) and self-view (low vs. high), and the two within-factors were valence of information (strengths vs. weaknesses) and diagnosticity of information (high vs. low). This analysis showed a significant four-way interaction effect, $F(1, 32) = 6.77$, $p = 0.01$.

Looking only at participants with a *high self-view*, we observed a significant three-way interaction between the factors of deliberative versus implemental mindset, seeking diagnostic versus nondiagnostic information, and seeking information about strengths versus weaknesses, $F(1, 18) = 4.95$, $p < 0.05$. As the means in Figure 1 reveal, deliberative mindset participants preferred high diagnostic information over low diagnostic information in regard to both strengths, $t(8) = 4.02$, $p < 0.01$, and weaknesses, $t(8) = 6.65$, $p < 0.001$. Moreover, they wanted to receive high diagnostic information about strengths as much as high diagnostic information about weaknesses, $t(8) = 1.10$, $p = 0.24$. Only with respect to low diagnostic information was there a preference for strengths over weaknesses, $t(8) = 2.50$, $p < 0.05$.

Implemental mindset participants preferred information on strengths over information on weaknesses, $M = 5.05$ versus $M = 4.36$, $t(8) = 2.62$, $p < 0.05$. Moreover, they preferred highly diagnostic information about strengths over highly diagnostic information about weaknesses, $t(8) = 3.31$, $p = 0.01$, as well as low diagnostic information about weaknesses, $t(8) = 4.15$, $p < 0.01$, and low diagnostic information about strengths, $t(8) = 5.32$, $p < 0.001$.

The results for the participants with a low *self-view* presented a different pattern (see Figure 2). Only the main effect of diagnosticity, $F(1, 18) = 18.05$, $p = 0.001$ (indicating a general preference for

