
Implicit/Explicit Motive Discrepancies and Volitional Depletion Among Managers

Hugo M. Kehr

University of Munich, Germany

The compensatory model of motivation and volition is based on the assumption that discrepancies between implicit and explicit motives lead to psychological conflict, and that resolution of this conflict requires volitional regulation and consumes volitional strength. This suggests that implicit/explicit motive discrepancies (IED) are responsible for decreases in volitional strength. A longitudinal field study with 82 managers was conducted to test this proposition. Results show that IED longitudinally predicted decreases in volitional strength. Furthermore, structural equation modeling revealed that volitional strength mediated the relation between IED and impaired subjective well-being. The theoretical and practical implications of these results are discussed, particularly with respect to volitional depletion.

Keywords: *implicit motives; explicit motives; volitional strength; subjective well-being; motive discrepancies*

Numerous researchers have distinguished between implicit and explicit motivational systems (Brunstein, Schultheiss, & Grässmann, 1998; Deci & Ryan, 2000; Emmons & McAdams, 1991; McClelland, Koestner, & Weinberger, 1989). One central proposition of this dual system approach to human motivation is that implicit and explicit motives relate to different aspects of the person and may thus give rise to discrepant behavioral tendencies. There is ample evidence that discrepancies between implicit and explicit motives can cause psychological conflicts and may ultimately result in impaired psychological well-being and physical health problems (Brunstein et al., 1998; McClelland et al., 1989; Ryan & Deci, 2000; Sheldon & Kasser, 1995).

Another line of research has examined the role of volitional self-regulation in goal seeking (Karoly, 1995; Kuhl, 2000; Metcalfe & Mischel, 1999; Muraven & Baumeister, 2000; Sokolowski, 1993). People experiencing difficult situations that demand resolving behavioral conflict, regulating negative affect, or inhibiting temptations may need volitional mechanisms to resolve the con-

flikt and keep their actions on track. Muraven and Baumeister (2000) proposed the concept of volitional strength and suggested that volitional strength is limited and may be depleted by volitional action.

Recently, Kehr (in press) related research on implicit/explicit motive discrepancies (IED) and research on volitional regulation. One central assumption of Kehr's compensatory model of motivation and volition was that behavioral conflict due to IED might call for volitional conflict regulation (cf. Brunstein et al., 1998; Karoly, 1995; Ryan, Sheldon, Kasser, & Deci, 1996). Therefore, Kehr (in press) proposed that IED are a latent cause of the depletion of volitional strength. However, no studies have simultaneously examined IED and volitional strength. Hence, this article (a) delineates the literature on implicit and explicit motives, particularly with respect to IED; (b) reviews research on volitional self-regulation, with an emphasis on the depletion of volitional strength; and (c) reports a field study that tests the proposition that IED lead to volitional depletion.

IMPLICIT AND EXPLICIT MOTIVES

The distinction of implicit and explicit motives can be traced back to several classic conceptions. As early as

Author's Note: This research was supported by grants from the German Research Foundation (DFG). Preparation of this article was facilitated by a Lynen grant of the Alexander von Humboldt Foundation. The research reported here was part of the author's habilitation thesis. Portions of this research have been reported at the 22nd Colloquium on Motivation Psychology, Siegen, Germany, September 2002. I am grateful to Tom Mongan, Kurt Sokolowski, and Wendelien Van Eerde for comments on earlier versions of this article and to Joachim Brunstein, Julius Kuhl, and Lutz von Rosenstiel for helpful comments when conducting this research. Correspondence may be addressed to Dr. Hugo M. Kehr, Professor of Management, Macquarie Graduate School of Management, Macquarie University, NSW 2109 Australia; e-mail: hugo.kehr@mgsm.edu.au.

PSPB, Vol. 30 No. 3, March 2004 315-327

DOI: 10.1177/0146167203256967

© 2004 by the Society for Personality and Social Psychology, Inc.

1896, Wundt (1896/1907) theorized about the difference between original motives and intellectual motives, the latter resulting from an “internal act of will.” In the first experimentation on the issue, Michotte and Prüm (1910) contrasted intrinsic motives (*motifs intrinsèques*) and extrinsic motives (*motifs extrinsèques*). Some years later, Lewin (1926) differentiated between needs and quasi-needs, the latter resulting from conscious intentions to act. More recent accounts of the dual system approach to motivation include Brunstein et al. (1998), Cantor and Blanton (1996), Deci and Ryan (2000), McClelland et al. (1989), and Sheldon and Kasser (1995).

Implicit motives are essentially identical with the classical conception of dispositional motives as associative networks connecting situational cues with basic affective reactions (McClelland, Atkinson, Clark, & Lowell, 1953). In general, implicit motives are not consciously represented. Implicit motives develop early in life (McClelland, 1995). At a later stage, they are barely influenced by social demands (Koestner, Weinberger, & McClelland, 1991). Implicit motives fall into a few broad classes—McClelland (1995) spoke of the “big three” implicit motives: power, achievement, and affiliation. Implicit motives are subconsciously aroused (McClelland et al., 1989). The resulting behavior is spontaneous, expressive, and often associated with pleasure (Koestner et al., 1991).

Explicit motives, on the other hand, are motives that a person consciously attributes to his or her behavior (McClelland et al., 1989). The development of these self-ascriptions is strongly influenced by social demands and normative pressures (Koestner et al., 1991; McClelland, 1995). Thus, explicit motives often appear as goals or duties (McClelland et al., 1989).

The distinction between implicit and explicit motive systems parallels Epstein’s (1998) work, which contrasted a rational system (a person’s explicit theory of reality) and an experiential system (a person’s implicit theory of reality). Similarly, Metcalfe and Mischel (1999) differentiated a “cool,” cognitive system and a “hot,” emotional system.

Most authors conceptualized implicit and explicit motives as largely independent (Brunstein et al., 1998; Koestner et al., 1991; McClelland, 1985; McClelland et al., 1989; Weinberger & McClelland, 1990). Implicit motives are aroused by factors intrinsic to the activity, whereas explicit motives are aroused by factors extrinsic to the activity (Koestner et al., 1991; cf. Deci & Ryan, 2000). For example, a scientist high on implicit achievement motive might be absorbed by calculations (intrinsic) but nevertheless defer to the social demands of an editor to deliver the manuscript on time (extrinsic). With respect to their operational processes, both motive

systems are assumed to independently generate affective responses and behavioral impulses (Brunstein et al., 1998; McClelland et al., 1989). Adding to this evidence, Woike (1995) found that implicit motives are associated with affective experience-related memories, whereas explicit motives are associated with routine experience-related memories.

The notion of conceptual independence received empirical support from a meta-analysis (Spangler, 1992) that found projective tests (measuring implicit motives) and questionnaires (measuring explicit motives) to be largely independent of each other. Spangler (1992) concluded that these instruments measure “different aspects of personality” (p. 150). Some authors, however, subsequently reported evidence for a small but significant empirical overlap of implicit and explicit motive systems (Brunstein et al., 1998; Cantor & Blanton, 1996; Emmons & McAdams, 1991; Sokolowski, Schmalt, Langens, & Puca, 2000; Thrash & Elliot, 2002). Obviously, the empirical relation between implicit and explicit motives is not yet clear. Perhaps this is due to individual differences, that is, some people may closely integrate their implicit and explicit motives, whereas others may not (cf. Deci & Ryan, 2000). A recent study by Thrash and Elliot (2002) supports this notion, showing that self-determination moderates concordance between implicit and explicit achievement motive.

Greater discrepancies between implicit and explicit motives lead to more incompatible behavioral tendencies (McClelland et al., 1989). Simply put, if I do not know my deeper needs and motives, and my self-concept does not fit my deeper needs, I may develop goals that are discrepant from my deeper needs. Epstein (1998) and McClelland et al. (1989) emphasized the hazards of such a conflicting situation. As McClelland et al. (1989) phrased it, “Whatever the reasons for discordance between implicit and explicit motives, it can certainly lead to trouble” (p. 700).

Several researchers have taken up this assumption, extended it theoretically, and provided empirical support. The authors of self-determination theory, for example, accumulated evidence that congruence between explicit goals and basic needs relate to task enjoyment, mental health, and personal success; the opposite is true for goals discrepant to one’s basic needs (Deci & Ryan, 1985, 2000; Ryan & Deci, 2000; Ryan et al., 1996). In a related approach, Sheldon and Elliot’s (1999) self-concordance model suggests that “self-concordant” goals positively influence intrinsic motivation, goal attainment, and subsequent well-being. In line with this prediction, Sheldon and Kasser (1995) found that integration between goals and deeper needs relates to health, well-being, and engagement in meaningful activities. Likewise, Brunstein et al. (1998) found that prog-

ress toward goals incongruent to one's implicit motives impaired emotional well-being. In sum, there is ample evidence for positive effects of congruence of implicit and explicit motives as well as for negative psychological consequences from IED.

VOLITIONAL REGULATION

The basic idea common to most approaches of volitional regulation is that intrinsically motivated behavior (i.e., behavior in accord with one's basic needs and motives; Deci & Ryan, 2000) does not need volitional regulation (Karoly, 1995). In contrast, volition is needed to compensate for insufficient motivation, particularly to act against intrinsically motivated behavioral tendencies or to act in the absence of intrinsic motivation (Kehr, *in press*; Kuhl & Goshke, 1994; Sokolowski, 1993).¹ From a functional perspective, volitional regulation may be defined as a set of psychological processes that support explicit action tendencies against competing behavioral impulses (Kehr, *in press*; Kuhl, 2000). Constructs closely related to volition are willpower (Metcalf & Mischel, 1999; Mischel, 1996), motivational skill (R. Kanfer & Heggestad, 1997), and self-control in its narrow sense, that is, as an exertion of control to override or inhibit competing urges (Muraven & Baumeister, 2000).

Situations that require volitional regulation include dieting, refraining from smoking, resisting temptations, delaying gratification, suppressing unwanted thoughts or emotions, and persistence (Muraven & Baumeister, 2000). To fulfill such tasks, a wide array of volitional strategies can be employed (cf. Kehr, *in press*; Kuhl, 1985; Kuhl & Fuhrmann, 1998; Metcalfe & Mischel, 1999). Key volitional strategies include motivation control (i.e., developing positive goal-related fantasies in the face of difficulties) (cf. Lewin, 1926; Mischel, 1996), emotion control (i.e., adjusting one's emotions to the demands of the current intention) (cf. Forgas, Johnson, & Ciarrochi, 1998; Gross, 1999), attention control (i.e., focusing attention on those aspects relevant for implementing the current intention) (cf. Atkinson & Birch, 1970; James, 1890/1981; Norman & Shallice, 1986), and decision control (i.e., employing mechanisms to arrive at a decision quickly and avoid rumination) (cf. Koole, Smeets, van Knippenberg, & Dijksterhuis, 1999; Michotte & Prüm, 1910).

DEPLETION OF VOLITIONAL STRENGTH

A recent research trend focuses on failures in self-regulation (Baumeister & Heatherton, 1996; Wegner, Erber, & Zanakos, 1993). Some experimental evidence indicates that one act of self-control (e.g., suppressing thoughts about white bears) can interfere with subsequent acts requiring self-control (e.g., suppressing

amusement while watching a funny movie) (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven & Baumeister, 2000; Muraven, Tice, & Baumeister, 1998). Conversely, behavior requiring effort but not volitional self-control (e.g., solving math problems) does not impair subsequent self-control (Muraven et al., 1998, Experiment 3; cf. DeShon, Brown, & Greenis, 1996).

From these findings, Muraven and Baumeister (2000) concluded that "different forms of self-control draw on a common resource" (p. 248) and that "acts of volition and self-control require strength" (p. 248). This "self-control strength" or "volitional strength" is limited in the sense that it is expended during volitional regulation. Hence, volitionally regulated actions may deplete volitional strength. The concept of volitional strength extends classical ideas of will (James, 1890/1981; Wundt, 1896/1907) and more recent approaches to volitional regulation (R. Kanfer & Heggestad, 1997; Kuhl, 2000; Metcalfe & Mischel, 1999; Rosenbaum, 1998) because the strength concept also implies that volitional strength can be depleted by volitional action (Baumeister et al., 1998; Muraven & Baumeister, 2000). This important aspect is not stressed in other approaches.

THE PRESENT RESEARCH

Several researchers speculated about relations between IED and volitional regulation (Brunstein, Schultheiss, & Maier, 1999; Emmons, 1999; Epstein, 1998; Ryan et al., 1996). Ryan et al. (1996) noted that extrinsic actions, resulting from goals discrepant to basic needs, might need volitional initiation. A theoretical frame for this notion is provided by Kehr's (*in press*) compensatory model, according to which volition compensates for insufficient motivation due to implicit/explicit motive discrepancies. Conversely, Karoly (1995) suggested that volitional regulation would be unnecessary if there were no such discrepancies. He wrote, "Clearly, if a person's actions automatically or naturally matched her or his intentions, there would be little need for a process model of volition" (Karoly, 1995, p. 262).

Despite these speculations, the relation between IED and volitional regulation has not been empirically explored. Hence, this research aimed at relating IED and volitional regulation, particularly with respect to the notion of volitional strength and volitional depletion. The underlying rationale was that IED lead to conflicting behavioral tendencies. To resolve these conflicts, volitional regulation is required, which consumes volitional strength and results in volitional depletion (cf. Kehr, *in press*). This reasoning is consistent with Emmons's (1999) suggestion that "conflicting motives systems are a source of self-regulatory failure" (p. 67). Therefore, the general proposition of this research was that IED cause a depletion of volitional strength.

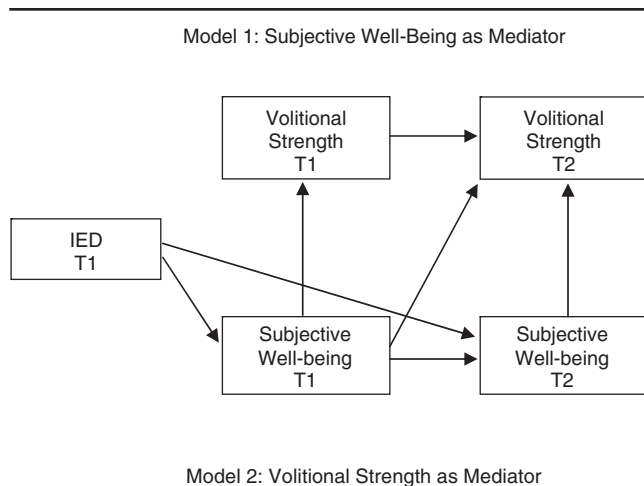


Figure 1 Two alternative mediation models of implicit/explicit motive discrepancies (IED), volitional strength, and subjective well-being.

NOTE: T1 = Time 1; T2 = Time 2.

A second goal of this research was to explore the consequences of a depletion of volitional strength. In particular, it seemed possible that the well-sustained relation of IED and impaired well-being (Brunstein et al., 1998; Sheldon & Kasser, 1995) is mediated by a depletion of volitional strength. This suggests that IED deplete volitional strength and that this depletion might be responsible for subsequent impediments of well-being. On the other hand, it seemed possible that IED directly impair affective well-being and that volitional strength is necessary to “repair” (Josephson, Singer, & Salovey, 1996) such unwanted emotional responses. This suggests that well-being mediates the IED–volitional strength relation. In principle, both of these alternative mediation chains seemed possible.

Figure 1 illustrates the two alternative mediation models that were to be tested. Model 1 suggests that subjective well-being (SWB) mediates the influence of IED on volitional strength, whereas Model 2 suggests that volitional strength mediates the influence of IED on SWB. Adopting the notion of Phillips and Gully (1997) that “motivation is an unfolding process over time” (p. 797), it was expected that latent conflicts between implicit and explicit motive systems would directly influence the respective mediators not only at Time 1 but also at Time 2. Hence, both models predict direct effects of IED on both the Time 1 and Time 2 measures of the respective mediators.

A longitudinal study with two measurement periods was conducted to examine the empirical relations among IED, volitional strength, and SWB; to test the proposition that IED deplete volitional strength; and to

explore possible mediation effects of these processes on SWB. To secure the external validity of the research, an applied setting was chosen: the management domain.

METHOD

Sample and Procedure

Managers participating in this study were recruited in cooperation with personnel departments of companies enrolled on a mailing list at the University of Munich, Germany. In return for filling out questionnaires, participants were given confidential feedback on their personal results.

Data were collected at two measurement periods, with a time span of approximately 5 months between first (Time 1) and second (Time 2) data collection. The predictor, IED, was assessed at Time 1. The presumed mediators and dependent variables, volitional strength and SWB, were assessed twice, at Time 1 and at Time 2 (5 months after Time 1).

At Time 1, 129 questionnaires were distributed to managers in middle and lower management; 109 participants filled out the first questionnaire, 86 of those also filled out the second questionnaire at Time 2. There were no significant differences between those who dropped out after the first measurement and those remaining in the sample. Four participants were excluded from the analyses due to missing data. Thus, complete data sets were available for 82 managers. Representing 12 German industry and trade companies of different branches, the participants of this study were heterogeneous with respect to education and functional background. All participating managers were Caucasian; 23 participants were female and 59 were male. Participant ages ranged from 29 to 62 ($M = 40.5$, $SD = 8.9$). Because no substantial gender or age effects with respect to study variables were found, gender and age effects will not be discussed further.

Measures

Explicit motives. Explicit motives were assessed using the German version of Jackson’s (1984) Personality Research Form (PRF) (Stumpf, Angleitner, Wieck, Jackson, & Beloch-Till, 1985). Three subscales of the PRF were used, each consisting of 16 self-report statements: dominance (PRF-DO) (e.g., “I try to control others rather than permit them to control me”), achievement (PRF-AC) (e.g., “I enjoy doing things which challenge me”), and affiliation (PRF-AF) (e.g., “At a party, I usually sit back and watch the others,” inversely coded). Summary scores for the subscales were computed by adding up the scores of the respective 16 items. Scores on the PRF-DO scale ranged from 2 to 16 ($M = 9.61$, $SD = 3.54$), scores on the PRF-AC scale ranged from

8 to 16 ($M = 12.79$, $SD = 1.96$), and scores on the PRF-DO scale ranged from 3 to 16 ($M = 10.93$, $SD = 3.49$).

Implicit motives. Most research on the relation between implicit and explicit motive systems used the Thematic Apperception Test (TAT) (Murray, 1943) to measure implicit motives (Brunstein et al., 1998; Emmons & McAdams, 1991; Spangler, 1992). However, our pilot studies with management samples showed high drop-out rates on the TAT. Therefore, it was decided to use the Multi-Motive-Grid (MMG) (Sokolowski et al., 2000) to assess implicit motives. It was known from earlier studies that the MMG has good acceptance in management samples (Kehr, 2002; Sokolowski & Kehr, 1999).

The MMG, which has a long research tradition (Schmalt, 1976), is a semiprojective diagnostic tool to assess implicit motives (Sokolowski et al., 2000; cf. Schmalt, 1999). Similar to the TAT, the MMG uses pictorial stimulus material. In contrast to picture-story tests such as the TAT, however, the MMG does not require participants to write stories but to choose from a set of statements all those statements fitting a particular picture. Examples of statements are "Feeling good about one's competence" (achievement), "Hoping to get in touch with other people" (affiliation), and "Trying to influence other people" (power/dominance). Motive scores are calculated by summing up the respective scores for 14 pictures. Conceptually, motive scores range from 1 to 12.

Sokolowski et al. (2000) reviewed several studies showing that internal consistency and reliability of the MMG are high. Prior research also confirmed the differential validity of the MMG motive scores despite their substantial intercorrelations, which constantly fall in the range between .50 and .70 (Sokolowski et al., 2000). In particular, the MMG achievement motive predicted optimism (Puca & Schmalt, 2001) and performance in tasks with achievement-thematic content (Puca & Schmalt, 1999), the MMG power motive predicted successful leadership (Sokolowski & Kehr, 1999), and the MMG affiliation motive predicted the portion of affiliation-related activities during the day (Sokolowski et al., 2000).

This study employed the German version of the MMG (Schmalt, Sokolowski, & Langens, 2000) and used three MMG scores: achievement (MMG-AC), affiliation (MMG-AF), and power/dominance (MMG-DO). Scores on the MMG-AC scale ranged from 3 to 12 ($M = 7.39$, $SD = 2.02$), scores on the MMG-AF scale ranged from 1 to 11 ($M = 6.15$, $SD = 2.48$), and scores on the MMG-DO scale ranged from 1 to 12 ($M = 8.03$, $SD = 2.35$).

Three arguments, in particular, lead to the suggestion that the MMG is indeed measuring implicit, not explicit, motives. First, the MMG does not assess self-ascriptions about one's motives. According to McClelland et al. (1989), this would be a necessary feature of any assessment of explicit motives. Second, correlations between

TABLE 1: Intercorrelations Among MMG Motives and PRF Motives

Variable	1	2	3	4	5
1. MMG-AC					
2. MMG-AF	.42***				
3. MMG-DO	.46***	.48***			
4. PRF-AC	.28**	.14	.11		
5. PRF-AF	.21	.14	.03	.24*	
6. PRF-DO	.28*	.23*	.19	.47***	.42***

NOTE: $N = 82$. MMG = Multi-Motive-Grid; MMG-AC = implicit achievement motive; MMG-AF = implicit affiliation motive; MMG-DO = implicit power/dominance motive; PRF = Personality Research Form; PRF-AC = explicit achievement motive; PRF-AF = explicit affiliation motive; PRF-DO = explicit power/dominance motive.

* $p < .05$. ** $p < .01$. *** $p < .001$.

MMG motives and measures of explicit motives, such as the PRF, were consistently found to be low (Sokolowski et al., 2000), which parallels the well-known research on implicit/explicit motive discrepancies that used the TAT to assess implicit motives (Brunstein et al., 1998; Emmons & McAdams, 1991; Spangler, 1992). Similar to Thrash and Elliot's (2002) findings for TAT and PRF motives, in the present study, correlations between MMG motives and PRF motives (see Table 1) were statistically significant but relatively low² (the common variance not exceeding 8%), particularly in comparison to the substantial intercorrelations among MMG motives and among PRF motives.³ Third, three independent studies found that MMG motive scores predict task enjoyment (Puca & Schmalt, 1999), intrinsic motivation (Sokolowski & Kehr, 1999), and thematic content of daily activities (Sokolowski et al., 2000). These variables are associated with implicit rather than explicit motives (Deci & Ryan, 2000; Koestner et al., 1991). Taken together, it seems safe to conclude that the MMG measures aspects of implicit rather than explicit motive systems.⁴

Implicit/explicit motive discrepancies (IED). Using standardized scores (z values), absolute differences between measures of the MMG and the PRF were calculated for each of the three motives under consideration. To obtain a composite discrepancy measure, the absolute difference scores were aggregated. Several authors working on motivationally relevant self-discrepancies have employed similar discrepancy measures (Boldero & Francis, 2000; Brunstein et al., 1998; Gramzow, Sedikides, Panter, & Insko, 2000; Higgins, 1998). However, the use of a discrepancy measure may require additional comments because of the controversies in the literature about the adequacy of discrepancy measures (Edwards, 1991, 1994; Kristof, 1996; Rogosa, 1995).

Edwards (1991, 1994) criticized discrepancy measures, particularly absolute difference scores (as used in the present research) because they ignore the direc-

tionality of the difference. However, this objection is not a serious concern here because this research did not specify differential predictions for a predominance of implicit or explicit motive scores, respectively. Psychological conflicts requiring volition are expected regardless of whether implicit motives are higher than explicit motives or vice versa.

Another problem with discrepancy measures is that they do not equally represent component measures "unless the variances of these measures happen to be equal" (Edwards, 1994, p. 60). The problem was avoided in this analysis by standardizing component measures before calculating discrepancy scores.

Moreover, several authors noted that discrepancy measures may be unreliable (for a review, see Rogosa, 1995). However, Rogosa (1995) claimed no unreliability if the component correlation is lower than .40. Clearly, this applies to the relationship between implicit and explicit motives because intercorrelations are consistently much lower (Sokolowski et al., 2000; Spangler, 1992).

On the other hand, it was noted that discrepancy scores may offer some advantages. In particular, discrepancy scores are relatively unobtrusive because the purpose of the research is not obvious to the respondents. This reduces the probability of alternative explanations for the results (e.g., demand effects, general optimism, or consistency bias) and related problems of alternative methods such as Edwards's (1994) technique of analyzing the component parts (cf. Kristof, 1996). Moreover, it is intuitively compelling to use a discrepancy measure to operationalize discrepancies. This is why traditional research on discrepancies (for a review, see Edwards, 1991, 1994) and contemporary approaches to self-discrepancies (Boldero & Francis, 2000; Brunstein et al., 1998; Gramzow et al., 2000; Higgins, 1998) used discrepancy measures. Alternative techniques, such as the polynomial regression proposed by Edwards (1994), are not without limitations (Edwards, 1994; Kristof, 1996) and do "not address the same construct as would analyzing a difference score" (Kristof, 1996, p. 17; for a similar argument, see Edwards, 1994, p. 89). In sum, these arguments seemed to justify using a discrepancy measure in the present research.

Volitional strength. Prior research on the strength model of volition (for a summary, cf. Muraven & Baumeister, 2000) did not measure volitional strength directly but only inferred volitional strength from experimental findings. To delve deeper into the issue of volitional depletion, it was attempted in the present study to directly assess volitional strength. This investigation used the German version (cf. Kuhl & Fuhrmann, 1997) of the Volitional Components Inventory (VCI) (Kuhl & Fuhrmann, 1998). The VCI is based on Kuhl's (2000) personality systems interaction theory, a functional

approach to self-regulation (cf. Kuhl, 1985; Kuhl & Goschke, 1994) well suited to the compensatory model of motivation and volition (cf. Kehr, in press). Internal consistency and reliability of the VCI are satisfactory (Kehr, Bles, & von Rosenstiel, 1999; Kuhl & Fuhrmann, 1998; Orbell, 2003). Studies corroborated the external validity of the instrument, showing that the VCI predicted enactment of difficult behaviors associated with self-control, such as studying for classes (Orbell, 2003), enactment of transfer intentions in management training (Kehr et al., 1999), and children's resistance to temptation (Kuhl & Fuhrmann, 1998, p. 33). A recent study (Kehr, 2002) showed that a VCI-based measure of volitional strength mediated the well-known relation between fear motives, development of unwanted intrusive thoughts, and subsequent decreases in well-being. Taken together, these findings support Ryan's (1998) view: "The VCI thus has great heuristic value for diagnosing problems in motivation" (p. 119).

Four subscales of the VCI were used: motivation control, emotion control, attention control, and decision control. Subscales of the German version of the VCI consist of six items each but their psychometric properties are largely identical with the eight-item subscales of the English version (cf. Kuhl & Fuhrmann, 1997, 1998). The general question was "How often did you recently experience the following processes/situations?" followed by the catalog of items. Examples of the items are "considering positive incentives concerning this matter" (motivation control), "cheering myself up to make things work" (emotion control), "trying consciously to keep my attention stable" (attention control), and "having no difficulties with spontaneous decisions" (decision control). Participants rated each descriptive item on 7-point scales (from 1 = *very rarely* to 7 = *very often*). The four subscales were aggregated to obtain a composite measure of volitional strength (24 items, $\alpha = .89$).

The rationale underlying the decision to use the VCI to measure volitional strength was that people who indicate that they often employ volitional strategies (at least those strategies that are known to be of behavioral advantage, and only these are of concern in the present study) have a higher volitional strength than those people who indicate they use these strategies less often. For example, people who often cheer themselves up to make things work (i.e., emotion control) are assumed to have higher volitional strength than people who use this potentially advantageous strategy less often (cf. on the advantages of emotion control, Forgas et al., 1998).

SWB. Generally, SWB is thought to consist of positive affect, negative affect, and life satisfaction (Brunstein, 1993; Diener, 2000). Life satisfaction, the cognitive aspect of well-being, is conceptualized as a "global evaluation by the person of his or her life" (Lucas, Diener, &

Suh, 1996, p. 616). Because this study focused on affective correlates of IED and volitional strength, life satisfaction was not included in the SWB measure.

Positive and negative affect were measured using the 16-item instrument introduced by Brunstein, Lautenschlager, Nawroth, Pöhlmann, and Schultheiss (1995). Brunstein (1993) and Lucas et al. (1996) used similar procedures. Participants read, "How often have you recently experienced the following moods" and then rated emotional adjectives on 7-point scales from *never* (1) to *very frequently* (7). Positive affect was assessed using an aggregated measure of the elated mood (happy, joyful, pleased, and excellent) and the activation subscale (energetic, active, cheery, and vigorous). Negative affect was assessed using a composite measure of the depressed mood (dejected, distressed, sad, and depressed) and the energy deficit subscale (limp, unmotivated, sluggish, and inert).

Some authors suggested that positive and negative affect are independent constructs and that their scales should hence be treated separately (Diener & Emmons, 1984; Lucas et al., 1996; Omodei & Wearing, 1990). Brunstein et al. (1998), however, aggregated positive and negative affect and used one composite affect measure. This decision was based on three reasons, which also apply to the present research: First, all affect items loaded on one principal factor, which accounted for more than 57% of the common variance. Second, correlations between positive and negative affect were high ($r = .75, p < .001$). Finally, results for the composite measure of SWB were similar to results obtained with separate measures of positive and negative affect. Therefore, it seemed justifiable to aggregate positive affect and negative affect (reverse coded) to obtain a comprehensive measure of SWB (24 items, $\alpha = .95$).

RESULTS

Descriptive Analyses

Table 2 presents descriptive statistics and intercorrelations of the variables of this study. In line with predictions, IED were negatively correlated with volitional strength at Time 1 ($r = -.36, p < .01$) and at Time 2 ($r = -.29, p < .01$). IED also were negatively associated with SWB at Time 1 ($r = -.27, p < .05$) but not with SWB at Time 2 ($r = -.14, ns$). In addition, the intercorrelation matrix shows significant correlations between Time 1 volitional strength and Time 1 SWB ($r = .50, p < .001$) and between Time 2 volitional strength and Time 2 SWB ($r = .55, p < .001$).

Mediational Analyses

To test whether Model 1 or Model 2 (see Figure 1) better fit the data, mediational analyses were conducted

TABLE 2: Descriptive Statistics and Interscale Correlations of Study Variables

Variable	1	2	3	4	5	M	SD
1. IED (Time 1)						1.04	0.48
2. Volitional strength (Time 1)	-.36**	(.89)				4.75	0.66
3. SWB (Time 1)	-.27*	.50***	(.95)			5.34	1.06
4. Volitional strength (Time 2)	-.29**	.58***	.46***	(.88)		5.14	0.54
5. SWB (Time 2)	-.14	.13	.57***	.55***	(.91)	5.71	0.69

NOTE: $N = 82$. Figures in parentheses are reliability estimates by coefficient alpha. IED = implicit/explicit motive discrepancies; SWB = subjective well-being.

* $p < .05$. ** $p < .01$. *** $p < .001$.

with structural equation modeling (SEM) using AMOS 4 (Arbuckle, 1997) and maximum likelihood estimation.

Specifying the models. The mediational models were specified as follows: IED was the exogenous variable, whereas the dependent variables and presumed mediators (Time 1 volitional strength, Time 2 volitional strength, Time 1 SWB, and Time 2 SWB) were endogenous variables. In addition, exogenous error terms were included for each endogenous variable.

Estimating the models. The fit of the models was evaluated using chi-square statistics, goodness-of-fit index (GFI) (Jöreskog & Sörbom, 1984), comparative fit index (CFI) (Bentler, 1990), and root mean square error of approximation (RMSEA) (Browne & Cudeck, 1993).

Model 1, proposing that SWB mediates the IED-volitional strength relation, did not fit the data well, $\chi^2(3, N = 82) = 10.628, p = .014$ (GFI = .953; CFI = .943; RMSEA = .177, $p < .030$). Attempts to improve the model fit by minor modifications (i.e., eliminating the direct link from IED to Time 2 SWB, introducing an additional link from Time 1 volitional strength to Time 2 SWB, and eliminating the link from Time 1 SWB to Time 2 volitional strength) did not significantly improve the chi-square statistics or yield an adequate model fit. For all of these models, the p s for the chi-square statistics were less than .082, GFIs and CFIs were smaller than .970, and RMSEAs exceeded .123.

In contrast, Model 2, proposing that volitional strength mediates the IED-SWB relation, did provide good model fit, $\chi^2(3, N = 82) = 3.178, p = .365$ (GFI = .985; CFI = .999; RMSEA = .027, $p < .453$). However, analysis of regression weights of this model showed that the link from IED to Time 2 volitional strength was not significant ($\beta = -.10, ns$). Therefore, a more constrained model

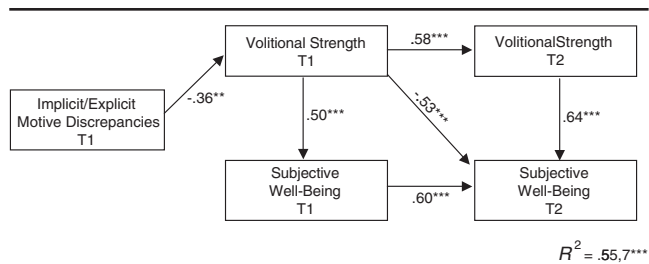


Figure 2 Final mediation model of implicit/explicit motive discrepancies, volitional strength, and subjective well-being.

NOTE: $N = 82$. Path values represent standardized regression coefficients. T1 = Time 1; T2 = Time 2.

** $p < .01$. *** $p < .001$.

was investigated to see if it would still produce a good fit. Elimination of the IED–Time 2 volitional strength link resulted in a nonsignificant chi-square increase, $\chi^2_{\text{diff}}(1, N = 82) = 1.100$, *ns*, indicating that the more constrained model was not inferior to the less constrained model. The more constrained model still provided good fit to the data, $\chi^2(4, N = 82) = 4.278$, $p = .370$ (GFI = .978; CFI = 0.998; RMSEA = .029, $p < .427$). Hence, the more restricted, and therefore stronger, model was preferred to the less restricted model. Any further modifications to the model were not indicated by the data and did not result in significant improvements with respect to model fit.

The final model (see Figure 2) suggests that all negative effects of IED on the dependent variables are fully mediated via the negative link between IED and Time 1 volitional strength ($\beta = -.36$, $p < .01$). This model accounts for 55.7% of the variance of Time 2 SWB ($p < .001$). Adopting the suggestion of Cohen and Cohen (1983)—to obtain indirect effects by estimating products of the respective path coefficients—it was found that IED exerted negative indirect effects on Time 1 SWB ($\beta = -.18$) and on Time 2 volitional strength ($\beta = -.21$). There were no substantial indirect effects of IED on Time 2 SWB ($\beta = -.07$). This is partly due to the fact that contrary to expectations, there was a negative link between Time 1 volitional strength and Time 2 SWB ($\beta = -.53$). However, this direct and negative effect was counterbalanced by indirect and positive influences of Time 1 volitional strength on Time 2 SWB ($\beta = .67$); the total effect of Time 1 volitional strength on Time 2 SWB was small but positive ($\beta = .13$).

Additional Subgroup Analyses

The discrepancy measures used in these analyses may obscure subgroup differences in volitional strength resulting from the direction of the discrepancy. Two possibilities come to mind. Individuals high on both implicit and explicit motive may differ from individuals low on

both implicit and explicit motive. Alternatively, individuals high on implicit motive and low on explicit motive may differ from those low on implicit motive and high on explicit motive. Even if such differences were not hypothesized initially, the issue must be examined.

For each motive considered in this study (i.e., power/dominance, affiliation, and achievement), the following analyses were conducted. Median splits of the respective implicit and explicit motive scores created four groups: individuals low on implicit motive and low on explicit motive (low/low), individuals low on implicit motive and high on explicit motive (low/high), individuals high on implicit motive and low on explicit motive (high/low), and individuals high on implicit motive and high on explicit motive (high/high). In a repeated-measures design, 4×2 ANOVAs were calculated using Time 1 and Time 2 volitional strength as within-subject factors.

For the affiliation motive, results show no significant effects of the between-subject factor, $F(3, 78) = 2.15$, $p = .10$. However, for the achievement motive, $F(3, 78) = 8.25$, $p < .001$, and the power/dominance motive, $F(3, 78) = 8.49$, $p < .001$, respectively, significant subgroup differences were found. For the achievement motive, post hoc tests (Scheffé) revealed that the low/low group had significantly lower volitional strength than the high/high group ($p < .001$); no significant differences were found between the low/high and the high/low group. For the power/dominance motive, post hoc tests did not find differences between the high/high and the low/low group or between the high/low and the low/high group. Here, the high/low group had significantly lower volitional strength than the low/low group ($p < .05$) and the high/high group ($p < .001$). This is consistent with the central proposition of this study that individuals with high implicit/explicit motive discrepancies have lower volitional strength than those with low discrepancies.

DISCUSSION

This research theoretically and empirically explored the interrelations between implicit/explicit motive discrepancies (IED) and volitional self-regulation. The underlying assumption was that IED predispose the person to motivational conflict. Resolving this conflict requires volitional conflict regulation, thereby consuming and reducing volitional strength. Thus, the proposition was that IED reduce volitional strength. An additional, exploratory goal of this research was to examine mediational processes by which IED influence volitional strength and subjective well-being (SWB).

In line with predictions, the study reported here yielded a negative cross-lagged correlation between IED and volitional strength. Discrepancies between implicit and explicit motives were longitudinally predictive of

reduced volitional strength. Moreover, structural equation modeling validated volitional strength at Time 1 as a mediator of IED-related impediments in SWB.

Theoretical Implications

The study reported here replicated previous work in that discrepancies between implicit and explicit motives were negatively associated with SWB (Brunstein et al., 1998; McClelland et al., 1989; Ryan & Deci, 2000; Sheldon & Kasser, 1995). The unique contribution of this study, however, was to show that IED were negatively correlated with volitional strength. In particular, the results lend preliminary support to the notion that IED might be associated with a depletion of volitional strength, which was derived from an application of Kehr's (in press) compensatory model of work motivation and volition. IED, which constitute latent behavioral conflict and which are conceptualized at a rather abstract level of representation, require volitional strength, just as single and manifest instances of volitional regulation do (e.g., suppressing thoughts about white bears; cf. Muraven et al., 1998).

These findings were obtained in field research with managers and, hence, sustain the ecological validity of the phenomenon of volitional depletion (Baumeister et al., 1998; Muraven & Baumeister, 2000) demonstrated previously in experimental but not in field settings. Moreover, the fact that this study's findings are consistent with previous research, even though volitional strength was measured rather than inferred as in previous experiments on volitional depletion (cf. Muraven & Baumeister, 2000), lends further credence to the construct of volitional strength.

This investigation also provides new impulses for dual system approaches on human motivation. Researchers in this field have accumulated a growing body of evidence for the negative impact of IED on well-being and health (Brunstein et al., 1998; McClelland et al., 1989; Ryan & Deci, 2000; Sheldon & Kasser, 1995), but they have not yet studied how people respond to IED-related conflicts. To be sure, several authors have speculated that IED might require volitional regulation (Brunstein et al., 1999; Emmons, 1999; Epstein, 1998; Kehr, in press; Ryan et al., 1996), but no attempts have yet been made to empirically examine the issue.

The structural equation model obtained in this study is consistent with the notion that decrements of self-regulatory potential are not caused by antecedent affective reactions (Muraven & Baumeister, 2000; Muraven et al., 1998; Tice, Bratslavsky, & Baumeister, 2001). This refutes the alternative proposition that volitional depletion might only be a by-product of affective responses, with the latter being the psychologically active agent. Quite the reverse, volitional strength mediated the influ-

ence of IED on SWB. This is one of the first demonstrations of a mediating function of volitional strength; only one prior study could be found that indicated such mediating effects of volitional strength (cf. Baumeister et al., 1998, Study 4).

From their experimental findings with single volitional acts, Muraven and Baumeister (2000) concluded that "the decrease in self-control strength is presumably not permanent. People normally regain their lost strength, provided that conditions are favorable" (p. 248). In the present research, however, the decrease of volitional strength could still be observed approximately 5 months after IED had been assessed. Obviously, IED do not constitute a "favorable condition" in the sense of the quotation above but rather a latent cause for persistent conflict. Muraven and Baumeister also noted the possibility of self-regulatory deficits becoming chronic, and it seems likely that IED constitute a major risk factor here.

Practical Implications

Given the scant data on the relation of implicit and explicit motives and on volitional regulation in applied settings, this research is particularly relevant for applied purposes. It shows that people in management may suffer from IED by experiencing impediments of volitional strength and subsequent well-being. Of course, it would be interesting to examine whether these findings can be replicated in the field using nonmanagerial samples.

Muraven and Baumeister (2000) described volitional strength with the metaphor of a muscle. The muscle metaphor highlights two aspects of volition. On one hand, volitional strength can be depleted by (excessive) use, whereas on the other hand, volitional strength may be built up with continuous exercise. The present study corroborated the former notion but found no indication to sustain the latter. People with significant IED might have frequent opportunities to exercise and train their volitional repertoire because IED give rise to recurring conflict (McClelland et al., 1989; Sheldon & Kasser, 1995) requiring volitional regulation. Hence, if frequent usage of volitional strategies resulted in extended volitional strength, it could be expected that people prone to IED would acquire considerable volitional strength. The data disprove this proposition. Large IED are not accompanied by elevated levels of volitional strength. Obviously, volitional strength cannot be expected to automatically result from learning by doing. Building up volitional strength may require opportunities to exert both self-control and rest. Regular rest periods may be just as essential as the exertion of self-control.⁵ Presumably, IED give rise to continuous conflict that does not permit the rest periods required to enhance volitional strength.

Combinations of self-control exercises and rest periods can be provided in systematic training programs (F. H. Kanfer & Karoly, 1982; Muraven, Baumeister, & Tice, 1999; Prussia, Anderson, & Manz, 1998). The findings of this study suggest two possible intervention strategies: metavolition and metamotivation (cf. Kehr & von Rosenstiel, in press). Metavolitional techniques indirectly intervene in the mediational chain by increasing volitional strength and improving volitional strategies. Metamotivational techniques reduce discrepancies between implicit and explicit motives of the person and enhance the person's "organismic congruence" (Sheldon & Kasser, 1995; cf. Ryan et al., 1996). Therefore, metavolition improves volitional strategies to handle behavioral conflict, whereas metamotivation avoids behavioral conflict and the necessity of volition. Hence, metamotivation is the more fundamental and far-reaching strategy, intending increased intrinsic motivation, absence of volitional activity, and increased well-being.

Limitations and Directions for Future Research

The final model obtained in the study reported here included a negative direct link of Time 1 volitional strength on Time 2 SWB. Although this unexpected and counterintuitive finding does not touch on the primary aim of this research, which was to show that IED are associated with decreases in volitional strength, it clearly warrants explanation. Two possible explanations, one methodological and the other theoretical, come to mind. From a methodological perspective, Cohen and Cohen (1983) suggested not devoting too much attention to sign reversals of single direct effects in path models, provided that these sign reversals are counterbalanced by more pronounced indirect effects in the expected direction. This applies to this study because the direct and negative effect of Time 1 volitional strength on Time 2 SWB was counterbalanced by more pronounced, indirect, and positive effects, resulting in a total effect that was positive.

The negative direct link between Time 1 volitional strength and Time 2 SWB also may be theoretically explained. Some authors have theorized about a negative relation between volitional processes and well-being, consistent with the notion that the volitional enactment of difficult intentions is generally experienced as unpleasant and effortful (Muraven & Baumeister, 2000; Polivy, 1998; Sokolowski, 1993). Kuhl (2000) took the opposite viewpoint when he asserted a positive relation between volition and affective processes. According to the "first modulation assumption" of his personality systems interaction theory (Kuhl, 2000), the volitional enactment of a difficult intention is associated with an "upregulation" of positive affect because positive affect is assumed to enhance the accessi-

bility of intention memory (cf. Kuhl & Kazén, 1999). Kuhl (2000) explicitly asserted that the duration of the positive association between volitional regulation and positive affect is short.

The findings of the present study might help to solve this apparent controversy. Consistent with Kuhl's (2000) model, both studies conducted here show that volitional strength was positively associated with affective well-being, but only if constructs measured at the same time are considered. Longitudinally, however, Time 1 volitional strength was found to exert a negative direct effect on Time 2 SWB. This is consistent with the notion that volitional regulation, in the long run, may impair the person's affective well-being (Muraven & Baumeister, 2000; Polivy, 1998; Sokolowski, 1993). Clearly, this is only a post hoc explanation because there had been no specific hypotheses with respect to the directionality of the relationship between volition and well-being at the outset of this research. Thus, further research is needed to delve deeper into this issue.

The discrepancy measure may have obscured subgroup differences in volitional strength. However, post hoc analyses of variance confirmed that it did not matter if individuals with high discrepancy scores were high on implicit and low on explicit motives or vice versa. This is consistent with the compensatory model (Kehr, in press), which asserts a two-fold function of volitional regulation: to support explicit motives incongruent to implicit motives (a self-control problem for individuals low on implicit but high on explicit motives) and to suppress thoughts and temptations resulting from aroused implicit motives but incongruent to one's actual explicit motives (a self-control problem for individuals high on implicit but low on explicit motives).

Further analyses revealed some subgroup differences, but only in the thematic domain of the power/dominance motive, not the affiliation or the achievement motive. Individuals high on both implicit and explicit power/dominance motive had higher volitional strength than those low on both implicit and explicit power/dominance motive. This unexpected finding may indicate possible differences between the power motive and the other two motives considered in this study. For example, because the power motive is associated with the need to influence and control others, it seems possible that people high on implicit and explicit power motive face more social reactance and thus may have more opportunity to practice their volitional strength. Additional research would be necessary to illuminate these issues.

A limitation of this research is that volitional processes themselves have not been directly observed but only inferred. As Muraven and Baumeister (2000) noted, this drawback is pertinent to the majority of stud-

ies in this area of research. As an initial step to overcome this problem, it would be desirable if additional research measured volitional strength at multiple periods during the volitional episode.

Moreover, it may seem a limitation of this research that measurement of volitional strength relied solely on self-reports. However, it is difficult to assess internal, action-related conflicts and volitional conflict resolution strategies without self-reports. Rosenbaum (1998) stated, "Self-report with all its inherent flaws is still the most efficient way to assess self-control skills" (p. 70). Although self-reports only measure subjectively experienced volitional strength, some authors argued that "*perception* of control rather than the actual *attainment* or exercise of control" (Pyszczynski, Greenberg, & Solomon, 1998, p. 90) is responsible for goal attainment and well-being (cf. Ajzen, 1991). Clearly, the measurement of volitional strength has just begun, and it demands collaborative efforts to develop instruments that will contribute to progress in this field.

To more closely relate field and experimental research on volitional depletion, it is an intriguing task to examine if people with IED also have impaired ability to exert single volitional acts. For testing this differential hypothesis in the experimental paradigm of Baumeister et al. (1998), researchers could pre-experimentally assess the subjects' motives and analyze whether IED predict context-specific and differential self-regulatory failures. For example, a person high on self-attributed, explicit achievement motive but low on implicit achievement motive should be particularly prone to volitional depletion in achievement-related situations.

Another open question is whether discrepancies between two explicit motives (EED) or discrepancies between two implicit motives (IID) have similar detrimental effects as IED on volitional strength and SWB. Insofar as EED and IID instigate conflicting behavioral tendencies, this seems likely. However, this research focused on IED, consistent with earlier research that treated IED as the principal case (e.g., Brunstein et al., 1998; McClelland et al., 1989). Further research may result in a more complex conflict taxonomy differentiating level of conflict (i.e., EED, IED, and IID) and type of conflict (i.e., approach/approach, approach/avoidance, and avoidance/avoidance conflicts) as a supplementary dimension.

Conclusion

Research in motivation and volition has reached an important transition period. In the past, dual system approaches to human motivation and theories on volitional regulation were mostly isolated from each other, each discipline being primarily occupied with documenting the existence of its main object of interest. At

present, both approaches have reached this goal. Dual system approaches have shown the relative independence of implicit and explicit motive systems and the negative impact of discrepancies between these two systems on well-being and health. Approaches on volition, again, have shown volition to be a significant and distinct psychological construct and the model of volitional strength to be a useful device to describe some of this construct's central characteristics. The future will presumably witness an amalgamation of both approaches, driven by the mutual interest to prove volitional processes are the lubricant allowing a person to overcome IED-related conflict. The present research is a preliminary step in this direction. The goal of further work should be a comprehensive theory of motivation and volition, leading to deeper understanding of the driving forces of human action and an individual's potential to actively intervene into these processes.

NOTES

1. Deci and Ryan (2000) distinguished different degrees of extrinsic motivation. Therefore, it seems reasonable to assume that more self-determined forms of extrinsic motivation (such as integration and identification) require less volitional regulation than less self-determined forms (such as introjection or external regulation). I am grateful to one anonymous reviewer who pointed this out.

2. Significant correlations were found between Multi-Motive-Grid—achievement (MMG-AC) and Personality Research Form—achievement (PRF-AC) ($r = .28, p < .01$) and Personality Research Form—dominance (PRF-DO) ($r = .28, p < .05$), respectively, and between Multi-Motive-Grid—affiliation (MMG-AF) and PRF-DO ($r = .23, p < .05$).

3. Table 1 shows that MMG motives were substantially intercorrelated (all $ps < .001$), which is consistent with earlier studies (cf. Sokolowski, Schmalt, Langens, & Puca, 2000). Similarly, intercorrelations among PRF motives equaled or exceeded .42 ($p < .001$), except for the correlation between PRF-AC and PRF-affiliation (PRF-AF) ($r = .24, p < .05$).

4. Exploratory regression analyses of the present study's data showed that after statistically controlling for PRF motives, MMG motives accounted for an incremental 7.5% of the variance of Time 1 volitional strength, $F_{\text{incr}}(3, 75) = 3.34, p < .05$, but not of Time 2 volitional strength, $F_{\text{incr}}(3, 75) = 1.79, ns$. Even if implicit motives were not predictive in the longitudinal perspective, the findings sustain the notion that implicit motives can have predictive validity beyond explicit motives.

5. I owe this insight to an anonymous reviewer.

REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Arbuckle, J. L. (1997). *Amos user guide version 3.6*. Chicago: Small Waters.
- Atkinson, J. W., & Birch, D. A. (1970). *A dynamic theory of action*. New York: John Wiley.
- Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology*, 74, 1252-1265.
- Baumeister, R. F., & Heatherton, T. F. (1996). Self-regulation failure: An overview. *Psychological Inquiry*, 7, 1-15.
- Bentler, P. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238-246.

- Boldero, J., & Francis, J. (2000). The relation between self-discrepancies and emotion: The moderating roles of self-guide importance, location relevance, and social self-domain centrality. *Journal of Personality and Social Psychology*, 78, 38-52.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.
- Brunstein, J. C. (1993). Personal goals and subjective well-being: A longitudinal study. *Journal of Personality and Social Psychology*, 65, 1061-1070.
- Brunstein, J. C., Lautenschlager, U., Nawroth, B., Pöhlmann, K., & Schultheiss, O. (1995). Persönliche Anliegen, soziale Motive und emotionales Wohlbefinden [Personal concerns, social motives, and emotional well-being]. *Zeitschrift für Differentielle und Diagnostische Psychologie*, 16, 1-10.
- Brunstein, J. C., Schultheiss, O. C., & Grässmann, R. (1998). Personal goals and emotional well-being: The moderating role of motive dispositions. *Journal of Personality and Social Psychology*, 75, 494-508.
- Brunstein, J. C., Schultheiss, O. C., & Maier, G. W. (1999). The pursuit of personal goals. In J. Brandstätter & R. M. Lerner (Eds.), *Action & self-development* (pp. 169-196). London: Sage Ltd.
- Cantor, N., & Blanton, H. (1996). Effortful pursuit of personal goals in daily life. In J. A. Bargh & P. M. Gollwitzer (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 338-359). New York: Guilford.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227-268.
- DeShon, R. P., Brown, K. G., & Greenis, J. L. (1996). Does self-regulation require cognitive resources? Evaluation of resource allocation models of goal setting. *Journal of Applied Psychology*, 81, 595-608.
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, 55, 34-43.
- Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology*, 47, 1105-1117.
- Edwards, J. R. (1991). Person-job fit: A conceptual integration, literature review, and methodological critique. In G. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 6, pp. 283-357). New York: John Wiley.
- Edwards, J. R. (1994). The study of congruence in organizational behavior research: Critique and a proposed alternative. *Organizational Behavior and Human Decision Processes*, 58, 51-100.
- Emmons, R. A. (1999). *The psychology of ultimate concerns: Motivation and spirituality in personality*. New York: Guilford.
- Emmons, R. A., & McAdams, D. P. (1991). Personal strivings and motive dispositions: Exploring the links. *Personality and Social Psychology Bulletin*, 17, 648-654.
- Epstein, S. (1998). Personal control from the perspective of cognitive-experiential self-theory. In M. Kofta, G. Weary, & G. Sedek (Eds.), *Personal control in action: Cognitive and motivational mechanisms* (pp. 5-26). New York: Plenum.
- Forgas, J. P., Johnson, R., & Ciarrochi, J. (1998). Mood management: The role of processing strategies in affect control and affect infusion. In M. Kofta, G. Weary, & G. Sedek (Eds.), *Personal control in action: Cognitive and motivational mechanisms* (pp. 155-195). New York: Plenum.
- Gramzow, R. H., Sedikides, C., Panter, A. T., & Insko, C. A. (2000). Aspects of self-regulation and self-structure as predictors of perceived emotional distress. *Personality and Social Psychology Bulletin*, 26, 188-205.
- Gross, J. J. (1999). Emotion regulation: Past, present, future. *Cognition and Emotion*, 13, 551-573.
- Higgins, E. T. (1998). Promotion and prevention: Regulatory focus as a motivational principle. *Advances in Experimental Social Psychology*, 30, 1-46.
- Jackson, D. N. (1984). *Personality Research Form manual*. Port Huron, MI: Research Psychologists Press.
- James, W. (1981). *The principles of psychology* (Vol. 2). Cambridge, MA: Harvard University Press. (Original work published 1890)
- Jöreskog, K. G., & Sörbom, D. (1984). *LISREL-VI user's guide* (3rd ed.). Mooresville, IN: Scientific Software.
- Josephson, B. R., Singer, J. A., & Salovey, P. (1996). Mood regulation and memory: Repairing sad moods with happy memories. *Cognition and Emotion*, 10, 437-444.
- Kanfer, F. H., & Karoly, P. (1982). The psychology of self-management: Abiding issues and tentative directions. In P. Karoly & F. H. Kanfer (Eds.), *Self-management and behavior change: From theory to practice* (pp. 571-599). New York: Pergamon.
- Kanfer, R., & Heggstad, E. D. (1997). Motivational traits and skills: A person-centered approach to work motivation. *Research in Organizational Behavior*, 19, 1-56.
- Karoly, P. (1995). Self-control theory. In W. O'Donoghue & L. Krasner (Eds.), *Theories of behavior therapy: Exploring behavior change* (pp. 259-285). Washington, DC: American Psychological Association.
- Kehr, H. M. (2002). *Fear motives, intrusive thoughts, volitional strength, and subjective well-being among managers*. Manuscript submitted for publication.
- Kehr, H. M. (in press). Integrating motives, goals, and abilities: The compensatory model of work motivation and volition. *Academy of Management Review*.
- Kehr, H. M., Bles, P., & von Rosenstiel, L. (1999). Self-regulation, self-control, and management training transfer [In M. Boekaerts (Ed.), Special issue on self-regulated learning]. *International Journal of Educational Research*, 31, 487-498.
- Kehr, H. M., & von Rosenstiel, L. (in press). Self-management training (SMT): Theoretical and empirical foundations for the development of a metamotivational and metavolitional intervention program. In D. Frey, H. Mandl, & L. von Rosenstiel (Eds.), *Knowledge and action*. Seattle, WA: Hogrefe & Huber.
- Koestner, R., Weinberger, J., & McClelland, D. C. (1991). Task-intrinsic and social-extrinsic sources of arousal for motives assessed in fantasy and self-report. *Journal of Personality*, 59, 57-82.
- Koole, S. L., Smeets, K., van Knippenberg, A., & Dijksterhuis, A. (1999). The cessation of rumination through self-affirmation. *Journal of Personality and Social Psychology*, 77, 111-125.
- Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, 49, 1-49.
- Kuhl, J. (1985). Volitional mediators of cognition-behavior consistency: Self-regulatory processes and action versus state orientation. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 101-128). Berlin: Springer.
- Kuhl, J. (2000). A functional-design approach to motivation and self-regulation: The dynamics of personality systems and interactions. In M. Boekarts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation*. San Diego, CA: Academic Press.
- Kuhl, J., & Fuhrmann, A. (1997). *Das Selbststeuerungs-Inventar (SSI)*. [Volitional components inventory (VCI)]. Unpublished manuscript, University of Osnabrück, Germany.
- Kuhl, J., & Fuhrmann, A. (1998). Decomposing self-regulation and self-control: The volitional components inventory. In J. Heckhausen & C. S. Dweck (Eds.), *Motivation and self-regulation across the life span* (pp. 15-49). Cambridge, UK: Cambridge University Press.
- Kuhl, J., & Goshke, T. (1994). A theory of action control: Mental subsystems, modes of control, and volitional conflict-resolution strategies. In J. Kuhl & J. Beckmann (Eds.), *Volition and personality: Action versus state orientation* (pp. 93-124). Seattle, WA: Hogrefe & Huber.
- Kuhl, J., & Kazén, M. (1999). Volitional facilitation of difficult intentions: Joint activation of intention memory and positive affect removes stroop interference. *Journal of Experimental Psychology: General*, 128, 382-399.
- Lewin, K. (1926). Untersuchungen zur Handlungs- und Affekt-Psychologie. I: Vorbemerkungen über die psychischen Kräfte und Energien und über die Struktur der Seele [Examinations on the psychology of action and affect. I: Preliminary remarks on psycho-

- logical powers and energies and on the structure of the psyche]. *Psychologische Forschung*, 7, 294-329.
- Lucas, R. E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology*, 71, 616-628.
- McClelland, D. C. (1985). How motives, skills, and values determine what people do. *American Psychologist*, 40, 812-825.
- McClelland, D. C. (1995). *Scientific psychology as a social enterprise*. Unpublished manuscript, University of Boston.
- McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). *The achievement motive*. New York: Appleton-Century-Crofts.
- McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do self-attributed and implicit motives differ? *Psychological Review*, 96, 690-702.
- Metcalfe, J., & Mischel, W. (1999). A hot/cool-system analysis of delay of gratification: Dynamics of willpower. *Psychological Review*, 106, 3-19.
- Michotte, A. E., & Prüm, E. (1910). Étude expérimentale sur le choix volontaire et ses antécédents immédiats [Experimental study on volitional choice and its immediate antecedents]. In T. Flournoy & E. Claparède (Eds.), *Archives de Psychologie [Psychology archives]* (Vol. 10, pp. 119-299). Geneva, Switzerland: Librairie Kundig.
- Mischel, W. (1996). From good intentions to willpower. In J. A. Bargh & P. M. Gollwitzer (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 197-218). New York: Guilford.
- Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, 126, 247-259.
- Muraven, M., Baumeister, R. F., & Tice, D. M. (1999). Longitudinal improvement of self-regulation through practice: Building self-control strength through repeated exercise. *Journal of Social Psychology*, 139, 446-457.
- Muraven, M., Tice, D. M., & Baumeister, R. F. (1998). Self-control as limited resource: Regulatory depletion patterns. *Journal of Personality and Social Psychology*, 74, 774-789.
- Murray, H. A. (1943). *Thematic Apperceptive Test manual*. Cambridge, MA: Harvard University Press.
- Norman, D. A., & Shallice, T. (1986). Attention to action: Willed and automatic control of behavior. In R. J. Davidson, G. E. Schwartz, & D. Shapiro (Eds.), *Consciousness and self-regulation: Advances in research* (Vol. 4, pp. 1-18). New York: Plenum.
- Omodei, M. M., & Wearing, A. J. (1990). Need satisfaction and involvement in personal projects: Toward an integrative model of subjective well-being. *Journal of Personality and Social Psychology*, 59, 762-769.
- Orbell, S. (2003). Personality systems interactions theory and the theory of planned behaviour: Evidence that self-regulatory volitional components enhance enactment of studying behaviour. *British Journal of Social Psychology*, 42, 95-112.
- Phillips, J. M., & Gully, S. M. (1997). Role of goal orientation, ability, need for achievement, and locus of control in the self-efficacy and goal-setting process. *Journal of Applied Psychology*, 82, 792-802.
- Polivy, J. (1998). The effects of behavioral inhibition: Integrating internal cues, cognition, behavior, and affect. *Psychological Inquiry*, 9, 181-204.
- Prussia, G. E., Anderson, J. S., & Manz, C. C. (1998). Self-leadership and performance outcomes: The mediating influence of self-efficacy. *Journal of Organizational Behavior*, 19, 523-538.
- Puca, R. M., & Schmalz, H.-D. (1999). Task enjoyment: A mediator between achievement motives and performance. *Motivation and Emotion*, 23, 15-29.
- Puca, R. M., & Schmalz, H.-D. (2001). The influence of the achievement motive on spontaneous thoughts in pre- and postdecisional action phases. *Personality and Social Psychology Bulletin*, 27, 302-308.
- Pyszczynski, T., Greenberg, J., & Solomon, S. (1998). A terror management perspective on the psychology of control: Controlling the uncontrollable. In M. Kofta, G. Weary, & G. Sedek (Eds.), *Personal control in action: Cognitive and motivational mechanisms* (pp. 85-108). New York: Plenum.
- Rogosa, D. (1995). Myths and methods: "Myths about longitudinal research" plus supplemental questions. In J. M. Gottman (Ed.), *The analysis of change* (pp. 3-66). Mahwah, NJ: Lawrence Erlbaum.
- Rosenbaum, M. (1998). Opening versus closing strategies in controlling one's responses to experience. In M. Kofta, G. Weary, & G. Sedek (Eds.), *Personal control in action: Cognitive and motivational mechanisms* (pp. 61-84). New York: Plenum.
- Ryan, R. M. (1998). Commentary: Human psychological needs and the issue of volition, control, and outcome focus. In J. Heckhausen & C. S. Dweck (Eds.), *Motivation and self-regulation across the life span* (pp. 114-133). Cambridge, UK: Cambridge University Press.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.
- Ryan, R. M., Sheldon, K. M., Kasser, T., & Deci, E. L. (1996). All goals are not created equal: An organismic perspective on the nature of goals and their regulation. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The Psychology of action: Linking cognition and motivation to behavior* (pp. 7-26). New York: Guilford.
- Schmalz, H. D. (1976). *Die Messung des Leistungsmotiv [The measurement of the achievement motive]*. Göttingen, Germany: Hogrefe.
- Schmalz, H.-D. (1999). Assessing the achievement motive using the Grid Technique. *Journal of Research in Personality*, 33, 109-130.
- Schmalz, H.-D., Sokolowski, K., & Langens, T. (2000). *Das Multi-Motiv-Gitter für Anschließ, Leistung und Macht (MMG): Manual [The Multi-Motive-Grid for affiliation, achievement, and power (MMG): Manual]*. Frankfurt am Main, Germany: Swets & Zeitlinger.
- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need-satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology*, 76, 482-497.
- Sheldon, K. M., & Kasser, T. (1995). Coherence and congruence: Two aspects of personality integration. *Journal of Personality and Social Psychology*, 68, 531-543.
- Sokolowski, K. (1993). *Emotion und Volition [Emotion and volition]*. Göttingen, Germany: Hogrefe.
- Sokolowski, K., & Kehr, H. M. (1999). Zum differentiellen Einfluß von Motiven auf die Wirkungen von Führungstrainings (MbO) [Differential impact of motive dispositions on the effects of management training (MbO)]. *Zeitschrift für Differentielle und Diagnostische Psychologie*, 20, 192-202.
- Sokolowski, K., Schmalz, H.-D., Langens, T. A., & Puca, R. M. (2000). Assessing achievement, affiliation, and power motives all at once: The multi-motive grid (MMG). *Journal of Personality Assessment*, 74, 126-145.
- Spangler, W. D. (1992). Validity of questionnaire and TAT measures of need for achievement: Two meta-analyses. *Psychological Bulletin*, 112, 140-154.
- Stumpf, H., Angleitner, A., Wieck, T., Jackson, D. N., & Beloch-Till, H. (1985). *Deutsche Personality Research Form (PRF) [German Personality Research Form (PRF)]*. Göttingen, Germany: Hogrefe.
- Thrash, T. M., & Elliot, A. J. (2002). Implicit and self-attributed achievement motives: Concordance and predictive validity. *Journal of Personality*, 70, 729-755.
- Tice, D. M., Bratslavsky, E., & Baumeister, R. F. (2001). Emotional distress regulation takes precedence over impulse control: If you feel bad, do it! *Journal of Personality and Social Psychology*, 80, 53-67.
- Wegner, D. M., Erber, R., & Zanakos, S. (1993). Ironic processes in the mental control of mood and mood-related thought. *Journal of Personality and Social Psychology*, 65, 1093-1104.
- Weinberger, J., & McClelland, D. C. (1990). Cognitive versus traditional motivational models: Irreconcilable or complementary? In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 562-597). New York: Guilford.
- Woike, B. A. (1995). Most-memorable experiences: Evidence for a link between implicit and explicit motives and social cognitive processes in everyday life. *Journal of Personality and Social Psychology*, 68, 1081-1091.
- Wundt, W. (1907). *Grundriss der Psychologie [Sketch of psychology]* (8th ed.). Leipzig, Germany: Engelmann. (Original work published 1896)

Received February 3, 2003

Revision accepted May 27, 2003