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VOLITIONAL SHIELDING OF THE SELF: EFFECTS OF ACTION ORIENTATION AND EXTERNAL DEMANDS ON IMPLICIT SELF-EVALUATION

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Two studies examined whether volitional resources can shield implicit self-evaluation against the autonomy-undermining influence of external demands. Volitional resources were operationalized as individual differences in action orientation (Kuhl & Beckmann, 1994). Implicit self-evaluation was assessed via an adaptation of the affective priming task (Fazio, 2001). In Study 1, a threatening visualization led participants with low action orientation (or "state-oriented" individuals) to display less autonomous implicit self-evaluations compared to participants with high action orientation. In Study 2, performance-contingent rewards led action-oriented participants to display more autonomous implicit self-evaluations than state-oriented participants. These findings were specific to the autonomy motive. Volitional shielding plays an important role in self-defense processes.

Whether they like it or not, people are continually exposed to the norms and expectations of their environment. These external demands exert a pervasive influence on people's actions, by providing guidelines for appropriate behavior (Asch, 1956; Kuhl & Kazén, 1994; Shah, Kruglanski, & Friedman, 2003). Furthermore, external demands shape and define people's conceptions of themselves, by acting as standards against

which the self's qualities can be assessed (Higgins, 1987). As long as external demands are compatible with people's needs and talents, people will experience little difficulties in meeting these demands. However, sometimes the weight of external demands becomes too heavy. When this occurs, people become undermined in their personal autonomy and easily lose sight of their intrinsic psychological needs (Deci & Ryan, 2000; Kasser & Sheldon, in press; Schimel, Arndt, Banko, & Cook, 2004). Consequently, people's ability to deal with external demands is vital to the maintenance of long-term well-being.

Because social life is often highly demanding, it seems plausible that people have developed some efficient ways of shielding the self against the psychological burdens of external demands. Without such shielding mechanisms, people might become excessively vulnerable to external influence and "choke" even under minimal amounts of pressure (Baumeister, 1984). Accordingly, shielding the self against external demands represents an important aspect of people's capacity for volitional action control (Kuhl & Kazén, 1994). In line with this reasoning, the present research argues that volitional mechanisms may allow individuals to shield themselves against the autonomy-undermining influence of external demands. As a consequence, individuals who are highly adept at volitional action control may maintain an autonomous self even under highly demanding circumstances. Conversely, individuals who display volitional deficits may be lacking in similar shielding skills, so that their self's autonomy may become more easily undermined by external demands.

In the following paragraphs, I will review the existing literature on the relation between autonomy and external demands. Next, I discuss how the concept of volitional shielding may resolve some of the apparent contradictions in this literature. Finally, I present two experiments that tested the present analysis in the domain of implicit self-evaluation.

THE WEIGHT OF EXTERNAL DEMANDS

One of the most influential scientific approaches to human autonomy is self-determination theory (SDT; Deci Ryan, 2000). SDT defines autonomy as the set of processes that regulate the person's actions and experiences in accordance with self-endorsed values, needs, and intentions. Accordingly, SDT has argued that a highly demanding environment is generally detrimental to autonomous functioning. In support of SDT, research has shown that various kinds of external demands, such as extrinsic rewards, surveillance, or deadlines, serve to undermine intrinsic motivation (Deci & Ryan, 2000). External demands have also been shown to undermine other indicators of autonomous functioning, such as creativity (Amabile, 1979) and complex problem solving (McGraw & McCullers, 1979).

The idea that external demands tend to undermine autonomous functioning has gained widespread acceptance (e.g., Geen, 1995; Heckhausen, 1991; Pyszczynski, Greenberg, & Goldenberg, 2003). Nevertheless, recent work has challenged the traditional understanding of the relationship between external demands and autonomous functioning. Based on a meta-analytic review of the literature, Eisenberger and Cameron (1996) argued that the undermining effects of extrinsic rewards on intrinsic motivation and creativity are largely a myth (though see Deci, Koestner, & Ryan, 1999, for a meta-analysis that reached the opposite conclusion). In addition, Eisenberger and associates have found that extrinsic rewards can increase intrinsic motivation and creativity (see Eisenberger & Rhoades, 2001, for a review). It thus seems questionable whether external demands are invariably detrimental to autonomous functioning.

Based on the aforementioned findings, some authors have suggested that the autonomy motive can be fully explained in terms of operant conditioning principles (Carton, 1996; Eisenberger & Cameron, 1996). However, simple conditioning processes cannot account for the robust evidence that external demands can and frequently do undermine autonomous functioning (Amabile, 1979; Deci & Ryan, 2000). A more viable approach, then, might be to consider whether the autonomy motive operates in a more complex manner than has been previously assumed. Conceivably, there exist some hidden moderating variables that determine how the autonomy motive is affected by demanding circumstances. In the following section, I will argue that *volitional shielding* is one important moderator of the effects of external demands on autonomous functioning.

VOLITIONAL SHIELDING

The notion of volitional shielding builds upon Personality Systems Interactions (PSI) theory, a general framework that seeks to explain human action control and personality functioning (Kuhl, 2000; Kuhl & Koole, in press). PSI theory agrees with the self-determination perspective that external demands can undermine autonomous functioning. However, PSI theory goes on to argue that this undermining effect may not be altogether unavoidable. According to PSI theory, people may draw on volitional shielding to counter-regulate the autonomy-undermining influence of external demands. Provided that a people's shielding skills are sufficiently strong, autonomy might be maintained or even enhanced under highly demanding circumstances. Thus, the autonomy-undermining effects of external demands may materialize only when the person does not possess adequate volitional resources to shield the self against external demands.

According to PSI theory, individuals who are adept at volitional action control, or "action-oriented" individuals, are likely to possess especially powerful volitional shielding skills. The functional basis of action orientation is provided by *extension memory*, a central executive system that supports an intelligent, high-inferential form of intuition (Baumann & Kuhl, 2002), and is characterized by the activation of extended networks of implicit self-representations (Koole & Kuhl, 2003). The workings of extension memory are largely implicit, because the system is mediated by parallel-distributed processing mechanisms that can handle vast amounts of information at speeds that greatly exceed the capacity of the conscious mind (J. L. McClelland et al., 1995; Read, Vanman, & Miller, 1997). At the same time, extension memory is a volitional system, because it is supported by central (i.e., prefrontal) processing networks in the brain that regulate behavior in a top-down manner.

According to PSI theory, action-oriented individuals have learned to activate extension memory when they are confronted with demanding circumstances. This is often an effective strategy, because extension memory can defuse self-threatening information quickly (due to extension memory's powerful parallel-processing mechanisms) and durably (because threatening information is integrated rather than suppressed by extension memory). By contrast, individuals who regularly display volitional deficits—or "state-oriented" individuals—are inclined to deactivate extension memory when they encounter obstacles to autonomous self-regulation. Although state-oriented individuals may access extension memory under supportive conditions, they typically lose access to the system under more demanding conditions. State-oriented individuals are thus characterized by relatively weak volitional shielding skills.

To date, more than thirty published studies have supported the validity of the action orientation construct (for reviews, see Diefendorff, Hall, Lord, & Strean, 2000; Kuhl & Beckmann, 1994). Among other things, research has established that task performance of action-oriented individuals is hardly affected by a range of autonomy-undermining influences, such as repeated failure, monotony, and performance pressure (Kuhl & Beckmann, 1994). By contrast, the same conditions induce marked performance impairments among state-oriented individuals. In addition, autonomy threats lead state-oriented individuals to experience uncontrollable ruminations, perseverating negative affect, and decreases in subjective well-being, responses that are much less prevalent among action-oriented individuals (Kuhl & Beckmann, 1994). Effects of action orientation have been found across a wide range of different measures and domains, including intention memory, physiological arousal, medicine intake, therapeutic outcomes, athletic performance, and work psychology. Action orientation

thus appears to be a global, content-free construct. Moreover, research has established that the effects of action orientation are not due to self-efficacy or control expectations (Kuhl, 1981), achievement motivation (Heckhausen & Strang, 1988), neuroticism (Baumann & Kuhl, 2002), extraversion (Koole, 2003), self-esteem (Koole & Jostmann, 2003), or conscious emotion regulation strategies (Koole & Jostmann, 2003), and occur over and above the effects of the "Big Five" personality dimensions (Diefendorff et al., 2000). The effects of action orientation thus seem uniquely attributable to volitional processes.

In recent years, research has examined the influence of action orientation on some more direct indicators of autonomous functioning. Beckmann (1997) demonstrated that action-oriented individuals are less prone to conformity than state-oriented individuals, particularly under stressful circumstances. In a related vein, Kuhl and Kazén (1994) established that state-oriented individuals are inclined to mistake activities that were assigned by the experimenter for self-chosen activities, a cognitive tendency that signifies impaired autonomous functioning. By contrast, action-oriented individuals displayed no evidence of a similar tendency towards false self-ascriptions. Baumann and Kuhl (2003) showed that negative affect amplifies the tendency to make false self-ascriptions among state-oriented individuals, but not among their action-oriented counterparts. Taken together, it appears that a demanding environment is more damaging to autonomous functioning among state-oriented individuals than among action-oriented individuals.

Even so, some important questions remain about the precise nature of the volitional shielding skills that underlie action orientation. In particular, there is little support to date for PSI theory's claims that action-oriented individuals rely on *implicit* mechanisms to shield themselves against external demands. The notion of implicit volitional mechanisms is theoretically controversial, because traditional accounts have treated volition as essentially a conscious, deliberative phenomenon (Libet, 1985; Wegner & Wheatley, 1999). Even so, a growing number of experiments have demonstrated that volitional processes can be active on fast-acting, implicit levels of information processing (Gollwitzer, 1999; Kuhl & Kazén, 1999; Shah et al., 2002). It thus seemed worthwhile to investigate the implicit nature of the autonomy-shielding effects of action orientation.

THE PRESENT RESEARCH AND HYPOTHESES

The present research explored the volitional shielding effects of action orientation on implicit self-evaluation. Recent research has established that much self-evaluative activity occurs on unconscious, implicit levels (Devos & Banaji, 2003; DeHart, Pelham, & Murray, 2004; Koole &

Pelham, 2003). There are several reasons to believe that such implicit self-evaluations serve important regulatory functions. First, the self can be regarded as a super-ordinate processing system that integrates multiple inputs from a host of lower-level systems within the person (Kuhl, 2000; Nowak, Vallacher, Tesser, & Borkowski, 2000). As such, it is plausible that the self plays a key role in central executive processes (Baumeister, 1998; Kuhl & Koole, in press). Second, implicit self-evaluations can guide people's actions even when their attentional resources are consumed by ongoing goal pursuits. Accordingly, implicit self-evaluations may provide a more efficient self-regulatory tool than reflective, explicit self-evaluations.

In the present research, I conducted two experiments, which were based on a similar underlying logic. Both experiments first assessed individual differences in action orientation and subsequently manipulated external demands. After the demand manipulation, participants performed an implicit self-evaluation task. The main hypothesis in both studies was that the impact of external demands on autonomy-related implicit self-evaluations would be moderated by action orientation. Among state-oriented participants, external demands were expected to cause decreases in autonomy-related implicit self-evaluations. By contrast, external demands were expected to cause no such decreases or even increases in autonomy-related implicit self-evaluations among action-oriented participants.

Finally, I explored some potential functional differences between coping with negative affect and coping with frustrated positive affect. PSI theory distinguishes between Threat-related Action Orientation (AOT), which relates to coping with negative affect, and Demand-related Action Orientation (AOD), which relates to coping with frustration of positive affect[1] (Kuhl, 2000). Because positive and negative affect are often strongly (negatively) correlated, effects of AOT and AOD are naturally confounded. Even so, unique effects of AOT may be found in situations that are characterized by moderate to high positive affect and high negative affect. Conversely, unique effects of AOD may be found in situations that are characterized by low positive affect and moderate to low negative affect. To address the conceptual distinction between AOT and AOD, Studies 1 used a demand manipulation that targeted negative affect, whereas Study 2 targeted suppression of positive affect.

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1. Kuhl (1994) introduced the labels "failure-related" and "decision-related" action orientation to what the present research refers to as "threat-related" and "demand-related" action orientation, respectively. This departure from the previous terminology was preferred because the latter terms are more clearly related to the most recent formulation of PSI theory (e.g., Kuhl, 2000).

STUDY 1

In Study 1, I started by assessing individual differences in action orientation and then primed external demands by having participants visualize either a demanding or an accepting relationship partner. Visualizing a demanding partner was expected to trigger high (implicit or explicit) feelings of threat to the self, whereas visualizing an accepting partner was expected to trigger low feelings of self-threat (Schimel et al., 2004). Following the visualization, participants completed an implicit self-evaluation task.

The implicit self-evaluation task was constructed on the basis of evaluative priming research (Fazio, 2001), which has established that the presentation of an evaluatively charged stimulus (e.g., the word *happiness*) facilitates evaluations of similarly valenced targets (e.g., *good*) and inhibits evaluations of dissimilarly valenced targets (e.g., *bad*). This phenomenon may be used to tap into implicit self-evaluations (Hetts, Sakuma, & Pelham, 1999). Thus, in the present research, participants were asked to evaluate a series of positive and negative target words, which were either preceded by self-related primes (*I*) or by non-self-related primes (*xx*). During the crucial trials of this task, the target words were either positive or negative words that were related to autonomy. Based on previous research (Hetts et al., 1999), I assumed that an autonomous self was indicated by facilitation of positive autonomy words and/or inhibition of negative autonomy words by the self-related primes relative to the non-self-related primes[2]. The implicit self-evaluation task also included positive and negative target words that related to competence and relatedness, two other basic human motives (Deci & Ryan, 2000; McCllelland, Koestner, & Weinberger, 1989). Because the demand manipulation in Study 1 targeted loss of autonomy, I expected that the shielding effects of action orientation would be specific to the autonomy domain.

The key prediction of Study 1 was that action orientation would moderate the effects of a threatening visualization on autonomy-related implicit self-evaluations. Among state-oriented participants, the threatening visualization was expected to yield lower autonomy-related implicit self-evaluations relative to the non-threatening visualization. By contrast, among action-oriented participants, the threatening visualization was expected to lead to equal or even en-

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2. It should be emphasized that the present research uses the terms "facilitation" and "inhibition" in a relative sense. The status of inhibitory mechanisms in particular has been subject to much debate in cognitive psychology (Anderson & Spellman, 1995). Accordingly, whether volitional shielding involve facilitatory versus inhibitory processes in an absolute sense is a separate issue that needs to be addressed in future research.

hanced autonomy-related implicit self-evaluations relative to the accepting visualization. Previous studies have revealed that the demanding visualization is associated with negative experiences that involve loss of autonomy (Schimel et al., 2004). Accordingly, it was expectable that the predicted effects of the visualization manipulation would be more pronounced for negative autonomy words than for positive autonomy words. Finally, given the negative focus of the threatening visualization, the predicted effects were expected to occur primarily for threat-related action orientation (AOT).

METHOD

PARTICIPANTS AND DESIGN

At the Free University Amsterdam, 110 paid volunteers (43 men and 67 women, average age 21) participated in the experiment. The experimental design consisted of a 2 (AOT: action vs. state; between participants) $\times$ 2 (visualization: threatening vs. non-threatening; between participants) $\times$ 2 (prime type: "I" vs. "xx"; within participants) $\times$ 2 (target word valence: positive vs. negative; within participants) $\times$ 3 (target word domain: autonomy, relatedness, or competence) design. The main dependent variable consisted of participants' evaluation latencies during the implicit self-evaluation task.

PROCEDURE

Upon arrival in the laboratory, participants were led to individual cubicles, each containing an Apple Macintosh (iMac) computer. The experimenter explained that the instructions of the present research would be administered via a computer-program and left. Participants started the program by pressing a button on the keyboard. Participants were first informed that the investigation would comprise a number of unrelated studies, which were supposedly administered together for efficiency reasons. Participants then moved on to the first study, which consisted of two questionnaires that assessed individual differences in self-esteem and action orientation. Participants then proceeded with the next study, which contained the visualization manipulation. Next, after a brief filler task, participants completed the implicit self-evaluation task, described as a study on "the evaluation of stimuli." Participants then proceeded with some unrelated studies, after which they answered two manipulation check questions. Finally, participants were paid, debriefed, and thanked for their participation.

INDEPENDENT VARIABLES

Individual Differences. To measure individual differences in action orientation, I used a Dutch translation of the Action Control Scale (ACS90). The ACS90 has been developed and extensively validated by Kuhl and associates (Kuhl & Beckmann, 1994). I administered two subscales of the ACS90, which were designed to measure demand-related action orientation (AOD) and threat-related action orientation (AOT), respectively. The items of both subscales were presented in a different random order for each participant. Each of the items of the ACS90 describes a difficult situation and two alternative ways of coping with the situation. One of these alternatives always referred to an action-oriented way of coping with the situation; the other alternative always referred to a state-oriented way of coping with the situation. For each item, participants were asked to choose which of two alternative responses would describe their reaction to such a situation.

The AOT scale had 12 items that related to coping with threatening situations. An example item is "When I am told that my work has been completely unsatisfactory. A. I don't let it bother me for too long. B. I feel paralyzed." The AOD scale had 12 items that related to coping with difficult situations that involve the frustration of positive affect. An example item is "When I know I must finish something soon. A. I find it easy to get it done. B. I have to push myself to get started." For both items, A is the action-oriented alternative, whereas B represents the state-oriented alternative. In the actual scale, the order of action—and state-oriented alternatives was counterbalanced across the items of each subscale. Action-oriented choices were coded as "1," whereas state-oriented choices were coded as "0" and summed for the entire subscale. For both AOT (M = 5.84, SD = 3.14, Cronbach's alpha = .71) and AOD (M = 6.99, SD = 2.88, Cronbach's alpha = .73), participants who made 7 or more action-oriented choices were assigned to the action-oriented group; participants who made 6 or fewer action-oriented choices were assigned to the state-oriented group[3].

I further administered the Rosenberg (1965) Self-Esteem Scale (M= 6.71, SD = 1.00, Cronbach's alpha = .80). Items of the self-esteem scale were translated into Dutch and scored on 9-point scales (1= does not apply to me at all; 9 = applies to me completely). Moreover, the items were presented in a different random order for each participant.

Visualization Manipulation. The visualization manipulation was modeled after Baldwin and Sinclair, (1996). In the threatening visualization condition, participants were asked to think of highly demanding per-

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3. Similar results were obtained when AOT and AOD scores were used as continuous variables in regression analyses that paralleled the ANOVAs reported in the main body of this article.

son, someone who pressured and criticized them if they failed to meet the person's standards. In the non-threatening visualization condition, participants were asked to think of a person with whom they could be genuinely themselves and felt very much at ease. In both conditions, the instructions encouraged participants to vividly imagine being with this person and to re-experience the feelings associated with the relationship.

DEPENDENT MEASURE

Implicit Self-Evaluation Task. During the implicit self-evaluation task, participants were requested to evaluate a series of valenced words that appeared on the center of the computer screen. During each trial, an asterisk would appear on the center of the computer screen to focus participants' attention on the appropriate location. After this, a prime word would appear on the computer screen for 200 ms, followed by a blank screen that stayed on for 100 ms. Past research has shown that evaluative priming is most robust at this SOA and priming duration (Fazio, 2001). Participants were told to ignore the briefly appearing words (i.e., the primes), as these were merely meant to distract them. Following the prime word and blank screen, a target word appeared on same location of the computer screen. Participants were told to press the "a" button (left of the keyboard) when the target word was negative. Conversely, participants were told to press the "6" button (right of the keyboard) when the target word was positive. The target word disappeared from the screen once participants had pressed either the "a" or "6" button. After one second, the next trial began.

The implicit self-evaluation task began with three warm-up trials that were followed by 36 experimental trials. During one half of the trials, participants were primed with the word "ik" ("I" in Dutch). During the other half of the trials, participants were primed with two x-es. The target words consisted of 6 autonomy words, 6 relatedness words, and 6 competence words (see Appendix). One half of these target words had a positive meaning. The remaining target words had a negative meaning. The target words were presented twice in a different random order for each participant: once preceded by the self prime and once preceded by the xx-prime.

RESULTS

MANIPULATION CHECK

At the end of the experimental session, participants rated how demanding and accepting the person was whom they had visualized (1 = not at

all; 9 = very much). These two items were coded in the same direction and aggregated into a single scale (Cronbach's alpha = .61). On average, participants in the threatening visualization condition rated their target person as much more demanding than participants in the non-threatening visualization condition, $F(1,108) = 225.35$, $p < .001$ ($M = 6.71$ vs. $M = 3.14$). No effects of individual differences in action orientation or self-esteem emerged on this index.

AUTONOMY-RELATED IMPLICIT SELF-EVALUATIONS

Before analyzing the results, erroneous responses were removed from the data set. In addition, outliers (i.e., responses longer than 3000 ms) were replaced by responses of 3000 ms. Implicit self-evaluation scores were computed by subtracting average response latencies to target words that were primed with "I" from average response latencies to the corresponding target words that were primed with "xx". Positive scores on the implicit self-evaluation index indicate that the relevant target words were positively associated with the self; negative scores indicate that the relevant target words were inhibited by the self.

Participant's average evaluation latencies of autonomy-related target words were subjected to a 2 (AOT: state vs. action; between participants) × 2 (visualization: threatening vs. non-threatening; between participants) × 2 (target word valence: positive versus negative; within participants) ANOVA. Relevant means are displayed in Table 1. The analysis revealed a significant two-way interaction between visualization and target word valence, $F(1, 106) = 7.00$, $p < .01$, which was qualified by the predicted three-way interaction between AOT, visualization, and target word valence, $F(1, 106) = 4.48$, $p < .04$. The results were then analyzed separately for positive and negative autonomy-related target words. The analysis of negative autonomy-related target words yielded a main effect of visualization, $F(1, 106) = 3.96$, $p < .05$, and an interaction between AOT and visualization, $F(1, 106) = 4.46$, $p < .04$. Follow-up tests revealed that the threatening visualization caused state-oriented participants to associate the self more strongly with loss of autonomy ($M = $—96 vs. $M = 105$). By contrast, the threatening visualization had no effect on action-oriented participants, $F < 1$ ($M = $—5 vs. $M = $—11). The analysis of positive autonomy-related target words only yielded a marginal effect of visualization, $F(1, 106) = 3.07$, $p = .083$. Follow-up tests showed that the main effect of visualization was only reliable for state-oriented participants, $F(1, 106) = 3.07$, $p = .083$. The threatening visualization led state-oriented participants to associate the self less strongly with autonomy ($M = 86$ vs. $M = $—73). By contrast, the threatening visualization had no effect on action-oriented participants, $F < 1$ ($M = 67$ vs. $M = 21$).

TABLE 1. Average Facilitation (ms) of Positive and Negative Autonomy-Related Words by Self-Priming as a Function of Visualization, Threat-Related Action Orientation, and Response Valence (Study 1; Standard Deviations in parentheses)

| | Target Valence | | | |
| | Positive | | Negative | |
	SOT	AOT	SOT	AOT
Non-Threatening Visualization	86 (327)	67 (316)	-96 (263)	-5 (246)
Threatening Visualization	-73 (300)	21 (260)	105 (243)	-11 (250)

Note. SOT = Threat-Related State Orientation, AOT = Threat-Related Action Orientation.

Another way to look at the results is to examine each experimental condition separately. In the non-threatening visualization condition, the only significant effect that emerged was a main effect of target word valence, $F (1, 48) = 4.07$, $p < .05$, indicating that participants associated the self more strongly with positive autonomy words than with negative autonomy words ($M = 79$ vs. $M = —61$). However, this effect was reliable only among state-oriented participants, $F (1, 30) = 5.25$, $p < .03$, not among action-oriented participants, $F (1, 18) < 1$. In the threatening visualization condition, the only significant effect that emerged was a interaction between AOT and target word valence, $F (1, 58) = 5.43$, $p < .03$. Among state-oriented individuals, the self was associated more strongly with negative autonomy words than with positive autonomy words, $F (1, 30) = 6.40$, $p < .02$. The latter effect was absent among action-oriented individuals, $F (1, 28) < 1$.

SUPPLEMENTARY ANALYSES

The analysis of relatedness and competence target words in the implicit self-evaluation task yielded no parallel effects of AOT and visualization. The results were thus specific to the autonomy motive. AOT was weakly correlated with AOD, $r (110)= .18$, $p =.063$, and moderately with self-esteem $r (110)= .34$, $p < .001$. Neither AOD nor self-esteem had effects that paralleled the effects of AOT.

DISCUSSION

As anticipated, Study 1 found that a threatening visualization led state-oriented participants to display stronger associations between

the self and negative autonomy-related evaluations. It thus appears that, among state-oriented participants, a threatening visualization activated implicit evaluations of the self as weak and dependent. By contrast, the threatening visualization had no effect on negative autonomy-related implicit self-evaluations among action-oriented participants. A similar, albeit somewhat weaker, shielding pattern emerged for positive autonomy-related evaluations. The threatening visualization led state-oriented participants to display weaker associations between the self and positive autonomy-related evaluations. By contrast, the threatening visualization had no effect on action-oriented participants. Taken together, it appears that action-oriented participants were more successful than state-oriented participants at shielding themselves against the autonomy-undermining influence of the threatening visualization.

It is notable that state-oriented participants displayed evidence of autonomous implicit self-evaluations in the non-threatening visualization condition. Indeed, in the non-threatening condition, state-oriented participants displayed more autonomy-related implicit self-evaluations than action-oriented participants. This pattern is consistent with previous observations that state-oriented individuals can function quite well under relaxing conditions, during which they may even outperform action-oriented individuals (Kuhl & Beckmann, 1994).

STUDY 2

In Study 2, I sought to replicate the findings of Study 1 with a different demand manipulation. More specifically, Study 2 manipulated external demands by varying whether rewards were contingent on performance or not. This manipulation had a number of advantages. First, performance-contingent rewards are a frequent form of demand in real-life situations. Second, the manipulation did not rely on self-generated memories, thereby allowing for more experimental control. Third, the manipulation of reward contingency represented an online stressor, as opposed to the memory-based stressor that was used in Study 1. Finally, reward contingency represented a prospective manipulation of external demand. Past work suggests that prospective tasks are particularly relevant to demand-related action orientation (Goschke & Kuhl, 1993). Moreover, according to PSI theory, coping with a prospective memory load involves the frustration of positive affect (Kuhl & Kazén, 1999). The reward contingencies manipulation thus enabled a stronger test of the volitional shielding effects of action orientation in the domain of positive autonomy-related implicit self-evaluations. Consequently, the effects of Study 2 were expected to occur mainly for AOD, that is, demand-related action orientation.

To increase the generalizability of the results of Study 1, Study 2 included a broader set of target stimuli in the implicit self-evaluation task. Finally, Study 2 included a measure of individual differences in deliberative emotion regulation (Gross & John, 2002), to examine whether the results were indeed attributable to implicit volitional mechanisms.

METHOD

PARTICIPANTS AND DESIGN

At the Free University Amsterdam, 84 paid volunteers (18 men and 66 women, average age 21) participated in the experiment. The experimental design consisted of a 2 (AOD: action vs. state; between participants) × 2 (rewards: non-contingent vs. performance-contingent; between participants) × 2 (prime type: "I" vs. "xx"; within participants) × 2 (target valence: positive vs. negative; within participants) × 3 (target domain: autonomy, relatedness, or competence) design. The main dependent variable consisted of participants' average evaluation latencies during the implicit self-evaluation task.

PROCEDURE

The general procedure and equipment were quite similar to those of Study 1. Participants first answered a few personality questionnaires. They then moved on to the next study, which consisted of a number of arithmetic items. The arithmetic sums were followed by the manipulation of reward contingency. After a brief filler task, participants completed the implicit self-evaluation task. Participants next proceeded with some unrelated studies. Finally, participants answered a manipulation check question, were probed on their beliefs, paid, and debriefed. Four participants (4.7% of the sample) were excluded from the analysis because they indicated that they were familiar with the implicit self-evaluation task. One additional participant (1.1% of the sample) was excluded because she had an unusually high error rate (> 50%) on the implicit self-evaluation task.

INDEPENDENT VARIABLES

Individual Differences. The assessment included measures of AOT (M = 5.55, SD = 2.97, alpha = .75), AOD (M = 6.58, SD = 2.91, alpha = .74), and self-esteem (M = 6.56, SD = 1.19, alpha = .86) and a Dutch translation of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). One subscale of the ERQ measured chronic reliance on cognitive reappraisal

strategies to regulate one's emotions (6 items; $M = 5.86$, $SD = 1.22$, alpha = .74), the second subscale of the ERQ measured chronic reliance on emotional suppression strategies (4 items; $M = 3.94$, $SD = 1.68$, alpha = .79).

Reward Contingency Manipulation. During the arithmetic task, participants were asked to solve a number of arithmetic items. For each item, participants were to add up three one-or two-digit numbers and type in the correct response. Participants first practiced solving one arithmetic item to ensure that they understood the task. After these instructions, participants were given 2.5 minutes to complete as many arithmetic items as possible. The remaining time was visually displayed on the computer screen by means of a small alarm clock. After completing the arithmetic sums, participants received feedback regarding the number of arithmetic items that they had solved correctly. Following this feedback, the manipulation of reward contingency was introduced.

Participants in the *contingent reward condition* were informed that there would be a second block of arithmetic sums. The instructions explained that the level of difficulty and the amount of time for the second block of sums would be identical to the first block. However, this time, participants would be able to earn a bonus. If participants succeeded in solving at least 10% more sums than during the first block, they would earn a bonus of 1 Euro. If participants succeeded in solving at least 25% more sums than during the first block, they would earn a bonus of 2.50 Euro. Participants were further told that the second block of arithmetic sums would be preceded by a few unrelated studies, allegedly to avoid fatigue. In reality, these 'unrelated studies' contained our measure of implicit self-evaluation. Participants in the *non-contingent reward condition* were informed that they had solved more arithmetic items than the average participant within the same amount of time. Accordingly, they were given an extra bonus of 2.50 Euro. The positive feedback and unexpected bonus were supplied to induce a positive, rewarding context and to allow the overall financial compensation for the arithmetic task to be equal across experimental conditions. No mention was made of a second block of arithmetic sums, to ensure that participants in the non-contingent reward condition were not provided with a prospective memory load (Goschke & Kuhl, 1993).

DEPENDENT MEASURE

Implicit Self-Evaluation Task. The general procedure and instructions of the implicit self-evaluation task were identical to Study 1. The only difference was that Study 2 added 18 new target words to the stimulus set (see Appendix).

RESULTS

MANIPULATION CHECK

At the end of the experimental session, all participants indicated correctly why they would receive an extra bonus of 2.50 Euro.

AUTONOMY-RELATED IMPLICIT SELF-EVALUATIONS

Wrong responses and outliers were treated as in Study 1. Also similar to Study 1, I computed implicit self-evaluation scores by subtracting participants' response latencies to target words that were primed with "xx" from participants' response latencies to the corresponding target words that were primed with "I".

A 2 (AOD: state vs. action; between participants) $\times$ 2 (reward contingency: non-contingent vs. performance-contingent; between participants) $\times$ 2 (target valence: positive versus negative; within participants) on participants' average evaluation latencies yielded a main effect of target valence, $F (1, 75) = 37.28$, $p < .001$, which indicated that, on average, evaluating positive target words was facilitated by self priming ($M = 109$), whereas evaluating negative target words was inhibited by self priming ($M = —36$). In addition, the analysis revealed a marginal interaction between AOD and reward contingency, $F (1, 75) = 3.33$, $p = .072$, and the predicted three-way interaction between AOD, reward contingency, and target valence, $F (1, 75) = 5.37$, $p < .03$. Relevant means are displayed in Table 2. Separate analyses revealed no effects of AOD or reward contingency on average evaluation latencies of negative target words, all Fs < 1. By contrast, average evaluation latencies of positive target words showed a significant interaction between AOD and reward contingency, $F (1, 75) = 6.55$, $p < .02$. Follow-up tests were conducted to interpret this interaction effect. Performance-contingent rewards led state-oriented participants to associate the self non-significantly less strongly with positive autonomy words, $F (1, 75) < 1$ ($M = 148$ vs. $M = 101$). By contrast, performance-contingent rewards led action-oriented participants to associate the self significantly more strongly with positive autonomy words, $F (1, 75) = 8.03$ ($M = 21$ vs. $M = 204$).

Another way to look at the results is to examine each experimental condition separately. In the non-contingent reward condition, the only significant effect that emerged was a main effect of target word valence, $F (1, 39) = 9.95$, $p < .05$, indicating that participants associated the self more strongly with positive autonomy words than with negative autonomy words ($M = 79$ vs. $M = —37$). Further tests, however, revealed that this effect was reliable among state-oriented participants, $F (1, 18) = 8.73$, $p < .009$, but not among action-oriented participants, $F (1, 18) = 1.57$, $p = $

TABLE 2. Average Facilitation (ms) of Positive and Negative Autonomy-Related
Words by Self-Priming as a Function of Reward Contingency, Demand-Related Action
Orientation, and Response Valence (Study 2; Standard Deviations in parentheses)

| | Target Valence | | | |
| | Positive | | Negative | |
Reward	SOD	AOD	SOD	AOD
Non-Contingent	148 (202)	21 (227)	-25 (180)	-39 (109)
Performance-Contingent	100 (171)	204 (179)	-31 (158)	-39 (147)

Note. SOD = Demand-Related State Orientation, AOD = Demand-Related Action Orientation.

.223. In the contingent reward condition, there emerged a main effect of target word valence, $F(1, 36) = 34.30$, $p < .001$, and a marginal interaction between AOD and target word valence, $F(1, 36) = 3.00$, $p = .092$. Among state-oriented individuals, the self was associated more strongly with positive autonomy words than with negative autonomy words, $F(1, 22) = 13.86$, $p < .002$. This effect was somewhat stronger among action-oriented individuals, $F(1, 14) = 17.62$, $p < .002$.

SUPPLEMENTARY ANALYSES

The analysis of relatedness and competence target words in the implicit self-evaluation task yielded no effects that paralleled the results for autonomy target words. Thus, the results of Study 2 were again specific to the autonomy domain. AOD was positively correlated with AOT, $r(79) = .29$, $p < .02$) and self-esteem, $r(79) = .31$, $p < .006$, and negatively correlated with suppression, $r(79) = —.28$ $p < .02$. Reappraisal was uncorrelated with AOD, $r(79) = .02$, $p = .851$. None of these alternative constructs had similar effects as AOD.

DISCUSSION

In Study 2, performance-contingent rewards led action-oriented participants to display stronger associations between the self and positive autonomy-related evaluations. Coping with performance-contingent rewards apparently caused action-oriented individuals to activate implicit evaluations of the self as strong and independent. By contrast, state-oriented individuals showed no evidence of an implicit autonomy boost in response to performance-contingent rewards. Notably, no effects

of reward contingency or action orientation were obtained in the domain of negative autonomy-related implicit self-evaluations. This pattern of findings suggests that coping with reward contingency was primarily a matter of mobilizing positive autonomous self-evaluations, as opposed to warding off self-evaluations concerning loss of autonomy (as in Study 1).

Similar to Study 1, Study 2 found that state-oriented individuals displayed facilitation of positive autonomy-related implicit self-evaluations under low demand condition (i.e., the non-contingent reward condition). This finding confirms the notion that volitional shielding only contributes to autonomous functioning when the person's autonomy is under attack. It is further striking that Study 1 found stronger autonomy-shielding effects of action orientation for negative autonomy-related implicit self-evaluations, whereas Study 2 only obtained reliable shielding effects for positive autonomy-related implicit self-evaluations. Because Study 2 also used a larger stimulus set, one might wonder whether the discrepancy between the results of Studies 1 and 2 could be explained by this procedural variation. To examine this possibility, the results of Study 2 were re-analyzed using only the target words that were used on Study 1. This analysis yielded virtually the same pattern of results as the analysis that used the entire set of target words.

GENERAL DISCUSSION

The present research explored the role of action orientation in shielding the self against the potentially undermining influence of external demands. Based on PSI theory (Kuhl, 2000; Kuhl & Koole, in press), I reasoned that action-oriented individuals possess volitional skills that enable them to shield the self against external demands. Accordingly, the autonomy-undermining effects of external demands should be mainly apparent among individuals low on action orientation, i.e., state-oriented individuals. Consistent with this, Study 1 found that a threatening visualization caused state-oriented individuals to display less autonomous implicit self-evaluations. By contrast, a threatening visualization had no effect on autonomous implicit self-evaluations among action-oriented individuals. In addition, Study 2 showed that performance-contingent rewards caused action-oriented individuals to display more autonomous implicit self-evaluations, an effect that was not obtained among state-oriented participants. Taken together, it appears that action orientation can provide a powerful psychological shield against autonomy-undermining influences of the social environment.

What might be the nature of the volitional shielding skills that underlie action orientation? First, it is informative that shielding effects of ac-

tion orientation occurred only for autonomy-related implicit self-evaluations, but not for implicit self-evaluations that related to competence or interpersonal relatedness. These findings rule out a straightforward self-enhancement account of the present findings (Sedikides & Strube, 1997). Second, the present research found that different demand manipulations selectively triggered coping responses of either threat—or demand-related action orientation. Indeed, the visualization manipulation in Study 1 mainly activated shielding effects of threat-related action orientation, whereas performance-contingent rewards in Study 2 only activated shielding effects of demand-related action orientation. In addition, threat—versus demand-related action orientation were associated with somewhat different shielding responses. Threat-related action orientation helped shield against the association between self and negative affect (i.e., loss of autonomy) in response to the visualization of a threatening person. By contrast, demand-related action orientation enhanced the association between self and positive affect (i.e., autonomy) in response to performance-contingent rewards. Taken together, these findings support the existence of two functionally independent forms of volitional shielding that map on to the conceptual distinction between threat—or demand-related action orientation (Kuhl, 2000).

Notably, the shielding effects of action orientation were obtained in a research paradigm that incorporated several implicit aspects. First, the present research primed external demands in a context that was, from the participants' point of view, unrelated to the measurement of autonomous functioning. Moreover, findings in Study 2 indicated that volitional shielding effects were not predicted by conscious affect regulation skills (Gross & John, 2002). It thus appears that volitional shielding is not mediated by conscious intentions. Second, the measurement of autonomous functioning was based on an implicit self-evaluation task (Hetts et al., 1999). This paradigm is known to assess highly efficient, "automatic" self-evaluations. As such, the volitional shielding effects of action orientation seem to be characterized by highly efficient cognitive processing. Taken together, the present findings add to the growing support for volitional processes that operate on fast-acting, quasi-automatic levels (Fishbach, Friedman, & Kruglanski, 2003; Gollwitzer, 1999; Kuhl & Kazén, 1999; Koole, Smeets, van Knippenberg, & Dijksterhuis, 1999; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999; Shah et al., 2003; Wilson & Schooler, 1991; see Kuhl & Koole, in press).

The present findings may also inform the ongoing debate whether external demands are detrimental (Deci & Ryan, 2000) or beneficial (Eisenberger & Cameron, 1996) to autonomous functioning. Based on the present research, the two sides of this debate may be integrated.

Undermining effects of external demands may occur primarily among state-oriented individuals, because these individuals are unable to shield themselves against external interference (Baumann & Kuhl, 2003; Beckmann, 1997; Kuhl & Kazén, 1994). By contrast, action-oriented individuals appear to shield themselves effectively against external interference. Consequently, the autonomy-enhancing effects of external demands may occur primarily among action-oriented individuals. Importantly, this integrative perspective agrees with the self-determination perspective that autonomy is a core aspect of effective volitional functioning. The perspective adds, however, that the conditions under which autonomy can be maintained are dependent on people's coping resources. As long the person has adequate coping resources (i.e., when she or he is action-oriented), external demands may be transformed into a positive challenge and hence may even contribute to autonomous functioning. It is only when the person's coping resources are insufficient (i.e., when she or he is state-oriented) that external demands become detrimental to autonomous functioning.

Are state-oriented individuals always condemned to function less autonomously than action-oriented individuals? Not necessarily. Volitional shielding pertains to the ability to ward off undermining influences on the self's autonomy. In the absence of undermining influences, then, state-oriented individuals might be capable of autonomous functioning at least as much as action-oriented individuals. Consistent with this, the present research found that state-oriented individuals maintained high levels of autonomous implicit self-evaluations in the absence of external demands. The critical difference between action—and state-oriented individuals is thus whether autonomous functioning is internally versus externally regulated. Action-oriented individuals are inclined towards internal regulation of the autonomous self, so that their self can be most autonomous when external demands are high. State-oriented individuals, by contrast, are prone to external regulation of the autonomous self. When circumstances are hostile, state-oriented individuals' access to their autonomous self becomes blocked; however, when circumstances are benign, state-oriented individuals become capable of accessing their autonomous self. This characterization is consistent with Kuhl and Beckmann's (1994) observation that state-oriented individuals can outperform action-oriented individuals under relaxing conditions. Presumably, state-oriented individuals' reliance on external support may allow them to benefit more from relaxing conditions than action-oriented individuals, who are oriented towards internal regulation. Overall, both action—and state-orientated individuals seem capable of autonomous functioning, albeit under very different circumstances.

The present research has several limitations and thus leaves many important issues to be explored by future research. First, the present research only used implicit self-evaluations to assess autonomous functioning. Obviously, there exist many other valid indicators of the autonomy motive, including self-report measures (Deci & Ryan, 2000), free-choice behavior (Deci & Ryan, 2000; Kuhl & Kazén, 1994), self-infiltrations (Baumann & Kuhl, 2003; Kuhl & Kazén, 1994), latency of self-compatibility checking (Kazén, Baumann, & Kuhl, 2003), and conformity (Beckmann, 1997). Notably, research using some of these alternative indicators has supported the autonomy-shielding role of action orientation (Baumann & Kuhl, 2003; Beckmann, 1997; Kazén et al., 2003). Still, it seems important to extend the present findings to a broader range of autonomy-related phenomena. Another task for future research lies in further exploring the implicit processes that underlie autonomous functioning. In recent years, substantial progress has been made in measuring implicit aspects of the self (Devos & Banaji, 2003; Kazén et al., 2003; Koole & Pelham, 2003). Incorporating more of these implicit methodologies should significantly advance our understanding of the autonomous self. Finally, future work may explore the effects of action orientation across a broader range of threats, such as social comparisons (Stapel & Swinghammer, 2004; Vohs & Heatherton, 2004), negative self-relevant information (Sedikides & Green, 2004; Wentura & Greve, 2004), and stereotype threat (Schimel et al., 2004; Steele & Aronson, 1995).

CONCLUDING REMARKS

The self is a dynamic psychological structure that is in constant interaction with the outside world. An overload of outside influences, however, can interfere with the self's healthy functioning (Nowak et al., 2000). The self therefore needs to rely on defense mechanisms to preserve its overall integrity (Sedikides & Green, 2004; Stapel & Swinghammer, 2004; Wentura & Greve, 2004). The present research illuminates how volitional resources such as action orientation may assist in the crucial task of shielding the self against the psychological burdens of external demands. This volitional shielding function of action orientation may even be effective on implicit, unconscious levels, so that action orientation appears to be a highly efficient self-regulatory resource. Volitional shielding may thus allow people to live in freedom, even under the weight of pressing external demands.

APPENDIX: TARGET WORDS OF THE IMPLICIT SELF-EVALUATION TASK

Autonomy Words

*Sterk (strong)

*Zelfverzekerd (self-confident)

*Zelfstandig (autonomous)

Krachtig (powerful)

Moedig (brave)

Onafhankelijk (independent)

Relatedness Words

*Lief (lovely)

*Gezellig (cozy)

*Aardig (kind)

Populair (popular)

Geliefd (loved)

Aantrekkelijk (attractive)

Competence Words

*Winnaar (winner)

*Succesvol (successful)

*Doorzetten (to persist)

Geslaagd (passed)

Scoren (to score)

Beloning (reward)

Loss of Autonomy Words

*Zwak (weak)

*Onderdanig (submissive)

*Machteloos (powerless)

Onzeker (insecure)

Bang (fearful)

Vernederd (humiliated)

Loss of Relatedness Words

*Afgewezen (rejected)

*Verstoten (abandoned)

*Eenzaam (lonely)

Afgedankt (discarded)

Alleen (alone)

Lelijk (ugly)

Loss of Competence Words

*Verliezer (looser)

*Mislukt (failed)

*Opgeven (to quit)

Gezakt (flunked)

Verslagen (defeated

Falen (to fail)

Note. Words marked with an asterisk were used in both Studies 1 and 2; unmarked
words were only used in Study 2.

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