

THE IMPORTANCE OF EMPOWERING SELF-REGULATION

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*„...Wir können alles schaffen
genau wie die tollen, dressierten Affen
WIR MÜSSEN NUR WOLLEN...”*

*“...We can accomplish anything
just like the awesomely, trained monkeys
WE JUST NEED TO WANT IT...”*

Wir sind Helden

CHAPTER 1

INTRODUCTION

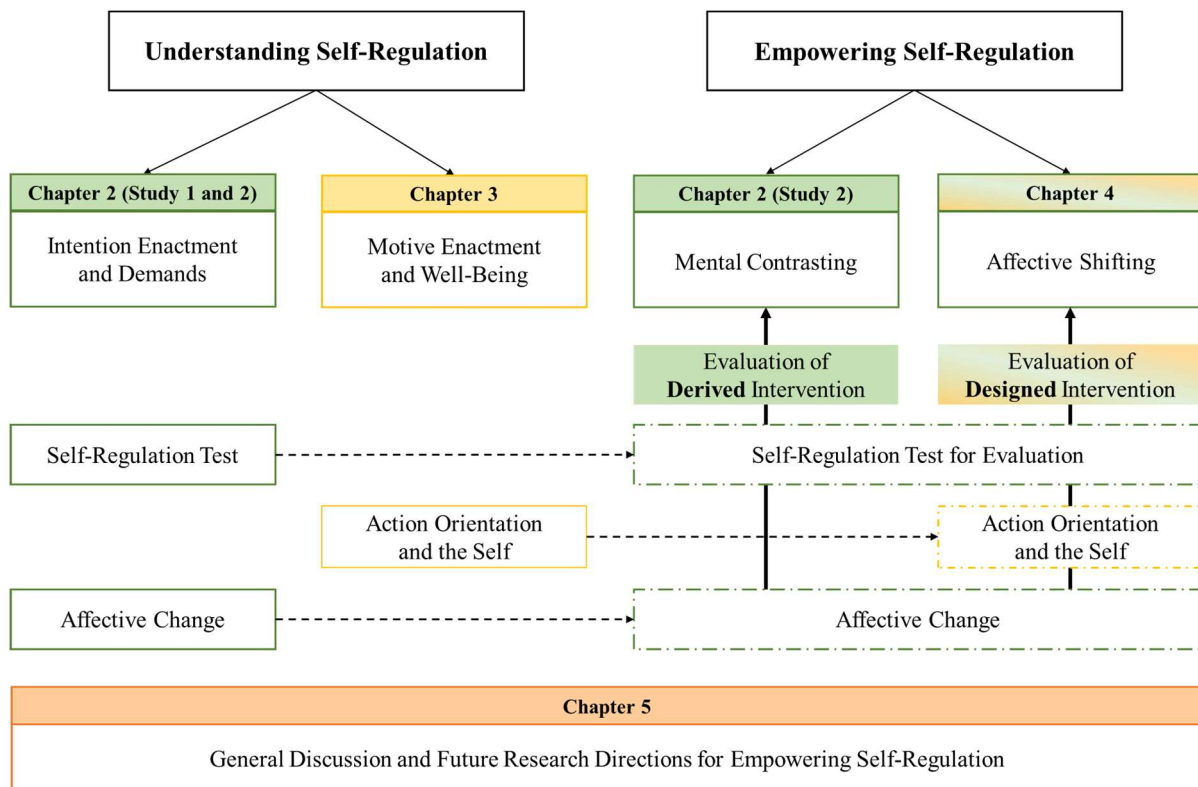
In their song “Müssen nur wollen” the German band ‘Wir sind Helden’ proclaims that we can accomplish anything, if we just want to. However, their cynical contemplation of today’s performance-driven and fast changing world that challenges us to become bigger, faster, and better every day, already indicates that there is a little more to closing the gap between intentions and actions than just really badly wanting it. Indeed, psychological research has shown that often the problem why people do not accomplish what they set out to achieve does not stem from the fact that they do not *want* it, but more so that they cannot close the gap between wanting and doing. Moreover, paradoxically, thinking too much about the things one would like to achieve, may even hold some people back from actually executing them (Goschke & Kuhl, 1996; Ruigendijk et al., 2018; Ruigendijk & Koole, 2014). Instead, to accomplish what we want to achieve, research has shown that good self-regulation abilities are fundamental (Inzlicht et al., 2021; Kuhl, 2000, 2018). Self-regulation is described as the ability to purposefully direct one’s own emotions, thoughts, and behaviors (Baumeister et al., 2007; Carver & Scheier, 2011), and is considered one of the most decisive factors for mastering developmental tasks, crises and challenging everyday situations (Rönnau-Böse & Fröhlich-Gildhoff, 2020).

In principle, people differ in their self-regulation ability and a prominent construct that illustrates these interindividual differences is action-state orientation (Kuhl, 1994; Kuhl & Beckmann, 1994). Action orientation is the ability to effectively self-regulate own emotions during goal striving which allows for self-congruent goal pursuit and successful intention enactment in the face of difficulty. In contrast, state orientation is characterized by self-regulatory deficits in goal striving, which show its adverse effect in particular under high situational demands and makes state-oriented individuals more dependent on external cues (e.g., incentives, encouragement) to implement intended action (Kuhl, 2018). To date over 140 published studies have extensively investigated the interindividual differences in action-state orientation (see Koole et al., 2012; Kuhl, 2018 for overviews) and consistently highlight the benefits of distinct action orientation

in various areas of life, for instance academia and work (Dahling et al., 2015; Diefendorff, 2004; Dietrich & Latzko, 2020), health and well-being (Baumann, Kaschel, et al., 2005; Chatterjee et al., 2018; Schlinkert & Koole, 2018) and relationships (Backes et al., 2017; Koole et al., 2006).

Interindividual considerations of the wide-ranging benefits of strong self-regulation abilities emphasize at the same time that there are individuals who fall short under demanding situations (i.e., state-oriented individuals). Thus, in particular for individuals with impaired self-regulation abilities, there appears to be a vital need to empower self-regulation (see also Gross, 2015). But how is it possible to overcome the adverse effects of state orientation? The psychological processes that underlie self-regulation are well studied (see for example Kuhl, 2018 for an overview); however, also in consideration of the wide range of beneficial outcome research, less has been invested into formulating and testing interventions that are based on these underlying processes. To answer this question, therefore, it seems to make sense to learn from those individuals who are already quite good at self-regulation. Personality Systems Interactions Theory (PSI) (Kuhl, 2001) can thereby serve as a guiding framework, as it breaks down self-regulation and goal-directed behavior into specific underlying psychological functions and mechanisms with a distinct focus on changes in affect.

Based on PSI theories notions, in the present dissertation, I will further shed light on the functional mechanisms of self-regulation, to on the one hand gain a better understanding of the underlying psychological and affective mechanisms and on the other hand use that understanding to derive, develop and evaluate target-oriented interventions that may support state-oriented individuals to overcome their self-regulatory impairment (see Figure 1.1 for an overview). Self-regulation is investigated within several age cohorts from early adolescence (Chapter 2, Study 1: $M_{\text{age}}=16.53$; Study 2: $M_{\text{age}}=11.53$) to higher age (Chapter 3: $M_{\text{age}}=44.08$; range 24-72; Chapter 4: $M_{\text{age}}=26.40$; range 18-66) and in various contexts (high school, work, university) to gain a comprehensive picture across the lifespan and in different areas of life. To examine my research questions, a broad range of methods are applied, varying from self-reports to well-established non-reactive measures, such as the Stroop task (Stroop, 1935) or the Operant Motive Test (OMT, Kuhl & Scheffer, 1999). This allows to not only investigate the phenomenon of self-regulation beyond a subjective perspective, but also for a differentiated and comprehensive analysis of the underlying processes.

Figure 1.1 Overview of the Present Dissertation

The following chapters will present four studies. Chapter 2 focuses on the relation between self-regulation and difficult intentions under demands. It builds up on one of PSI theory's central assumptions, reasoning that successful enactment of own intentions depends on changes in positive affect (see also Baumann & Scheffer, 2010: affective change hypothesis). To challenge self-regulation abilities, a special design of the Stroop task (Kazén & Kuhl, 2005; Kuhl & Kazén, 1999; Stroop, 1935) is created to test interindividual differences (Study 1 and 2). Further, this crucial self-regulation test is used to evaluate mental contrasting (Oettingen et al., 2001), an intervention that is presumed to support the necessary changes in positive affect to allow for successful intention enactment under demands (Study 2).

In chapter 3, building on previous research (Baumann et al., 2016), I chose an integrative approach of self-regulation and motivation research to examine the impact of action orientation on the enactment of the power motive (prosocial vs. dominant) and well-being. In contrast to prior research, the research hypotheses are investigated in a large leadership sample. With prosocial power enactment, I investigate an *intrinsic* motive enactment, which according to PSI theory relies on the participation of the self (Baumann et al., 2010, 2016; Kuhl & Scheffer,

1999). Further, PSI theory states that action-oriented individuals are effectively able to regulate changes of affect by engaging internal (i.e., the self) instead of relying on external (i.e., incentives) resources (Koole & Jostmann, 2004; Kuhl et al., 2020). Thus, in addition to the elaboration of the benefits of action orientation, this chapter also further aims to elucidate on the association of the self in action orientation.

Finally, chapter 4 will pick up again on how to empower self-regulation and integrates previous insights in the development of a theory-driven intervention: affective shifting. Based on PSI theory's assumption of affective change (Baumann & Scheffer, 2010; Kuhl, 2001) and the notion that action-oriented ability is mediated by the self (Koole & Jostmann, 2004), affective shifting is designed to practice the decisive affective changes for successful intention enactment. In a control group design, the effect of affective shifting is evaluated with the established self-regulation test of chapter 2. Additionally, the impact of affective shifting on affect regulation and long-term goal enactment is examined. Last but not least, the three chapters will be followed by a general discussion and a brief outlook for future research directions in empowering self-regulation (chapter 5).

Chapter 2

WHEN TOUGH GETS YOU GOING: ACTION ORIENTATION UNFOLDS WITH DIFFICULT INTENTIONS AND CAN BE FOSTERED BY MENTAL CONTRASTING

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*“Knowing is not Enough; We must Apply.
Willing is not Enough; We must Do.”*

Johann W. von Goethe

Abstract

Action orientation is a volitional mode that supports successful intention enactment under demands. We expected that priming difficulties evokes action-oriented individuals to self-regulate positive affect for effective intention enactment and causes state-oriented individuals to struggle. However, we predicted that mental contrasting increases intention enactment among state-oriented individuals. In two studies ($N_1 = 132$, 46.21% male, $M_{age} = 16.53$; $N_2 = 128$, 61.72% male, $M_{age} = 11.53$), intention enactment was assessed non-reactively by Stroop interference. As a crucial test for self-regulatory ability, we used intention-forming primes (“setting high goals”) which call for self-generating positive affect and presumably facilitate intention enactment only among action-oriented individuals. In Study 2, we aimed to improve state-oriented participants' intention enactment through mental contrasting. Consistent with expectations, action-oriented individuals showed a complete removal of Stroop interference after intention-forming primes (Studies 1 and 2). Furthermore, a short mental contrasting intervention promoted intention enactment among state-oriented participants (Study 2). Findings support the understanding that action-oriented individuals excel under demanding conditions whereas state-oriented individuals have to practice self-regulating positive affect to successfully enact under demands.

Keywords: Action-State Orientation; Intention Enactment; Affective Change; Stroop Interference; Self-Regulation

1. Introduction

People form many good intentions in life (e.g., increase sport activities, make healthier food choices, become more productive at work, etc.), yet not always act on them. Especially when confronted with difficulties, many individuals struggle to enact their intentions although the knowledge how and the will to enact is present. However, there are others that are invigorated by difficulty and get going with their intentions without hesitation. According to Personality Systems Interactions (PSI) theory (Kuhl, 2001), these individual differences are explained by the ability to self-regulate one's own affective states (i.e., action versus state orientation). Consistently, individuals with high self-regulatory abilities (i.e., action-oriented) have been found to excel under demanding conditions, whereas individuals with low self-regulatory abilities (i.e., state-oriented) struggle to enact (Koole, Jostmann, & Baumann, 2012). Intention enactment specifically is facilitated by a change in positive affect, from reduced (when confronted with difficulty) to restored positive affect (when mastering difficulty) (see also Baumann & Scheffer, 2010: affective change hypothesis).

In the present research, we designed a non-reactive test that challenges self-regulatory abilities to take a closer look at individual differences in intention enactment. We assessed current life circumstances, applied a difficult task (i.e., the Stroop task), and challenged self-regulatory abilities by presenting primes related to difficult intentions (e.g., “aiming for ambitious goals”). We expected action-oriented individuals who experience demanding life circumstances to show high intention enactment (i.e., low Stroop interference) and state-oriented individuals to struggle (Studies 1 and 2). Furthermore, we used mental contrasting as a method to practice affective change and hence foster intention enactment among state-oriented individuals (Study 2).

Intention Enactment: The Role of Positive Affect

According to PSI theory (Kuhl, 2001), explicit intentions are typically formed when individuals encounter some kind of difficulty. Whereas easy or pleasant matters are likely to be enacted automatically, difficult matters require preparation and activate “intention memory” - a central executive system that is specialized on forming and maintaining intentions (Goschke & Kuhl, 1993; Kazén & Kuhl, 2005; Kuhl, 1984; Kuhl & Kazén, 1999; Kuhl & Quirin, 2011). Intention memory is supported by analytical problem-solving and temporarily inhibits premature or impulsive action. Consistent with the motto “think before you act”, this action inhibition proves to be quite adaptive as it allows individuals to mentally run through possible solutions, plan specific action steps, and maintain intentions active until encountering enactment opportunities

(Brandimonte, Einstein, & McDaniel, 1996; Braver, Gray, & Burgess, 2007; Ridderinkhof, Wildenberg, & Brass, 2014; Zanini, Rumiati, & Shallice, 2002). At the same time, intention memory is associated with reduced positive affect because people hardly ever cheer about difficulties, but rather experience feelings like listlessness, discouragement, or frustration (Kuhl, 2000, 2001). An increase in positive affect, however, releases the action inhibition and enables a smooth transition of intentions into action.

Positive affect signals that difficulty has been resolved, a solution found, an action plan established, and that the right time and opportunity have come to enact the intention (Kazén & Kuhl, 2005; Kuhl, 2000a). Many findings support the assumption that positive affect does not only facilitate behavior in general (Gray, 1987) but specifically the enactment of difficult intentions (Aspinwall, 1998; Isen, 1999, 2001; see also Kuhl, 2001). The Stroop (1935) task, for example, experimentally induces a difficult intention (i.e., the intention to respond to the ink color in which an incongruent color word is written). Kuhl and Kazén (1999) and Kazén and Kuhl (2005) found that positive primes lead to efficient intention enactment for most individuals as demonstrated by reduced Stroop interference. However, there are not always external cues present (e.g., encouragement, incentives) to prompt positive affect. Therefore, the ability to restore positive affect through self-regulation is particularly relevant to ensure intention enactment. As noted earlier, individuals differ in their self-regulatory ability to restore positive affect (Koole et al., 2012; Koole, Kuhl, Jostmann, & Finkenauer, 2006; Kuhl, 2000).

Action Orientation: The Ability to Self-Regulate Positive Affect under Demands

Action orientation comprises the ability to restore positive affect and to enact difficult intentions under demanding conditions (Jostmann & Koole, 2007; Koole & Jostmann, 2004; Kuhl & Beckmann, 1994). In contrast, individuals who are prone to be more state-oriented are more likely to get stuck in hesitation or frustration (i.e., low positive affect) and struggle to initiate their intended actions when positive affect is not provided externally. In line with this, action-oriented individuals have been found to be better at generating positive affect and energy during the course of a semester (Brunstein, 2001), meeting deadlines (Blunt & Pychyl, 1998), adhering to exercise and dietary intentions (Kendzierski, 1990; Palfai, 2002), and attaining personal goals in various life domains (Diefendorff et al., 1998).

The advantages of action orientation particularly surface under “demanding conditions” – a term that refers to a broad range of conditions such as demanding life circumstances (e.g., goal conflicts; Baumann, Kaschel, & Kuhl, 2005), visualizing a demanding person (Koole &

Jostmann, 2004), task interruption (Birk, Mandryk, & Baumann, 2019), task difficulty, cognitive load, and uncompleted intentions (e.g., Jostmann & Koole, 2007; Kazén, Kaschel, & Kuhl, 2008). Action-oriented individuals show better initiative, performance, and well-being across this broad range of demanding conditions. However, the pattern changes under non-demanding conditions. When individuals visualize an accepting person (Koole & Jostmann, 2004), receive autonomy-supportive instructions (Baumann & Kuhl, 2005), or are externally prompted to initiate (Kazén et al., 2008), state-oriented individuals reach the same or even higher levels of initiative, performance, and well-being compared to action-oriented individuals. Thus, action- and state-oriented individuals do not differ in task ability or intention enactment per se but in the self-regulatory ability to overcome states of reduced positive affect (Koole et al., 2012).

Taken together, findings consistently show that action-oriented individuals are well able to self-regulate positive affect and enact intentions when challenged by a demand. This suggests that further increases in demands could evoke action-oriented participants to unfold even more of their self-regulatory potential. To test this assumption, we employed a crucial test of action orientation by priming individuals who already experience high demands with further difficulty (Studies 1 and 2). Additionally, as research suggests that action orientation stays malleable throughout life (Gröpel, Kuhl, & Kazén, 2005) and can be improved with intervention (Hartung & Schulte, 1994; Kuhl, 2004), determining a method to promote action orientation seems essential in fostering successful intention enactment for those who struggle with it (Study 2).

Mental Contrasting: Practicing Affective Change

The foregoing analysis suggests that intention enactment involves dynamic changes in positive affect. On the one hand, intentions are typically not formed unless there is some difficulty that reduces positive affect and decouples intention memory from action. On the other hand, intentions are often not enacted unless positive affect recouples intention memory with action (see Baumann & Scheffer, 2010 for a detailed outline of affective change in intention enactment). Thus, intention enactment can fail at two stages: People can fail to form intentions, or they can fail to restore positive affect. Many findings confirm that state-oriented individuals do not fail at the first stage but hold intentions even more strongly active in memory than action-oriented individuals (Goschke & Kuhl, 1993). Paradoxically, this may further increase their problems with the second stage (Ruigendijk, Jostmann, & Koole, 2018). Whereas action-oriented individuals can effectively shift between high and low positive affect by themselves, state-oriented individuals need some external help.

Following this understanding, we derived that practicing changes between high and low positive affect may foster intention enactment among state-oriented individuals. Just like progressive muscle relaxation can be trained by repeatedly switching between tension and release (Jacobson, 1938; Krampen, 2013), we suggest that training repeated changes between high and low positive affect improves the ability to self-reliantly shift between these affective states. An effective, consciously deployable, and easy to learn self-regulatory strategy that is reasonably supposed to meet these requirements is mental contrasting (Oettingen, 2012; Oettingen, Pak, & Schnetter, 2001). During this imagination exercise, participants are asked to imagine a desired future (e.g., receiving a good grade in an exam) followed by reflecting the current reality which stands in the way of reaching this future (e.g., lack of time for studying, loss of motivation, or distractions). Provided the vision of the future is perceived obtainable, processing positive aspects and challenging obstacles simultaneously increases goal commitment (Locke & Latham, 2006), which has a volitional facilitation effect (Oettingen et al., 2001).

Mental contrasting has been successfully used to promote goal pursuit by increasing commitment to and enactment of attainable goals and disengagement from unattainable goals (Oettingen, Mayer, & Thorpe, 2010; Oettingen et al., 2001; Oettingen, Stephens, Mayer, & Brinkmann, 2010; see Oettingen, 2012 for an overview). Furthermore, individuals who are well self-regulated use mental contrasting more often spontaneously to manage their life (Sevincer, Mehl, & Oettingen, 2017). Finally, mental contrasting mobilizes energy (as measured by systolic blood pressure) for given tasks, even with prior demand induction (Oettingen et al., 2009, Study 2: mental contrasting intervention ahead of stress paradigm “having to talk in front of a camera”), and has transfer effects to unrelated tasks (Sevincer, Busatta, & Oettingen, 2014).

Although mental contrasting has not originally been designed as an affective regulation method, considering it under the lens of PSI theory reveals its affective content. Positively fantasizing about the future is related to positive affect (Klinger, 1971; Oettingen, Mayer, & Portnow, 2016) while imagining obstacles supports the activation of intention memory and therefore is associated with reduced positive affect (Kuhl, 2001). Hence, mental contrasting supports practicing the shift between high positive affect (indulging in positive fantasies) and low positive affect (imagining obstacles). Furthermore, Ruissen, Rhodes, Crocker, and Beauchamp (2018) show that mental contrasting interventions are more effective (i.e., exert greater influence on intention enactment) the more they explicitly target high and low positive affect (e.g., enjoyable, and unenjoyable aspects). The findings are consistent with the assumption that mental contrasting involves and practices the affective changes that facilitate intention enactment. Therefore, in

our second study, we examined whether mental contrasting supports state-oriented participants' intention enactment.

2. Study 1: Action Orientation Unfolds with Difficult Intentions

In our present research, we applied a crucial test for the assumption that action- compared to state-oriented individuals show higher intention enactment under demanding conditions. Consistent with previous research (Kazén & Kuhl, 2005; Kazén, Kuhl, & Leicht, 2015; Kuhl & Kazén, 1999; Quirin & Kuhl, 2008), we used the Stroop task to measure intention enactment because it is widely considered a particularly difficult task (Dyer, 1973; Jensen & Rohwer, 1966; Macleod, 1991) as it requires to selectively attend to task-relevant information and at the same time inhibit automatic responses to task-irrelevant information (see Kuhl & Kazén, 1999, on a detailed outline of the Stroop task as a measure for intention enactment). Reduction of Stroop interference, which is the typical required additional time of 50–200 milliseconds to react to incongruent stimuli (i.e., the word “blue” appearing in red ink) compared to neutral stimuli (i.e., a string of Xs shown in a specific color) (see Dyer, 1973; Jensen & Rohwer, 1966; MacLeod, 1991; Stroop, 1935), is regarded as a measure of implementation efficiency (Hagger, Wood, Stiff, & Chatzisarantis, 2010). As in previous research, we measured demanding life circumstances (e.g., Jostmann & Koole, 2008) to operationalize demanding conditions because these show similar differential effects on Stroop interference as experimentally induced demands (e.g., a depleting sensorimotor task: Gröpel, Baumeister, & Beckmann, 2014, Exp. 3; working memory load: Jostmann & Koole, 2007, Exp. 1; an uncompleted intention: Jostmann & Koole, 2007, Exp. 3).

A unique and crucial feature in our studies is that we further challenged self-regulation by presenting intention-forming primes (e.g., “aiming for an ambitious goal”) ahead of the Stroop task, that is, primes that characteristically activate intention memory. We used achievement-related primes because striving for achievement is intrinsically related to difficulty and prone to activate intention memory (see Section 1). In contrast, striving for affiliation (i.e., being close to others) and power (i.e., having impact on others) requires many intuitive skills rather than analytical problem solving. In line with this reasoning, Kazén and Kuhl (2005) observed a removal of Stroop interference only after positive achievement primes but not after positive primes related to affiliation and power. In the present studies, the confrontation with intention-forming achievement primes was expected to unfold action-oriented individuals' self-regulatory

potential. As no external cue was provided to restore positive affect (e.g., “success”), participants solely had to rely on their self-regulatory abilities.

To summarize, we assessed individual differences in action orientation and demanding life circumstances between subjects. We manipulated prime category (intention-forming achievement primes vs. positive achievement primes) and Stroop stimulus (incongruent vs. neutral) within subjects. We hypothesized that, under demanding life circumstances, action orientation is associated with lower Stroop interference after intention-forming achievement primes. We expected no effects of action orientation under low demands and after positive achievement primes.

Sample

The sample consisted of $N = 132$ (71 female and 61 male) high school students from three different high schools in a small city in Germany, all attending 11th grade. Participants had a mean age of $M = 16.53$ years ($SD = 0.76$, range 16 to 21). The study was approved by the ethical board of the state Rhineland-Palatinate, Germany (Aufsichts- und Dienstleistungsdirektion: ADD 51 111-32/50-08). We had obtained written consent from parents in advance of the study. Students' participation was voluntary and individuals could elect out without any personal disadvantages.

Materials

Action orientation and experienced life demands. We used the Volitional Components Questionnaire (VCQ; Kuhl & Fuhrmann, 1998). The scale “initiative” (4 items, Cronbach's $\alpha = .79$) measures demand-related action-state orientation (“If something has to be done, I begin doing it immediately”). The scale “demands” (4 items, Cronbach's $\alpha = .83$) measures the extent of every day stress, which results from the amount of yet unresolved intentions, difficult tasks, and still to finish duties (“I am currently confronted with many difficulties in my life”). Items were rated on a four-point scale how much they applied to each participant (not at all – some – much – completely). A self-report was used, as previous research has shown that experienced demands in life circumstances influence action- versus state-oriented individuals in the same manner as experimentally induced demands (Jostmann & Koole, 2008).

Intention enactment efficiency. The EMOSCAN® (Kuhl & Kazén, 1999) is a computer-based test and was used as a non-reactive measure to determine the implementation efficiency of difficult intentions. It is based on the Stroop test (Stroop, 1935) and requires participants to suppress the dominant response tendency of reading a word (i.e., “blue”) in favor of reacting to the

ink color of the word (i.e., the word “blue” appearing in red ink) as fast and as correct as possible. Each EMOSCAN® trial consisted of several steps. First, a fixation cross was presented (500 ms) followed by a prime word (750 ms), which participants had been instructed to concentrate on. Prime words were either loaded with positive (e.g., “getting praised”), negative (e.g., “failure”), or intention-forming achievement content (e.g., “aiming for ambitious goals”). Also included were comparable (for this present study irrelevant) categories for affiliation and power. As the primes were supposed to stimulate affective states, students were asked in advance to write down a personal experience for every prime category. Next, after the prime word, a Stroop stimulus was presented. Participants were supposed to answer correctly with key stroke to the color of the stimuli. In 50% of the trials, an incongruent Stroop stimulus was presented with the colors and color words green, blue, red, and yellow.

In 50% of the trials, a control stimulus was presented consisting of four X (“XXXX”) in one of the four colors. Finally, a second to-be acted-upon stimulus was presented. Participants were presented with trait adjectives and asked to give a personal evaluation on a four-point scale (very negative; negative; positive; very positive). After 18 practice trials, the experimental phase started with 108 trials with a short break after 54 trials. There were 3 (positive, negative, intention-forming) \times 3 (achievement, affiliation, power) = 9 different prime categories. For each prime category, there were 3 different prime words that were repeated twice. Thus, there were 9 (prime categories) \times 6 (presentations) \times 2 Stroop stimuli (incongruent, control) = 108 trials.

Stroop interference is the additional time (50–200 milliseconds) required to respond to incongruent compared to control stimuli. Low Stroop interference is regarded as a measure of implementation efficiency (Hagger et al., 2010). For the present study, Stroop interference after intention-forming achievement primes, which do not provide but further reduce positive affect, was relevant. Since positive affect is not supported externally by positive primes, as in previous research, in this priming condition, positive affect can merely be generated through self-regulatory processes.

Procedure

Questionnaires for action-state orientation and experienced life demands were handed to participants to fill in at home. Subsequently, the EMOSCAN® was conducted class by class in the computer rooms of the school. Students who did not participate within this study were supervised in their regular classrooms. Complete data are available for 74% of the sample.

Results

Reaction times in the Stroop task were adjusted for extreme values (≥ 3 SDs). The error rate of incongruent Stroop stimuli was relatively low (4%) and correlated with $r = .08$ with the reaction times. Hence, the present data did not show any indication of a speed-accuracy-tradeoff. This eliminates the possibility of behavioral facilitation instead of volitional facilitation (Kuhl & Kazén, 1999).

Regression analyses. A hierarchical regression analysis with the Stroop interference (in ms) after intention-forming achievement primes as the dependent variable was performed to test whether action-oriented individuals under demands show a higher intention enactment efficiency. In Step 1, we entered the z-standardized action orientation and subjective demands scores. In Step 2, we entered their interaction term. As listed in the left column of Table 2.1, there were no main effects for action orientation and demands.

Table 2.1 Hierarchical Regression Analyses Predicting Stroop Interference after Intention-Forming Achievement Primes as a Function of Action-State Orientation, Subjective Demands (Studies 1 and 2) and Mental Contrasting (Study 2).

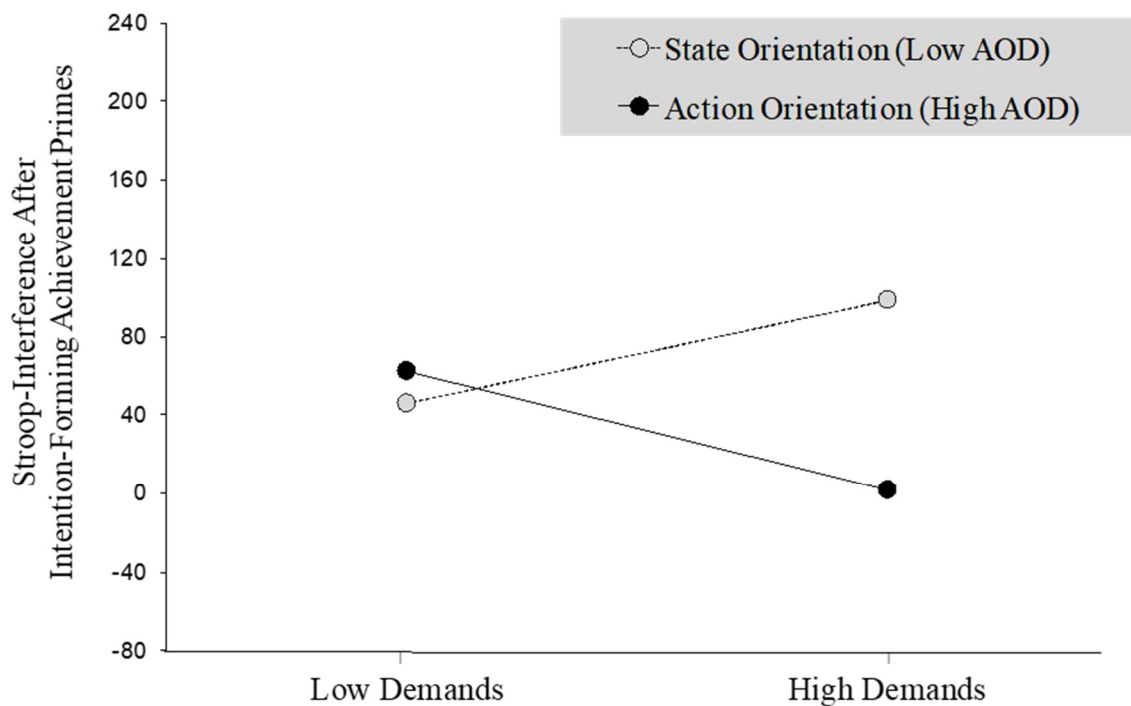
	Study 1		Study 2	
	ΔR^2	β	ΔR^2	β
Step 1	.027		.018	
Action-State Orientation (AOD)		-.16		-.11
Subjective Demands		-.04		.02
Intervention ^a				-.10
Step 2	.031*		.064*	
AOD \times Demands		-.18*		-.24**
AOD \times Intervention				.04
Demands \times Intervention				-.14
Step 3			.061**	
AOD \times Demands \times Intervention				.26**
Total R^2	.058*		.148**	
N	132		128	

^a Intervention condition: -1 = control group; 1 = mental contrasting

* $\rho < .05$ ** $\rho < .01$ *** $\rho < .001$

As expected, there was a significant Action Orientation \times Demands interaction on Stroop interference after intention-forming achievement primes, $\beta = -.18$, $t(128) = -2.04$, $p = .043$. The interaction remained significant when controlling for age and gender, $\beta = -.18$, $t(126) = -2.09$, $p = .039$. Fig. 2.1 shows the interaction effect with values of $M \pm 1SD$ for both predictors. Simple slope analysis revealed that, under low demands, action orientation had no significant effect on Stroop interference after intention-forming achievement primes. $B = 7.41$, $t(128) = 0.36$, $p = .722$. Under high demands, in contrast, action orientation was associated with significantly lower Stroop interference after intention-forming achievement primes, $B = -48.81$, $t(128) = -2.76$, $p = .007$. This finding is consistent with the hypothesis that, under demands, action-oriented students can enact difficult intentions more efficiently than state-oriented students. An analysis of the Stroop interference after positive (instead of intention-forming) achievement primes showed no significant main effects of action orientation and demands. Furthermore, the Action Orientation \times Demands interaction was not significant, $\beta = -.02$, $t(128) = -0.23$, $p = .822$. The benefit of action orientation is therefore solely demonstrated after intention-forming achievement primes.

Figure 2.1 Stroop Interference after Intention-Forming Achievement Primes (as a Non-Reactive Measure for Intention Enactment) as a Function of Action-State Orientation and Subjective Demands (Study 1)



Discussion

Study 1 shows that action orientation fosters efficient enactment of difficult intentions under subjectively experienced demands. Intention enactment efficiency was measured non-reactively with the reduction of Stroop interference after intention-forming achievement primes. This finding is consistent with previous research (Koole et al., 2012). However, going beyond previous work, our study demonstrated efficient intention enactment of action-oriented individuals under demands in a crucial test condition, that is, after intention-forming achievement primes. In contrast to positive primes, these primes do not provide the facilitative positive affect for intention enactment externally. Hence, our results indicate that action orientation unfolds with difficult intentions.

Additionally, our analysis yielded no significant interaction between action orientation and demands after positive achievement primes. Thus, the advantage of action orientation becomes only apparent when individuals do not rely on external positive primes and have to restore positive affect by themselves. In contrast, when positive affect is externally provided through priming, individual differences vanish. But how can we support state-oriented individuals to be less dependent on external conditions and better self-regulate affective states to successfully enact intentions? The foregoing analysis in Section 1 suggests that to foster intention enactment for state-oriented individuals under demands, an intervention is necessary that supports practicing affective change. Hence, we conducted a second study, in which we chose mental contrasting as an intervention that supports self-regulation abilities to promote action orientation within state-oriented individuals under demands and when further challenged with intention-forming primes.

3. Study 2: Mental Contrasting Fosters Action orientation

In Study 2, we aimed at replicating and extending the findings of Study 1. Specifically, we selected mental contrasting (Oettingen et al., 2001) as a method that is supposed to improve self-regulation abilities and thus should support especially state-oriented individuals in their intention enactment. Half of our sample exercised mental contrasting prior to the EMOSCAN®. The other half did not exercise mental contrasting prior to the EMOSCAN®. We hypothesized that the short mental contrasting exercise promotes intention enactment among state-oriented participants. Thus, in the intervention group, we expected no effect of action orientation under high demands on Stroop interference after intention-forming achievement primes. In contrast, in the control group, we expected to replicate the differential effect obtained in Study 1.

We chose a slightly younger sample of students (grade 5 to 7 instead of grade 11). At this grade level, self-regulatory abilities are still developing and should greatly vary between participants (Kuhl & Kraska, 1989; Mischel & Mischel, 1983; Oettingen, Hönig, & Gollwitzer, 2000). In Germany, the transition from elementary school (grade 1 to 4) to high school (from grade 5 on) marks the end of extensive external regulation through teachers and parents. Thus, building self-regulatory abilities is one of the developmental tasks of this age cohort.

Sample

A hundred and twenty-eight German high school students (49 females and 79 males), attending grades 5 through 7 at a high school in Stuttgart, participated in the study. Participants had a mean age of $M = 11.53$ years ($SD = 2.02$, range 9 to 14). Students decided to participate at the study course-wise. Half of the sample was assigned to the experimental group (mental contrasting), while the other half was assigned to the control group (no intervention). The study was approved by the same ethical board decision as Study 1 (ADD 51 111-32/ 50-08). Participation was voluntary and individuals could elect out without any personal disadvantages. The declaration of consent has been obtained in advance from parents.

Materials

Action-state orientation and experienced life demands. We used the demand-related dimension of the Action Control Scale (ACS-90; Kuhl, 1994). The scale consists of 12 items (Cronbach's $\alpha = .72$). An example item is “When I know I must finish something soon, then: (a) I have to push myself to get started (b) I find it easy to get it done and over with.” Option “a” reflects the state-oriented answer alternative, while option “b” is the action-oriented one. Action-oriented answers are summed up, which results in scale values between 0 and 12. Low values indicate lower action orientation (i.e., state orientation, hesitation), while higher values indicate higher action orientation (i.e., initiative). As in Study 1, subjective demand was measured with the four items of the VCQ (Cronbach's $\alpha = .76$).

Intention implementation efficiency. We used the same non-reactive measure, EMOSCAN® (Kuhl & Kazén, 1999), as in Study 1.

Procedure

The study was executed during regular school time and took place in the computer rooms of the school. Students who did not want to participate in the study were supervised by their teachers in different classrooms. The present quasi-experimental study employs a between subjects design. Due to practical constraints, classes (rather than individual participants) were

randomly assigned to the experimental or the control group. While the control group directly worked on the EMOSCAN®, the experimental group was getting a short, five-minute long intervention comprising of an imagination exercise, which was received via headphones. Its structure followed the process of mental contrasting by Oettingen et al. (2001). Students were introduced into a positive-encouraging achievement situation and instructed to contrast the positive aim (successfully master an academic task), as well as the challenges confronted with on the way (e.g., distractions, loss of motivation). They were asked to imagine what they listened to as intensive and vivid as possible. Consistent with Oettingen et al. (2001) participants started with positive imageries (e.g., “performing tasks easily”), were then confronted with difficulties (“tasks become more difficult and require more focus”) that were resolved into positive success imageries (“even difficult tasks are performed easily, and you receive great praise”). Thereby, the contrast between positive fantasies and present reality was repeated at least twice. Next, they worked on the EMOSCAN®. Due to time-constraints (i.e., standard lessons are 45 min), action orientation and experienced demands were assessed via online survey which students could fill in at home. Complete data are available for 82% of the sample.

Results

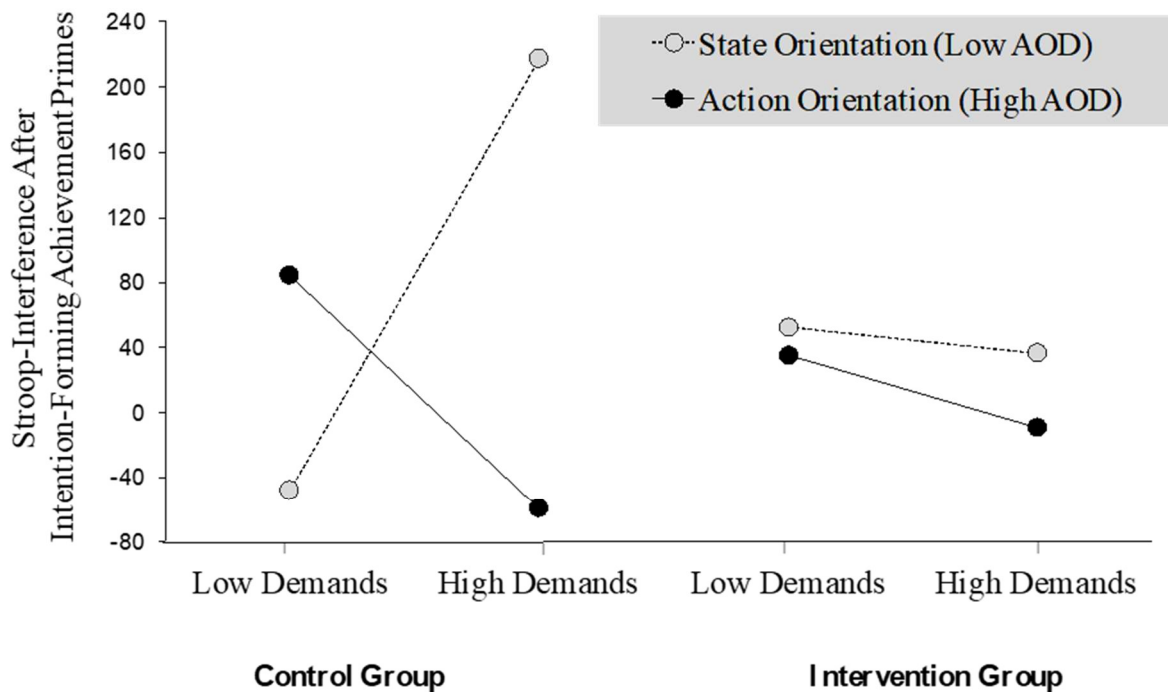
Reaction times for the Stroop task were adjusted for extreme values (≥ 3 SDs). The error rate (6.6%) for incongruent Stroop stimuli correlated $r = .05$ with the reaction times. Hence, the present data do not show any indication of a speed-accuracy-trade-off.

Group differences before the intervention. Independent t-tests indicated that there were no significant group differences with regard to demands, $t(1, 122) = -1.56$, $p = .122$, and age, $t(1, 126) = 1.83$, $p = .070$. However, the experimental group ($M = 6.55$, $SD = 1.87$) was significantly less action-oriented than the control group ($M = 7.71$, $SD = 2.42$), $t(1, 122) = 3.00$, $p = .003$. This indication of lower self-regulatory abilities in the experimental group poses an even greater challenge for our intervention. Furthermore, there were more male students in the experimental group ($48 = 61\%$) compared to the control group ($31 = 40\%$), $\chi^2(1, 123) = 6.46$, $p < .01$.

Regression analyses. Stroop interference after intention-forming achievement primes were subjected to a hierarchical regression analysis. In Step 1, we entered z-standardized action orientation and subjective demands scores as well as the contrast coded experimental conditions ($-1 =$ control group; $1 =$ intervention group). In Step 2, we added all two-way interactions. In Step 3, we entered the three-way interaction. Results are listed in the right column of Table 2.1. As in Study 1, findings revealed a significant Action Orientation \times Demands interaction, $\beta =$

$-.24$, $t(116) = -2.61$, $p = .010$. The two-way interaction stayed significant when controlling for age and gender, $\beta = -.24$, $t(114) = -2.58$, $p = .011$. Additionally, the expected Action Orientation \times Demands \times Intervention interaction was significant, $\beta = .26$, $t(115) = 2.86$, $p < .005$. The three-way interaction stayed significant when controlling for age and gender, $\beta = .27$, $t(113) = 2.86$, $p = .005$. The three-way interaction is depicted in Fig. 2.2.

Figure 2.2 Stroop Interference after Intention-Forming Achievement Primes (as a Non-Reactive Measure for Intention Enactment) as a Function of Action-State Orientation, Subjective Demands and after a Short Intervention of Mental Contrasting Compared to a Control Group with no Intervention (Study 2).



In the control group, the slopes for action- and state-oriented participants differed significantly, $t(115) = -3.91$, $p < .001$. Under low subjective demands, action orientation was associated with marginally significantly higher Stroop interference, $B = 65.95$, $t(115) = 1.94$, $p = .054$. However, under high subjective demands, action orientation was associated with significantly lower Stroop interference, $B = -138.24$, $t(115) = -3.51$, $p < .001$. Findings are consistent with expectations and replicate the findings in Study 1. In the intervention group with mental contrasting, the slopes for action- and state-oriented participants did not significantly differ, $t(115) = -0.33$, $p = .744$. Simple slope analyses revealed neither under low subjective demands, $B = -8.95$, $t(115) = -0.30$, $p = .762$, nor under high subjective demands, $B = -22.51$, $t(116) =$

-0.82 , $p = .414$, a significant effect of action orientation on Stroop interference. Despite high demands in current life circumstances, state-oriented students had as little Stroop interference after intention-forming achievement primes as action-oriented students. Findings are consistent with the assumption that mental contrasting promotes the implementation of difficult intentions among state-oriented students. Analyzing the Stroop interference after positive (instead of intention-forming) achievement primes yielded no significant main effects of action orientation, demands, and intervention. Neither the Action Orientation \times Demands interaction, $\beta = -.82$, $t(116) = -0.87$, $p = .387$, nor the Action Orientation \times Demands \times Intervention interaction, $\beta = -.07$, $t(115) = -0.68$, $p = .495$, was significant. Thus, the benefit of action orientation and its stimulation with mental contrasting was evident only after intention-forming achievement primes.

Discussion

In Study 2, we successfully replicated our findings of Study 1. In comparison to their state-oriented counterparts, action-oriented individuals showed a more efficient intention enactment (as demonstrated in reduced Stroop interference) under experienced demands after having been primed with intention-forming achievement primes ahead of the Stroop task. However, state-oriented individuals benefited from a short intervention of mental contrasting, which was supposed to enhance their self-regulatory ability. Our results indicate that mental contrasting can promote self-regulatory abilities and lead to an equally efficient intention enactment among state- and action-oriented individuals. This is in line with previous findings on mental contrasting as an intervention that promotes self-regulatory ability (i.e., Oettingen, Mayer, & Thorpe, 2010; Oettingen, Stephens, et al., 2010, 2010). Furthermore, the present results support the notion that action-state orientation can be changed through intervention (e.g., Hartung & Schulte, 1994; Kuhl, 2004).

4. General Discussion

In the present research, we proposed that intention enactment involves dynamic changes in positive affect. Intentions are formed when people face difficulties that interfere with automatic courses of action and reduce positive affect. However, in order to put difficult intentions into action, positive affect needs to be restored. This makes the ability to self-regulate positive affect a key factor in intention enactment. Based on the literature (Jostmann & Giesemann, 2014; Jostmann & Koole, 2007, 2008; Kazén et al., 2008, 2015; Koole & Jostmann, 2004; Koole et al., 2012), we proposed that action-oriented individuals are well able to self-regulate positive

affect under demanding conditions whereas state-oriented individuals struggle. In addition, we proposed that mental contrasting promotes intention enactment among state-oriented individuals. As a crucial test for our propositions, we assessed current life circumstances, applied a difficult task (i.e., the Stroop task), and created a unique challenge by presenting primes related to difficult intentions (Studies 1 and 2). Furthermore, we tested whether mental contrasting improved intention enactment among state-oriented individuals, as this method supports the necessary affective change for intention enactment (Study 2).

Action Orientation unfolds with Difficult Intentions

In Studies 1 and 2, we found action orientation, under high demands, to be associated with lower Stroop interference in our crucial condition, that is, after intention-forming achievement primes. Findings are consistent with our assumption that action orientation unfolds with difficult intentions. In contrast, under low demands, we found no individual differences in intention enactment. This is consistent with previous research that state-oriented individuals perform well (and often even better than action-oriented individuals) when the demands on self-regulation are low (Koole et al., 2012). Note that findings were stable across two studies, across two age cohorts (grade 11 vs. grades 5–7) from two different cities, across two measures of action orientation (VCQ, ACS), and when controlling for age and gender. This methodological convergence increases the confidence in the robustness of our findings.

Mental Contrasting fosters Action Orientation

In Study 2, we found that state-oriented individuals benefited from a short intervention of mental contrasting, which supports connecting positive affect to an already built intention to facilitate intention enactment. The results show that already a one-time application of the method can prevent a demand-contingent decrease in intention enactment among state-oriented individuals. Our results complement and extend previous work on mental contrasting. For example, Sevincer, Schlier, and Oettingen (2015) found a depleting first task to reduce the likelihood from roughly 20% to 5% that participants spontaneously engage in mental contrasting as a self-regulatory strategy for an important personal wish. Consistent with Gröpel et al. (2014), our present findings suggest that only state- but not action-oriented participants drop in self-regulatory performance under such a demand.

In addition, Sevincer et al. (2015) identified two ways to increase mental contrasting: Priming the desired future and present reality increased the likelihood to roughly 40% (Study 1) and

priming intention-forming information to roughly 30% (Study 2) despite prior depletion. The present findings show a complementary effect: Exercising mental contrasting increased the likelihood that participants utilize intention-forming cues for intention enactment despite subjective demands. Furthermore, the present findings suggest a differential indication of the two priming techniques used by Sevincer et al. (2015). Our priming effects in Studies 1 and 2 imply that action- but not state-oriented participants profit from intention-forming information. In contrast, our intervention effect in Study 2 implies that state- but not action-oriented participants profit from priming the desired future and present reality.

Affective Change Hypothesis

The present research further supports the notion that dynamic changes in positive affect underlie successful intention enactment. Unfortunately, it was not possible to include direct measures of affect. Explicit mood ratings are not fine-grained enough and do not reflect the implicit changes that seem to be effective here (Kazén, Kuhl, & Quirin, 2015). Implicit affect measures (e.g., IPANAT; Quirin, Kazén, & Kuhl, 2009) would interfere with a valid assessment of the variables that are under scrutiny in this research (especially the reaction time task). Nevertheless, the present findings offer indirect support for our affective change hypothesis. On the one hand, intentions are typically not formed unless there is some difficulty that reduces positive affect and decouples intentions from actions (Kuhl, 2000, 2001). On the other hand, intentions are not likely to be enacted unless positive affect recouples intentions with action (see Baumann & Scheffer, 2010). Various interventions have tried to improve intention enactment through the belief system (“You just have to believe in it”) and solely focused on enhancing positive emotional states. However, many findings show that focusing on maximizing positive affect does not lead to performance promoting effects, but impairs enactment (Kappes, Oettingen, & Mayer, 2011; Oettingen, 2015) and has the paradoxical effect of reducing positive affect (Catalino, Algoe, & Fredrickson, 2014; Mauss, Tamir, Anderson, & Savino, 2011).

Hence, to enhance successful intention enactment, interventions are necessary that help connect positive affect to an already built intention. Based on the assumptions of the Hebbian learning principle (Hebb, 1949; “Neurons that fire together wire together”) and the principles of classical conditioning (for an overview see McSweeney & Murphy, 2014) one can assume that this connection will be strengthened by repetition and therefore become more automatic and natural over time. In oscillating between the desired future and visualizing the necessary steps towards this future, mental contrasting practices this decisive affective change and enhances self-

regulation abilities that support state-oriented individuals to get off the ground when under demands and even when confronted with difficulties.

Further, the subject matter of the mental contrasting intervention (i.e., mastering an academic task) was independent from the content of the following Stroop task (i.e., reacting correct and as fast as possible to incongruent stimuli). Nevertheless, the short mental contrasting intervention fostered performance in the Stroop task for state-oriented individuals. Previous research shows that mental contrasting mobilizes energy (as measured by systolic blood pressure; Oettingen et al., 2009) and has transfer effects to unrelated tasks (Sevincer et al., 2014). Our present results further support the notion that the mechanism underlying mental contrasting goes beyond mere cognitive representations (desired outcomes and present difficulties) of the current challenge. Considering these results under the affective change hypothesis suggests that transfer effects are due to an improvement in self-regulation abilities. Thus, the present research further contributes to our understanding why mental contrasting is a successful intervention method to improve intention enactment.

Target-Oriented Interventions

Our results indicate that action-oriented individuals did not benefit from the mental contrasting intervention. Sevincer et al. (2017) show that people who are good in self-regulation already use mental contrasting spontaneously to achieve an aimed-for goal. Hence, we assume that action-oriented individuals were already familiar with the technique of mental contrasting at an intuitive, non-conscious level. Making these processes conscious through our intervention may even disrupt the otherwise naturally occurring self-regulatory processes among action-oriented individuals. It could be compared to a longstanding car driver who needs to go back to driving school. As driving already happens intuitively for him, one can imagine that focusing on the single steps as they are by the book, might lead to initial hick-ups in the otherwise smooth driving experience. This again emphasizes the importance of considering individual differences to derive target-oriented interventions (Kazén et al., 2008). As Jostmann and Koole (2010, p. 344) already stated in their analysis of action versus state orientation: “The same intervention that may help one group of individuals is likely to undermine the performance of another group of individuals.”

5. Limitations and Future Directions

To the best of our knowledge, the present studies are the first ones that examined intention enactment under demands with a non-reactive measure after priming with difficulties. Consequently, this leads to many questions to be addressed in future work in which certain limitations of the current research should be considered. First, our intention-forming achievement primes were not self-generated but predetermined for every participant. Ahead of the study, participants were asked to write down a personal experience for every prime category (intention-forming, positive, negative) in each domain (achievement, affiliation, power), to ensure that the primes would stimulate affective states. We did not control the difficulty of these associations. However, we are not aware of any literature that action- and state-oriented individuals differ in their difficulty of goal setting. Furthermore, primes were standardized. For future research, we suggest replicating the present findings with self-generated primes.

Second, it should be noted that the mental contrasting exercise was a one-time intervention right ahead of the Stroop task. Previous research has established effects of mental contrasting on academic performance among fifth-graders that extended over a period of three months (Oettingen et al., 2000, Exp. 1). However, whether a one-time intervention of mental contrasting can accomplish sustainable long-term effects in improved intention enactment for state-oriented individuals is questionable and should be addressed in further research. Nevertheless, our research has shown that a single application of mental contrasting leads to an immediate improvement in intention enactment among state-oriented participants. Therefore, we assume that repeated training of mental contrasting could lead to long-term and sustainable improvements in self-regulation. After all, the disposition towards action orientation is not determined by our biology but advances from experience (Kuhl, 2001; Kuhl, Quirin, & Koole, 2015) and stays malleable into advanced old age (Gröpel et al., 2005).

Third, we chose to implement our study in a high school context. This naturally impedes the generalization of the present results. For example, it could be argued that puberty had an impact on our results in Study 2 as during this stage of development self-regulation abilities may be more vastly improved than in other life stages (Kaschel, Kazén, & Kuhl, 2017). Future research should transfer the present study design to different populations. At the same time, the effectiveness of our intervention among adolescents is an invitation to teachers and educators to implement mental contrasting in their classrooms. This could support especially state-oriented students to become more action-oriented and hence better at enacting difficult intentions.

6. Conclusion

With the present modification of the Stroop task, our research introduced a new and interesting method to measure self-regulatory processes. Applying this crucial test for self-regulation in future research can further our understanding of ways to close the gap between knowing, wanting, and doing that Goethe illustrated in his quote at the beginning. Our present findings suggest that individuals differ in what they need to fulfill the motto: We know, we want, and we enact. Whereas tough conditions are sufficient to get action-oriented individuals going, state-oriented individuals need a little jump-start in practicing mental contrasting to get going when the going gets tough.

REFERENCES OF CHAPTER 2

- Achtziger, A., Fehr, T., Oettingen, G., Gollwitzer, P. M., & Rockstroh, B. (2009). Strategies of intention formation are reflected in continuous MEG activity. *Social Neuroscience*, 4(1), 11–27. <https://doi.org/10.1080/17470910801925350>
- Aspinwall, L. G. (1998). Rethinking the role of positive affect in self-regulation. *Motivation and Emotion*, 22(1), 1–32. <https://doi.org/10.1023/A:1023080224401>
- Baumann, N., Kaschel, R., & Kuhl, J. (2005). Striving for unwanted goals: Stress-dependent discrepancies between explicit and implicit achievement motives reduce subjective well-being and increase psychosomatic symptoms. *Journal of Personality and Social Psychology*, 89(5), 781–799. <https://doi.org/10.1037/0022-3514.89.5.781>
- Baumann, N., & Kuhl, J. (2005). How to resist temptation: The effects of external control versus autonomy support on self-regulatory dynamics. *Journal of Personality*, 73(2), 443–470. <https://doi.org/10.1111/j.1467-6494.2005.00315.x>
- Baumann, N., & Scheffer, D. (2010). Seeing and mastering difficulty: The role of affective change in achievement flow. *Cognition & Emotion*, 24(8), 1304–1328. <https://doi.org/10.1080/02699930903319911>
- Baumeister, R. F., Gailliot, M., DeWall, C. N., & Oaten, M. (2006). Self-regulation and personality: How interventions increase regulatory success, and how depletion moderates the effects of traits on behavior. *Journal of Personality*, 74(6), 1773–1802. <https://doi.org/10.1111/j.1467-6494.2006.00428.x>
- Birk, M., Mandryk, R., & Baumann, N. (2019). Just a click away: Action-state orientation moderates the impact of task interruptions on initiative. *Journal of Personality*. <https://doi.org/10.1111/jopy.12498>.
- Blunt, A., & Pychyl, T. A. (1998). Volitional action and inaction in the lives of undergraduate students: State orientation, procrastination and proneness to boredom. *Personality and Individual Differences*, 24(6), 837–846. [https://doi.org/10.1016/S0191-8869\(98\)00018-X](https://doi.org/10.1016/S0191-8869(98)00018-X)
- Brandimonte, M., Einstein, G. O., & McDaniel, M. A. (Eds.). (1996). *Prospective Memory: Theory and Applications*. Erlbaum.
- Braver, T. S., Gray, J. R., & Burgess, G. C. (2007). Explaining the many varieties of working memory variation: Dual mechanisms of cognitive control. In C. Jarrold, A. R. A. Conway, M. J. Kane, A. Miyake, & J. N. Towse (Eds.), *Variation in Working Memory* (pp. 76–106). Oxford: Oxford University Press.

- Brunstein, J. C. (2001). Persönliche Ziele und Handlungs- versus Lageorientierung [Personal goals and action vs. state orientation]. *Zeitschrift für Differentielle und Diagnostische Psychologie*, 22, 1–12. doi:10.1024//0170-1789.22.1.1
- Catalino, L. I., Algoe, S. B., & Fredrickson, B. L. (2014). Prioritizing positivity: An effective approach to pursuing happiness? *Emotion*, 14(6), 1155–1161. <https://doi.org/10.1037/a0038029>
- Diefendorff, J. M., Lord, R. G., Hepburn, E. T., Quickle, J. S., Hall, R. J., & Sanders, R. E. (1998). Perceived self-regulation and individual differences in selective attention. *Journal of Experimental Psychology: Applied*, 4(3), 228–247. <https://doi.org/10.1037/1076-898X.4.3.228>
- Dyer, F. N. (1973). The Stroop phenomenon and its use in the study of perceptual, cognitive, and response processes. *Memory & Cognition*, 1(2), 106–120. <https://doi.org/10.3758/BF03198078>
- Goschke, T., & Bolte, A. (2014). Emotional modulation of control dilemmas: The role of positive affect, reward, and dopamine in cognitive stability and flexibility. *Neuropsychologia*, 62, 403–423. <https://doi.org/10.1016/j.neuropsychologia.2014.07.015>
- Goschke, T., & Kuhl, J. (1993). Representation of intentions: Persisting activation in memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19, 1211–1226. <https://doi.org/10.1037/0278-7393.19.5.1211>
- Gray, J. A. (1987). *The Psychology of Fear and Stress* (Vol. 5). Cambridge: University Press.
- Gröpel, P., Kuhl, J., & Kazén, M. (2005). Toward an integrated self: Age differences and the role of action orientation. *Conference Proceedings “Self-Concept, Motivation and Identity.”* Presented at the Third International SELF Research Conference “Self-concept, Motivation and Identity: Where to from here?”, Berlin, Germany (July, 2004); SELF Research Centre, Sydney, Australia.
- Hagger, M. S., Wood, C., Stiff, C., & Chatzisarantis, N. L. D. (2010). Ego depletion and the strength model of self-control: A meta-analysis. *Psychological Bulletin*, 135, 495. <https://doi.org/10.1037/a0019486>
- Hartung, J., & Schulte, D. (1994). Action and state orientation during therapy of phobic disorders. In J. Kuhl, & J. Beckmann (Eds.), *Volition and Personality: Action Versus State Orientation* (pp. 217-232). Göttingen, Germany: Hogrefe.
- Hebb, D. O. (1949). *The organization of behavior: A neuropsychological theory*. New York. NY: Wiley & Sons.

- Isen, A. M. (1999). Positive Affect. In T. Dalgleish & M. J. Power (Eds.), *Handbook of Cognition and Emotion* (pp. 521-539). New York, NY: Wiley & Sons.
- Isen, A. M. (2001). An influence of positive affect on decision making in complex situations: Theoretical issues with practical implications. *Journal of Consumer Psychology, 11*, 75–85. https://doi.org/10.1207/S15327663JCP1102_01
- Jacobson, E. (1938). *Progressive muscle relaxation*. Chicago: University of Chicago Press.
- Jensen, A. R., & Rohwer Jr, W. D. (1966). The Stroop color-word test: A review. *Acta Psychologica, 25*, 36–93. [https://doi.org/10.1016/0001-6918\(66\)90004-7](https://doi.org/10.1016/0001-6918(66)90004-7)
- Jostmann, N. B., & Giesemann, A. (2014). When you have to climb downhill to reach the top: The effect of action versus state orientation on solving a goal-subgoal conflict in the tower of Hanoi task. *Experimental Psychology, 61*(5), 394–401. <https://doi.org/10.1027/1618-3169/a000260>
- Jostmann, N. B., & Koole, S. L. (2007). On the regulation of cognitive control: Action orientation moderates the impact of high demands in Stroop interference tasks. *Journal of Experimental Psychology: General, 136*(4), 593–609. <https://doi.org/10.1037/0096-3445.136.4.593>
- Jostmann, N. B., & Koole, S. L. (2008). *The effects of action orientation and experienced life demands on Stroop interference*. Unpublished raw data, VU University of Amsterdam.
- Kappes, H. B., Oettingen, G., & Mayer, D. (2011). Positive fantasies predict low academic achievement in disadvantaged students. *European Journal of Social Psychology, 42*(1), 53–64. <https://doi.org/10.1002/ejsp.838>
- Kaschel, R., Kazén, M., & Kuhl, J. (2017). State orientation and memory load impair prospective memory performance in older compared to younger persons. *Aging, Neuropsychology, and Cognition, 24*(4), 453–469. <https://doi.org/10.1080/13825585.2016.1225664>
- Kazén, M., Kaschel, R., & Kuhl, J. (2008). Individual differences in intention initiation under demanding conditions: Interactive effects of state vs. action orientation and enactment difficulty. *Journal of Research in Personality, 42*(3), 693–715. <https://doi.org/10.1016/j.jrp.2007.09.005>
- Kazén, M., & Kuhl, J. (2005). Intention memory and achievement motivation: Volitional facilitation and inhibition as a function of affective contents of need-related stimuli. *Journal of Personality and Social Psychology, 89*(3), 426–448. <https://doi.org/10.1037/0022-3514.89.3.426>

- Kazén, M., Kuhl, J., & Leicht, E.-M. (2015). When the going gets tough...: Self-motivation is associated with invigoration and fun. *Psychological Research*, 79(6), 1064–1076. <https://doi.org/10.1007/s00426-014-0631-z>
- Kazén, M., Kuhl, J., & Quirin, M. (2015). Personality interacts with implicit affect to predict performance in analytic versus holistic processing. *Journal of Personality*, 83(3), 251–261.
- Kendzierski, D. (1990). Decision making versus decision implementation: An action control approach to exercise adoption and adherence. *Journal of Applied Social Psychology*, 20(1), 27–45. <https://doi.org/10.1111/j.1559-1816.1990.tb00376.x>
- Klinger, E. (1971). *Structure and functions of fantasy*. New York, NY: Wiley-Interscience.
- Koole, S. L., & Jostmann, N. B. (2004). Getting a grip on your feelings: Effects of action orientation and external demands on intuitive affect regulation. *Journal of Personality and Social Psychology*, 87(6), 974–990. <https://doi.org/10.1037/0022-3514.87.6.974>
- Koole, S. L., Jostmann, N. B., & Baumann, N. (2012). Do demanding conditions help or hurt self-regulation? *Social and Personality Psychology Compass*, 6(4), 328–346. <https://doi.org/10.1111/j.1751-9004.2012.00425.x>
- Koole, S. L., Kuhl, J., Jostmann, N. B., & Finkenauer, C. (2006). Self-regulation in interpersonal relationships: The case of action versus state orientation. In K. D. Vohs, & E. J. Finkel (Eds.), *Intrapersonal and Interpersonal Processes: How they relate* (pp. 360–383). New York, NY: Guilford.
- Krampen, G. (2013). *Entspannungsverfahren in Therapie und Prävention [Relaxation methods in therapy and prevention]*. (3rd completely revised and extended ed.). Göttingen; Germany: Hogrefe.
- Kuhl, J. (1984). Volitional aspects of achievement motivation and learned helplessness: Toward a comprehensive theory of action control. *Progress in Experimental Personality Research*, 13, 99–171. <https://doi.org/10.1016/B978-0-12-541413-5.50007-3>
- Kuhl, J. (1994). Action versus state orientation: Psychometric properties of the action control scale (ACS-90). In J. Kuhl & J. Beckmann (Eds.), *Volition and personality: Action versus state orientation* (pp. 47–59). Göttingen, Germany: Hogrefe.
- Kuhl, J. (2000). The volitional basis of Personality Systems Interaction Theory: Applications in learning and treatment contexts. *International Journal of Educational Research*, 33, 665–703. [https://doi.org/10.1016/S0883-0355\(00\)00045-8](https://doi.org/10.1016/S0883-0355(00)00045-8)
- Kuhl, J. (2000a). A functional-design approach to motivation and self-regulation: The dynamics of personality system interactions. In M. Boekaerts, P. R. Pintrich, & M.

- Zeidner (Eds.), *Handbook of self-regulation* (pp. 111–169). New York: Academic Press.
- Kuhl, J. (2001). *Motivation und Persönlichkeit: Interaktionen psychischer Systeme* [Motivation and personality: Interactions of psychological systems]. Göttingen, Germany: Hogrefe.
- Kuhl, J. (2004). Was bedeutet Selbststeuerung und wie kann man sie entwickeln? [What drives self-management and how can it be developed?]. *Personalführung*, 37, 30–39.
- Kuhl, J., & Beckmann, J. (Eds.). (1994). *Volition and Personality: Action and state Orientation*. Göttingen, Germany: Hogrefe.
- 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). New York, NY: Cambridge University Press.
- 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(3), 382–399. <https://doi.org/10.1037/0096-3445.128.3.382>
- Kuhl, J., & Kraska, K. (1989). Self-regulation and and metamotivation: Computational mechanisms, development, and assessment. In R. Kanfer, P. L. Ackermann, & R. Cudek (Eds.), *Learning and individual differences: Abilities, motivation, and methodology* (pp. 343–374). Hillsdale, NJ: Erlbaum.
- Kuhl, J., & Quirin, M. (2011). Seven steps toward freedom and two ways to lose it: Overcoming limitations of intentionality through self-confrontational coping with stress. *Social Psychology*, 42(1), 74–84. <https://doi.org/10.1027/1864-9335/a000045>
- Kuhl, J., Quirin, M., & Koole, S. L. (2015). Being someone: The integrated self as a neuropsychological system: Being someone. *Social and Personality Psychology Compass*, 9(3), 115–132. <https://doi.org/10.1111/spc3.12162>
- McSweeney, F. K., & Murphy, E. S. (2014). *The Wiley Blackwell handbook of operant and classical conditioning*. New York, NY: John Wiley & Sons.
- Macleod, A. K., & Moore, R. (2000). Positive thinking revisited: Positive cognitions, well-being and mental health. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice*, 7(1), 1-10.
- Macleod, C. (1991). Half a century of research on the Stroop effect—An integrative review. *Psychological Bulletin*, 109(2), 163–203. <https://doi.org/10.1037/0033-2909.109.2.163>

- Mauss, I. B., Tamir, M., Anderson, C. L., & Savino, N. S. (2011). Can seeking happiness make people happy? Paradoxical effects of valuing happiness. *Emotion, 11*(4), 807–815. <https://doi.org/10.1037/a0022010>
- Mischel, H. N., & Mischel, W. (1983). The development of children's knowledge of self-control strategies. *Child Development, 54*(3), 603–619. <https://doi.org/10.2307/1130047>
- Oettingen, G., Mayer, D., Sevincer, A. T., Stephens, E. J., Pak, H.-j., & Hagenah, M. (2009). Mental contrasting and goal commitment: The mediating role of energization. *Personality and Social Psychology Bulletin, 35*(5), 608–622. <https://doi.org/10.1177/0146167208330856>
- Oettingen, G. (2012). Future thought and behaviour change. *European Review of Social Psychology, 23*, 1–63. <https://doi.org/10.1080/10463283.2011.643698>
- Oettingen, G. (2015). *Rethinking positive thinking: Inside the new science of motivation*. New York, NY: Current.
- Oettingen, G., Hönig, G., & Gollwitzer, P. M. (2000). Effective self-regulation of goal attainment. *International Journal of Educational Research, 33*, 705–732. [https://doi.org/10.1016/S0883-0355\(00\)00046-X](https://doi.org/10.1016/S0883-0355(00)00046-X)
- Oettingen, G., Mayer, D., & Thorpe, J. (2010). Self-regulation of commitment to reduce cigarette consumption: Mental contrasting of future with reality. *Psychology and Health, 25*, 961–977. <https://doi.org/10.1080/08870440903079448>
- Oettingen, G., Mayer, D., & Portnow, S. (2016). Pleasure now, pain later: Positive fantasies about the future predict symptoms of depression. *Psychological Science, 27*(3), 345–353.
- Oettingen, G., Pak, H., & Schnetter, K. (2001). Self-regulation of goal-setting: Turning free fantasies about the future into binding goals. *Journal of Personality and Social Psychology, 80*, 736. <https://doi.org/10.1037/0022-3514.80.5.736>
- Oettingen, G., Stephens, E. J., Mayer, D., & Brinkmann, B. (2010). Mental contrasting and the self-regulation of helping relations. *Social Cognition, 28*, 490–508. <https://doi.org/10.1521/soco.2010.28.4.490>
- Palfai, T. P. (2002). Action-state orientation and the self-regulation of eating behavior. *Eating Behaviors, 3*, 249–259. [https://doi.org/10.1016/S1471-0153\(02\)00068-5](https://doi.org/10.1016/S1471-0153(02)00068-5)
- Quirin, M., Kazén, M., & Kuhl, J. (2009). When nonsense sounds happy or helpless: the implicit positive and negative affect test (IPANAT). *Journal of Personality and Social Psychology, 97*(3), 500–516.

- Quirin, M., & Kuhl, J. (2008). Positive affect, self-access, and health: Research based on PSI theory. *Zeitschrift Für Gesundheitspsychologie*, *16*(3), 139–142. <https://doi.org/10.1026/0943-8149.16.3.139>
- Ridderinkhof, K. R., Wildenberg, W. P. M. van den, & Brass, M. (2014). “Don’t” versus “Won’t”: Principles, mechanisms, and intention in action inhibition. *Neuropsychologia*, *65*, 255–262. <https://doi.org/10.1016.2014.09.005>
- Ruigendijk, H. A. H., Jostmann, N. B., & Koole, S. L. (2018). Why the road to hell is paved with good intentions. Paradoxical effects of volitional action control. In N. Baumann, M. Kazén, M. Quirin, & S. L. Koole (Eds.), *Why people do the things they do: Building on Julius Kuhl’s contributions to the psychology of motivation and volition* (pp. 151–165). Göttingen, Germany: Hogrefe.
- Ruissen, G. R., Rhodes, R. E., Crocker, P. R., & Beauchamp, M. R. (2018). Affective mental contrasting to enhance physical activity: A randomized controlled trial. *Health Psychology*, *37*(1), 51-60.
- Sevincer, A. T., Busatta, P. D., & Oettingen, G. (2014). Mental contrasting and transfer of energization. *Personality and Social Psychology Bulletin*, *40*(2), 139–152. <https://doi.org/10.1177/0146167213507088>
- Sevincer, A. T., Mehl, P. J., & Oettingen, G. (2017). Well self-regulated people use mental contrasting. *Social Psychology*, *48*(6), 348–364. <https://doi.org/10.1027/1864-9335/a000322>
- Sevincer, A. T., Schlier, B., & Oettingen, G. (2015). Ego depletion and the use of mental contrasting. *Motivation and Emotion*, *39*, 876-891. <https://doi.org/10.1007/s11031-015-9508-8>
- Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, *18*(6), 643-662. <https://doi.org/10.1037/h0054651>
- Tran, T. B., Siemer, M., & Joormann, J. (2011). Implicit interpretation biases affect emotional vulnerability: A training study. *Cognition and Emotion*, *25*(3), 546–558. <https://doi.org/10.1080/02699931.2010.532393>
- Zanini, S., Rumiati, R. I., & Shallice, T. (2002). Action sequencing deficit following frontal lobe lesion. *Neurocase*, *8*, 88–99. <https://doi.org/10.1093/neucas/8.1.88>

CHAPTER 3

THE BENEFITS OF PROSOCIAL POWER MOTIVATION IN LEADERSHIP: ACTION ORIENTATION FOSTERS A WIN-WIN A REPLICATION OF BAUMANN, CHATTERJEE, AND HANK (2016)

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***“Leaders Become Great, not Because of Their Power,
but Because of Their Ability to Empower Others.”***

John C. Maxwell

Abstract

Power motivation is considered a key component of successful leadership (Trojak & Galic, 2020). Based on its dualistic nature, the need for power (*nPower*) can be expressed in a dominant or a prosocial manner (McClelland, 1970). Whereas dominant motivation is associated with aggressive and antisocial behaviors, prosocial motivation is characterized by more benevolent actions, such as helping and guiding others. Prosocial enactment of the power motive has been linked to a wide range of beneficial outcomes for organizations and followers. However, less has been investigated what determines a prosocial enactment of the power motive. According to Personality Systems Interactions (PSI) theory, action orientation (i.e., the ability to self-regulate affect) promotes prosocial enactment of the implicit power motive (Baumann et al., 2010; Kuhl, 2001) and findings within student samples verify this assumption (Baumann, Chatterjee, et al., 2016). In the present study, we verified the role of action orientation as an antecedent for prosocial power enactment in a leadership sample (N=383). Our conceptual replication of Baumann, Chatterjee, and colleagues' (2016) study confirmed and extended previous findings. Additionally, we found that leaders personally benefited from a prosocial enactment strategy. Results show that action orientation through prosocial power motivation leads to reduced power-related anxiety and in turn, to greater leader well-being. The integration of motivation and self-regulation research reveals why leaders enact their power motive in a certain way and helps to understand how to establish a win-win situation for both followers and leaders.

Keywords: Action Orientation; Prosocial Power Motivation; Well-Being; Leadership Motivation; Intrinsic Motivation

Leadership has long been considered a key driver for organizational success (Hambrick & Quigley, 2014). Today's leadership requirements are radically changing, however, as modern organizations become increasingly complex, technology accelerates, and the demand for long-term value creation, sustainable growth, and better employee well-being is rising (Srinivasan & Yonge, 2021). More than ever, leaders are needed who can empower, relate, and collaborate with their followers, and thus a shift away from traditional, authoritarian, and directive leadership behavior is required (Paustian-Underdahl et al., 2014).

The need for power (*n*Power) is considered an important motivational factor that influences leadership behavior (House & Aditya, 1997; Løvaas et al., 2020; McClelland, 1975; Winter, 1991). Given the dual nature of *n*Power (McClelland, 1970), it can be expressed in a self-serving, aggressive, and assertive manner (i.e., dominant power) but also in an other-serving, benevolent, and supportive way (i.e., prosocial power). Dominant power energizes leadership concerns towards personal gains and status, while prosocial power fuels leaders to empower others and foster the common good (Bunderson & Reagans, 2011; Magee & Langner, 2008; Winter, 1973).

Whereas various research findings highlight the positive impact of prosocial power motivation (e.g., Harrell & Simpson, 2016; Jacobs & McClelland, 1994), less attention has been placed on its antecedents. According to Personality Systems Interactions (PSI) theory (Baumann et al., 2010; Kuhl, 2001) high self-regulatory ability (i.e., action orientation) predicts the prosocial enactment of the implicit power motive and findings within student samples verify this assumption (Baumann, Chatterjee, et al., 2016). In the present study, we investigate whether this link can also be found for leaders. Further, research has scarcely considered leader's personal benefits from their leadership behavior (Byrne et al., 2014; see Kaluza et al., 2020 for a review). Thus, in addition, beneficial effects on leaders themselves were explored, analyzing how leading in a prosocial manner impacts leaders' power-related anxiety and their well-being.

Leadership Needs Power

Leadership above all revolves around power (Antonakis & Day, 2018; Sturm et al., 2021; Trojak & Galić, 2020; Williams, 2014). "One cannot be a leader without having power" (Sturm et al., 2021, p. 1), as leaders need power to influence, direct, and motivate followers to contribute their efforts towards achieving organizational aspirations (McClelland, 1985). With power at the center of leadership, scholars identified the motivation to obtain power - defined

as a strong inner desire to impact others (*nPower*) (James et al., 2013) - as a crucial leader disposition (James et al., 2021; McClelland, 1975; McClelland & Burnham, 2017; Trojak & Galić, 2020). Individuals high in *nPower* recognize that they contribute to organizational success more effectively by influencing others instead of trying to stand out through their own achievements. Also, they continuously strive for leadership positions and gain satisfaction from their leadership behavior (House & Aditya, 1997; Kehr, 2004). A large body of research has shown that effective and successful leadership is highly correlated with *nPower* (Hoffman et al., 2011; Jacobs & McClelland, 1994; Jenkins, 1994; Kirkpatrick et al., 2002). Further *nPower* predicts charismatic leadership behavior (De Hoogh et al., 2005), career progression (McClelland, 1975), and advancement into upper managerial roles (McClelland & Boyatzis, 1982). Thus, a highly developed *nPower* seems to be vital in leadership.

The need for power, however, has in general a rather poor reputation as it is mostly associated with socially undesired behaviors, such as lack of compassion (van Kleef et al., 2008), tendency to harm and dehumanize others (Lammers & Stapel 2011; Zimbardo, 1972), antisocial decision making (Magee & Langner, 2008), or selfishness (Sturm & Antonakis, 2015). Less attention has been given to the benevolent side of the desire to impact others, as it also can energize empowering behavior, such as helping and supporting others (Aydinli et al., 2014; McAdams, 1985) as well as mentoring (Schmidt, 1997), prosocial decision making (Magee & Langner, 2008), and greater willingness to forgive others (Karremans & Smith, 2010). Moreover, research shows that prosocial power motivation is associated with generativity (Hofer et al., 2008), love for children (Chasiotis et al., 2006), and greater psychological safety within followers when considered along with supervisor psychological safety (Frazier & Tupper, 2018).

The dualistic nature of *nPower* points out that a high need for power may not always turn into egoistic, self-serving, or autocratic leadership, but may also bring forward leaders that aim to benefit others, value relationships with followers, and advance collective interest above personal success and dominance (Bolino & Grant, 2016; Bunderson & Reagans, 2011; Lammers et al., 2009). Therefore, prosocial power motivated leaders seem to be a valuable asset for organizations and thus it would be beneficial to understand what fosters the benevolent side of *nPower*. The augmented focus on outcome research in the power motivation domain, however, has neglected the question of what determines how individuals enact their *nPower* (see also James et al., 2021).

Prosocial Power Enactment and Action Orientation

To date, still very little is known about why individuals engage in specific leadership behavior (Williams, 2014) and what determines how *n*Power is enacted (Galinsky et al., 2015; Moon et al., 2022). Regarding *n*Power as a unitary global construct that is related to toxic and selfish behavior has not contributed to fill this research gap but rather led to contempt power motivation in leadership (Pearce & Manz, 2014). In an effort to advocate the importance of power motivation in leadership, James and colleagues highlighted in their recent article that “it is not the power motive that leads to corruption and tyranny, but rather how the power motive is channeled into behavior by other personality factors” (James et al., 2021 p.1). In line with this, PSI theory suggests that action orientation (i.e., the ability to self-regulate affect) is a decisive predictor for the prosocial enactment of *n*Power (Baumann et al., 2010; Kuhl, 2001) and initial empirical findings confirm this notion (Baumann et al., 2016).

Action orientation is the ability to self-regulate own emotions and behavior in a context-sensitive way (Baumann & Kuhl, 2002; Koole et al., 2012; Koole & Jostmann, 2004; Kuhl, 1994). Action-oriented, relative to state-oriented individuals, show greater psychological functioning in various areas such as professional performance (Diefendorff et al., 2017), decisiveness and productivity (Birk et al., 2020; Chowdhury & Pychyl, 2018), and well-being (Baumann et al., 2005). Several findings show that these benefits are indeed regulated through the self (Jais et al., 2021; Koole & Coenen, 2007; Koole & Jostmann, 2004). PSI theory posits that the prosocial enactment of *n*Power involves the self, and thus is considered an *intrinsic* enactment strategy (Chasiotis & Hofer, 2017; Kuhl, 2000). Intrinsic enactment strategies are driven by positive affect that is not only inherent in the activity itself but mainly results from efficient self-regulation (Baumann et al., 2010; Baumann, Lürig, et al., 2016; Keller & Bless, 2008; Kuhl & Scheffer, 1999). In contrast, extrinsic enactment strategies (e.g., dominance) are driven by external incentives (e.g., faces signaling low dominance; Schultheiss & Hale, 2007) and hence do not rely on the self. Consequently, as action orientation is the ability to regulate emotions through the self, it is considered highly conducive to enact *n*Power in a prosocial way.

Several empirical findings confirm the link between action orientation and intrinsic motive enactment across all social motives (achievement, affiliation, power). For instance, Baumann and Kuhl (2020) considered all three motives and showed a significant positive relation of action orientation and self-regulated (e.g., intrinsic) motive enactment. Yet, no relation with incentive driven (e.g., dominant) enactment strategies was observed. In addition, they found

that fostering action orientation through intervention leads to greater intrinsic motive enactment (Studies 3-5). Applying different self-regulation trainings, they demonstrated a pre-post increase in self-regulated motive enactment (Study 3), as well as differential treatment effects (Study 4 and 5). Specifically, individuals with low self-regulation ability (i.e., state-oriented individuals) showed more self-regulated motive enactment in the treatment compared to the control conditions (Study 4: humoristic talk; Study 5: no treatment). Moreover, further research shows that action orientation is linked to the intrinsic enactment of the achievement motive (flow; Baumann & Scheffer, 2010, 2011), the affiliation motive (intimacy; Hofer & Busch, 2011) and the power motive (prosocial guidance; Baumann, Chatterjee et al., 2016).

The Present Study

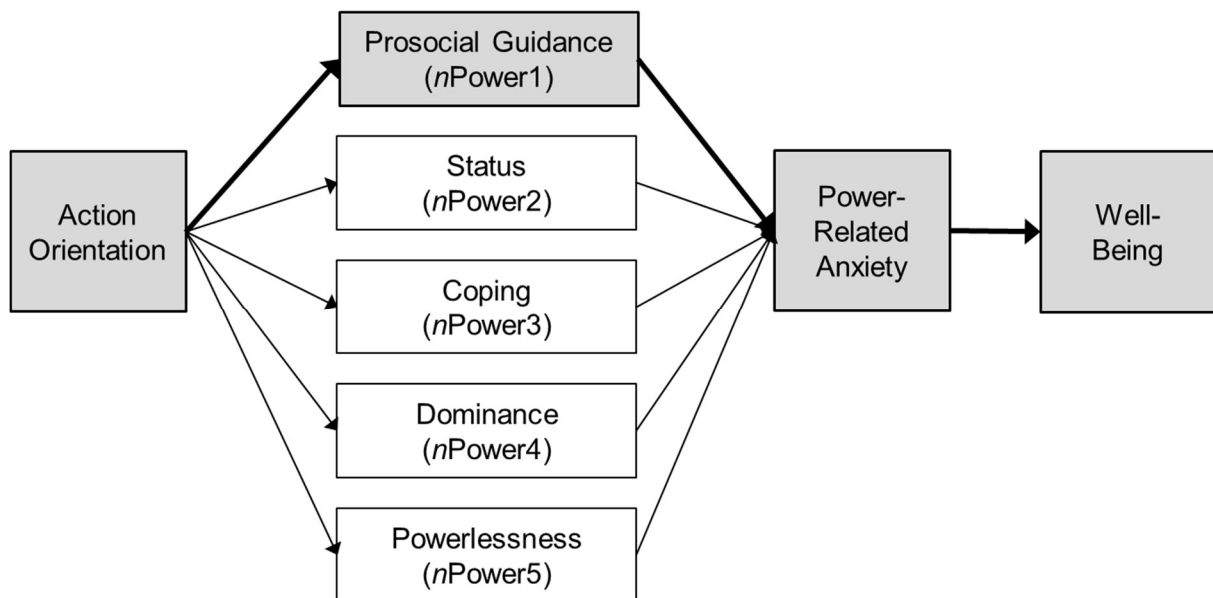
In the present study, we are following up on the results of Baumann, Chatterjee and colleagues' (2016) research. In their studies, the researchers examined the relation between action orientation and the prosocial enactment of *nPower* within student samples of aspiring teachers and psychologists. The researchers argued that power motivation is particularly relevant for both professions, as impacting other people by helping, guiding, and transferring knowledge is essential in their daily work. Applying the Operant Motive Test (OMT; Kuhl et al., 2003; Kuhl & Scheffer, 1999) they differentiated five enactment strategies within *nPower* (prosocial guidance, status, coping, dominance, and powerlessness) and examined action orientation as an antecedent for the prosocial enactment of *nPower*. Further, they explored personal benefits (explicit power motivation, well-being) of a prosocial enactment strategy. Across both samples (Study 1 and 2) they confirmed their assumption that prosocial enactment of *nPower* is fueled by self-regulation (i.e., action orientation). Furthermore, action orientation was indirectly associated with well-being through prosocial enactment of *nPower* and the explicit power motive.

As power motivation lies at the center of leadership (James et al., 2021; Trojak & Galić, 2020), we examined action orientation as an antecedent of prosocial power motivation in a large leadership sample and expected to replicate the findings of Baumann, Chatterjee et al. (2016). Our conceptual model is illustrated in Figure 3.1. First, we tested the relation between action orientation and prosocial enactment of *nPower* and assumed to confirm the link in our sample. Second, research indicates that the fear of losing power positively correlates with self-serving behavior in leaders (Wisse et al., 2019). Additionally, power threat may negatively impact leadership behavior even if leaders are generally prosocial oriented (Williams, 2014). Action orientation, however, has been shown to lead to reduced anxiety in explicit power striving

(Chatterjee et al., 2018). Thus, we analyzed whether action orientation has an indirect effect through the prosocial enactment of *n*Power on power-related anxiety. We assumed an indirect negative effect through implicit prosocial power motivation on power-related anxiety.

Finally, we investigated the impact on leaders' well-being. To date, a great amount of research has focused on the effect of leadership behaviors on employee's well-being (e.g., Arnold, 2017), whereas less attention has been placed on leader's own well-being (Byrne et al., 2014; see Kaluza et al., 2020 for a review). Based on the insight that action orientation is highly advantageous for well-being (Baumann et al., 2005; Baumann & Quirin, 2006; Chatterjee et al., 2018) and not only receiving but also giving support is known to be beneficial for well-being (Deci & Ryan, 2000), we tested whether the indirect path from action orientation through prosocial power enactment on power-related anxiety is associated with leader well-being.

Figure 3.1 Conceptual Model with an Indirect Path from Action Orientation through Prosocial Power Enactment (*n*Power1) to Power-Related Anxiety and, in turn, Well-Being.



Method

Transparency and Openness

We describe our sampling plan, all data exclusions (if any), all manipulations, and all measures in the study, and we adhered to the Journal of Applied Psychology methodological checklist. All data, and research materials are available upon request from the corresponding authors. Data were analyzed using IBM SPSS (version 26) Process Macro (Model 4 and 6; Hayes 2012, 2017). This study's design and its analysis were not preregistered.

Participants

Data of $N = 383$ executive leaders (38.40% female) from various companies or organizations were used for the present analysis. Their mean age was 44.08 years ($SD = 8.57$; range 24-72 years). Participants voluntarily filled out of a series of psychological tests, including those relevant for the present research, within the scope of a self-development counseling setting. The present data were made available by IMPART (Institute for Motivation and Personality Development: Assessment, Research, and Training; www.impart.de).

Materials

Action orientation. The Action Control Scale (ACS; Kuhl, 1994) was used to assess action orientation. The ACS consists of two subscales assessing decision-related and failure-related dimensions of action orientation with 12 items each. In the present study, decision-related action orientation was relevant (Cronbach's $\alpha = .80$). An example item is “*When I am facing a big project that has to be done: (a) I often spend too long thinking about where I should begin, or (b) I don't have any problems getting started.*”. Choice “a” reflects the state-oriented (hesitant) alternative whereas the option “b” indicates the action-oriented (initiative) response. Action-oriented responses were totaled, resulting in scale values from 0 to 12. Hereby, lower scores indicate low action orientation (i.e., state orientation) and higher scores indicate high action orientation.

Implicit power motive enactment. We applied the Operant Motive Test (OMT; Kuhl & Scheffer, 1999) to measure implicit power motive enactment. The OMT is comprised of fifteen pictures that are designed to either arouse the affiliation, achievement, or power motive. Participants are asked to decide on a main character in each picture, think of a story around that character, and briefly answer three open questions (see Figure 3.2). The answers are analyzed following a 3-motive x 5-enactment strategies coding procedure. Thereby, each described picture is examined for motive content (i.e., affiliation, achievement, power). A “zero” is coded,

if no motive theme can be found. If a motive theme is present, the enactment strategy is determined. To determine the enactment strategy, participants' answers are screened for approach (*nPower*1-4) or avoidance (*nPower*5) tendencies. Passive avoidance (*nPower*5) is only coded when participants explicitly mention negative affect in their answers and report no active coping or regulation attempts. Approach tendencies (*nPower*1-4) are further screened, differentiating whether they are driven by positive affect (*nPower*1-2) or negative affect (*nPower*3-4). Lastly, descriptions are analyzed whether they involve self-regulation processes (*nPower*1&3, e.g., self-positivity, active coping) or are more external and incentive driven (*nPower* 2&4, e.g., outward focus, goal fixation).

Figure 3.2 Example Picture of the Operant Motive Test (OMT; Kuhl & Scheffer, 1999) that is Designed to Arouse Power Motivation.



(1) What is important for the person in this situation and what is the person doing?

(2) How does the person feel?

(3) Why does the person feel this way?

Story Samples: **Prosocial Guidance (*nPower*1):** “(1) She wants to help the sitting person. (2) Relaxed, supportive, friendly. (3) It’s part of her nature.” **Status (*nPower*2):** “(1) She wants to motivate. (2) She feels great. (3) The person feels she has been confirmed as she acted in accordance with her role/position.” **Coping (*nPower*3):** “(1) Performance review. Other person has made severe mistakes. Empathy and motivation are called for. (2) Clear in the leader role. Empathetic. (3) Regards the mistakes as relative and wants to motivate the person again.” **Dominance (*nPower*4):** “(1) She berates the other person. (2) assured and superior. (3) As she is judging the other person.” **Powerlessness (*nPower*5):** “(1) To not get in trouble. (2) Anxious. (3) Because the person gets scolded.”

It is not of necessity that the main character deliberately experiences the affective source of their motivation and participants do not always explicitly report it in their descriptions. For instance, narratives of rigid and conflict-ridden behavior (e.g., justifying dominant power behavior with role duty) indicate the presence of hidden negative affect that is not being self-regulated. Hence, *nPower4* is coded. On the other hand, if negative affect is explicitly mentioned but at the same time creative solutions are elaborated (e.g., supports followers to get back on track after providing negative feedback) *nPower3* is coded. Only if negative affect is explicitly mentioned without an active coping attempt (e.g., feeling powerless in a situation), *nPower5* is coded. Therefore, negative affect may either be linked to passive avoidance (*nPower5*) or be related to a coping (*nPower3*) or dominant (*nPower4*) enactment strategy. In the same way, positive affect is either linked to prosocial guidance (*nPower1*) or status related enactment (*nPower2*). In contrast to *nPower2*, which is coded when positive affect is provided externally and thus incentives (e.g., status, attention) are assessed in the narratives, *nPower1* is coded when positive affect seems to flow out of the activity itself (e.g., naturally providing support, when needed), indicating self-regulatory functioning (Baumann et al., 2010; Kuhl & Kaschel, 2004; Kuhl & Koole, 2008).

Power-related anxiety. The Motive Enactment Test (MET; Kuhl & Henseler, 2004) was used to assess the level of anxiety in explicit power striving (e.g., *“I often feel inferior to people whose behaviour conveys power and superiority”*). The 4 Items (Cronbach’s $\alpha = .71$) were rated on a 4-point scale (0 = *“not at all”*; 3 = *“completely”*).

Well-being. The Complaints Questionnaire (BES; Kuhl, 2001) was used to assess well-being of leaders. It is comprised of 8 Items (Cronbach’s $\alpha = .73$). Example items are: *“I often struggle to coordinate work and private life”* or *“I felt calm during the last few days”*. Participants rated the extent to which each statement applied to them on a 7-point scale (0 = *“not at all”*, 6 = *“very much”*).

Procedure

Participants were able to complete the test package via the online platform of IMPART (www.impart.de). They could login from any chosen remote computer with their personalized login information that they were provided in advance. After completion, data was accumulated by IMPART and made available for the present study.

Results

Descriptives and correlations. Table 3.1 offers an overview of the descriptive results and correlations among our study variables. Consistent with our first hypothesis, action orientation was positively correlated with prosocial power motive enactment (*nPower1*). Furthermore, action orientation was negatively correlated with power-related anxiety and positively with well-being. In addition, prosocial guidance (*nPower1*) was negatively correlated with power-related anxiety. Finally, power-related anxiety was negatively correlated with well-being.

Direct and indirect effects on power-related anxiety. To test whether action orientation had an indirect effect through prosocial guidance (*nPower1*) on power-related anxiety, we conducted a mediation analysis with 5,000 bootstrap resamples using the SPSS macro-Model 4 described by Hayes (2012, 2017). Using this procedure, we computed a point estimate and a 95% confidence interval for the mediation effect.

In the model using enactment strategies of the implicit power motive as dependent variables (see Table 3.2), action orientation was significantly associated with prosocial guidance (*nPower1*), $R^2 = .02$, $F(1, 381) = 7.99$, $p = .005$. In contrast, action orientation was not associated with any other enactment strategy of the implicit power motive (*nPower2-5*), $F_s < 2.51$, $p > .11$. In the model using the power-related anxiety as a dependent variable (see upper columns of Table 3.3), there were significant direct effects of action orientation and *nPower1* indicating that higher action orientation and higher prosocial guidance were associated with lower power-related anxiety. In addition, *nPower2* was associated with lower and *nPower5* with higher power-related anxiety, whereas *nPower3* and *nPower4* were not associated with power-related anxiety.

The significance of the indirect effect of action orientation through *nPower1* on power-related anxiety was verified with bootstrapped errors and 95% confidence intervals (CIs). Consistent with our second hypothesis, the indirect effect of action orientation on power-related anxiety through *nPower1* was significant because the limits of the 95% confidence interval did not include zero (see lower columns of Table 3.3). No other indirect path was significant. Altogether, the model accounted for approximately 20% of the variance in power-related anxiety, $R^2 = .20$, $F(6, 376) = 15.31$, $p < .001$.

Table 3.1 *Bivariate Correlations (Pearson), Means, and Standard Deviations (N = 383)*

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Scale	<i>M</i>	<i>SD</i>
(1) Action Orientation	.14**	.03	-.02	-.08	.02	.04	-.40**	.41**	0-12	7.43	3.17
(2) Prosocial Guidance (<i>nPower1</i>)		-.04	-.07	-.22**	-.13*	.28**	-.18**	.17**	0-15	1.00	1.06
(3) Status (<i>nPower2</i>)			-.12*	-.16**	-.13*	.22**	-.10*	.09	0-15	0.75	0.94
(4) Coping (<i>nPower3</i>)				-.15**	-.15**	.42**	-.04**	-.05	0-15	1.31	1.29
(5) Dominance (<i>nPower4</i>)					-.11**	.39**	.09	-.18**	0-15	2.56	1.37
(6) Powerlessness (<i>nPower5</i>)						.23**	.13*	-.09	0-15	0.96	1.00
(7) Implicit Power Motive (<i>nPower</i>)							-.04	-.07	0-15	6.58	1.81
(8) Power-Related Anxiety								-.34**	0-3	0.92	0.61
(9) Well-being									0-6	4.92	0.53

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

Table 3.2 Direct Effects of Action Orientation on the Five Enactment Strategies of the Implicit Power Motive ($N = 383$)

	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>Boot LLCI</i>	<i>Boot ULCI</i>
Prosocial Guidance (<i>nPower1</i>)						
Action Orientation	.14	.05	2.83	.005	.044	.243
Status (<i>nPower2</i>)						
Action Orientation	.03	.05	0.56	.574	-.072	.130
Coping (<i>nPower3</i>)						
Action Orientation	-.02	.05	-0.29	.770	-.116	.086
Dominance (<i>nPower4</i>)						
Action Orientation	-.08	.05	-1.58	.115	-.181	.020
Powerlessness (<i>nPower5</i>)						
Action Orientation	.03	.05	0.45	.655	-.078	.124

Table 3.3 Direct and Indirect Effects of Action Orientation and the Five Enactment Strategies of the Implicit Power Motive on Power-Related Anxiety ($N = 383$)

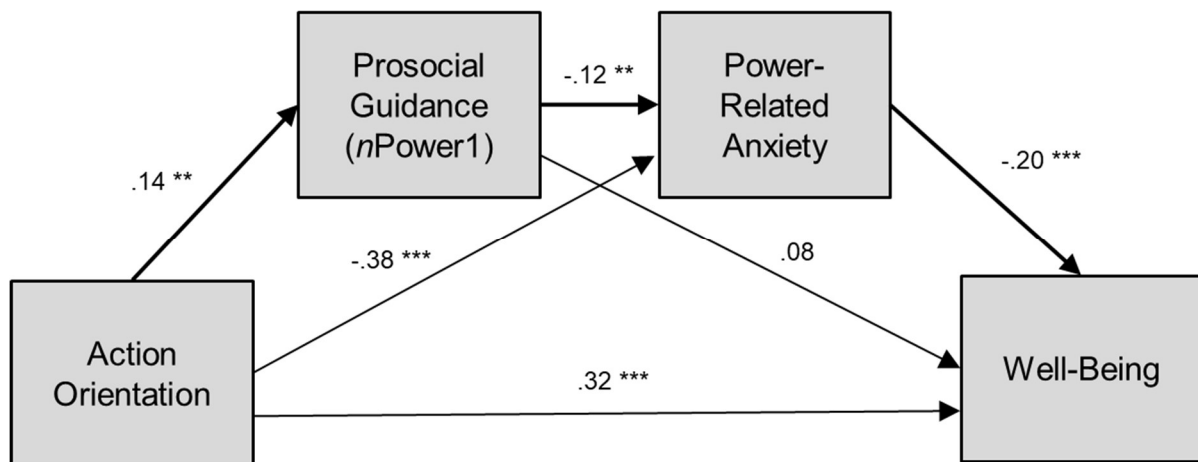
	Power-Related Anxiety					
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>Boot LLCI</i>	<i>Boot ULCI</i>
Action Orientation	-.38	.05	-8.08	.000	-.470	-.286
Prosocial Guidance (<i>nPower1</i>)	-.11	.05	-2.18	.030	-.204	-.011
Status (<i>nPower2</i>)	-.08	.05	-1.69	.093	-.178	.014
Coping (<i>nPower3</i>)	-.04	.05	-0.75	.452	-.133	.059
Dominance (<i>nPower4</i>)	.04	.05	0.69	.493	-.064	.133
Powerlessness (<i>nPower5</i>)	.11	.05	2.30	.022	.016	.209
Indirect Effect of Action Orientation on Power-Related Anxiety through			<i>b</i>	<i>SE</i>	<i>Boot LLCI</i>	<i>Boot ULCI</i>
Prosocial Guidance (<i>nPower1</i>)			-.015	.008	-.034	-.001
Status (<i>nPower2</i>)			-.002	.005	-.014	.008
Coping (<i>nPower3</i>)			.001	.004	-.006	.009
Dominance (<i>nPower4</i>)			-.003	.005	-.015	.006
Powerlessness (<i>nPower5</i>)			.003	.007	-.010	.018

Note. LLCI and ULCI = Lower and Upper Limit of Confidence Interval.

Direct and indirect effects on well-being. To test whether there was an indirect effect of action orientation through implicit prosocial power motivation (*nPower1*) and power-related anxiety on well-being, we conducted a mediation analysis with 5,000 bootstrap samples using the SPSS macro-Model 6 (Hayes, 2012, 2017). With this process, we calculated a point estimate and a 95% confidence interval for the mediation effect. The statistical model and results are illustrated in Figure 3.3.

As listed in Table 3.2, action orientation was significantly associated with *nPower1*, $B = .14$, $SE = .05$, $t = 2.83$, $p = .005$ [95% CI: .044, .243]. Consistent with Table 3.3, when action orientation and *nPower1* were entered simultaneously to predict power-related anxiety, *nPower1*, $B = -.12$, $SE = .05$, $t = -2.61$, $p < .01$ [-.216, -.030], and action orientation, $B = -.38$, $SE = .05$, $t = -8.01$, $p < .001$ [-.471, -.285], were significantly associated with power-related anxiety. Finally, when action orientation, *nPower1*, and power-related anxiety were entered simultaneously to predict well-being, action orientation and power-related anxiety were significantly associated with well-being whereas *nPower1* was not (see upper half of Table 3.4).

Figure 3.3 Statistical Model with a Significant Indirect Path from Action Orientation through Prosocial Power Enactment (*nPower1*) and Power-Related Anxiety to Well-Being.



The significance of the indirect effect of action orientation through *nPower1* and power-related anxiety on well-being was verified with bootstrapped errors and 95% confidence intervals (CIs). Consistent with our third hypothesis, the indirect effect of action orientation on well-

being through prosocial guidance (*nPower1*) and power-related anxiety was significant because the limits of the 95% confidence interval did not include zero (see lower half of Table 3.4). In addition, the indirect effect of action orientation on well-being through power-related anxiety was significant. Altogether, the mediation model accounted for approximately 21% of the variance in well-being, $R^2 = .21$, $F(3, 379) = 33.35$, $p < .001$.

Table 3.4 Direct and Indirect Effects of Action Orientation, Prosocial Power Enactment (Prosocial Guidance), and Power-Related Anxiety on Well-Being

	Well-Being					
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>Boot LLCI</i>	<i>Boot ULCI</i>
Action Orientation	.32	.05	6.32	.000	.218	.414
Prosocial Guidance (<i>nPower1</i>)	.08	.05	1.82	.070	-.007	.176
Power-Related Anxiety	-.20	.05	-3.94	.000	-.300	-.099
Indirect Effect of Action Orientation on Well-Being through			<i>b</i>	<i>SE</i>	<i>Boot LLCI</i>	<i>Boot ULCI</i>
<i>nPower1</i>			.012	.008	-.001	.030
Power-Related Anxiety			.075	.022	.035	.122
<i>nPower1</i> and Power-Related Anxiety			.004	.002	.001	.008

Note. LLCI and ULCI = Lower and Upper Limit of Confidence Interval.

Discussion

“A good leader is prosocial” (Lorenzi, 2004, p. 283). Scholars and leadership experts have long called for a new leadership that is characterized by empowering, relational, and collaborative behavior. Early research efforts by McClelland (1975) and Winter (1973) have identified the need for power as a decisive motivational factor in leadership that can either be expressed in a prosocial or dominant way (McClelland, 1970). Little is known, however, about factors that determine how leaders enact their implicit need for power (James et al., 2021). Building on the research results of Baumann, Chatterjee et al. (2016) who showed that action orientation predicts a prosocial enactment of *nPower*, we analyzed this link within a large leadership sample. Our findings confirm that action orientation is linked to implicit prosocial power motivation. Further, we showed that action orientation through prosocial power motivation leads to reduced

power-related anxiety, and in turn to greater leader well-being. The present findings contribute to a better understanding *why* leaders enact their need for power in a certain way: Prosocial leadership is not only a matter of motivation but also of leaders' self-regulatory ability.

Note that the present research further supports the notion that *intrinsic* motivation depends on unconscious workings of self-regulatory functions (Baumann et al., 2010; Kaschel & Kuhl, 2004; Kuhl, 2000; Kuhl & Koole, 2008; Kuhl & Scheffer, 1999) and complements prior empirical findings demonstrating the link between action orientation and intrinsic motive enactment (Baumann et al., 2016; Baumann and Kuhl, 2020; Baumann and Scheffer, 2010, 2011; Hofer and Busch, 2011). Additionally, despite the early conceptualization of implicit assessments (Morgan & Murray, 1935) and the acknowledged value of implicit processes in leadership, measuring implicit psychological phenomena in organizational settings is still rare (see Chong et al., 2017 for a review). On the one hand, this is due to a limited access to corporate and non-corporate leader samples. Moreover, as implicit processes operate outside of conscious awareness, they cannot be assessed through self-reports but are assessed with projective measures which are more time consuming for participants and data analysis requires trained experts (Schultheiss & Pang, 2007). This often leads to either only relatively small leader samples in studies or a move back to more accessible student samples when investigating implicit motives. With a relatively large leader sample we thus contribute to an extended understanding of implicit motives in the leadership context. The conceptual replication of Baumann, Chatterjee et al.'s (2016) study with a leadership sample (instead of student sample) further increase confidence in the demonstrated results.

As prosocial leadership behavior decisively impacts the prosperity of organizations (Poulin et al., 2007; Williams, 2014), leaders who naturally strive for making a prosocial impact should be particularly desirable for organizations. However, the desire to impact others is commonly rather discredited as it has been mostly connected to selfish and toxic behavior, and the benevolent manifestation of *nPower* is often overlooked. Concurring with other scholars (e.g., James et al., 2021; Trojak and Galinsky, 2020), the present research points out the value of considering implicit power motivation in leadership, as its prosocial enactment leads to a variety of beneficial outcomes, including, as our results show, for leaders themselves. Moreover, our research goes beyond bringing forward the mere importance of prosocial power motivation in leadership, but also indicates that the benevolent enactment of *nPower* is not only a question of choice but also of ability. Many findings show that action orientation is indeed the *ability* to access and enact motives effectively even under challenging conditions (e.g., high workload,

time pressure, stakeholder demands) and without being affected by own emotional states (Baumann & Kuhl, 2003; Chatterjee et al., 2013; Diefendorff et al., 2017; Jostmann & Koole, 2006). The finding that action orientation is an antecedent of prosocial power enactment is therefore good news as self-regulatory ability can be trained and thus a prosocial enactment of the power motive can be fostered.

Practical Implications

Several practical implications can be derived from the present findings. First, our present findings contribute to a currently growing body of research that requests a shift in leadership development from building leadership behavior, skills, and strategies to a greater focus on developing internal attributes that are beneficial to effective leadership (Day, 2001; Folan, 2019). The present results further support action orientation as a favorable individual attribute for effective leadership. Research has shown that action orientation develops into advanced old age (Gröpel et al., 2005) and can be promoted by intervention (Baumeister et al., 2007; Hartung & Schulte, 1994; Kuhl, 2004; Kuhl et al., 2015). There are various target-oriented interventions such as mental contrasting (Friederichs et al., 2020; Oettingen et al., 2001), affective shifting (Friederichs et al., under review), and other established self-regulation methods (e.g., Baumann & Kuhl, 2020; Edelman & van Knippenberg, 2017) that foster action orientation and therefore could promote prosocial enactment within leaders. We hope these findings encourage organizations and leadership consultancies to enhance their focus on nurturing self-regulation abilities within leadership development programs.

The present study goes beyond well-established effects of leadership behavior on employee's health and well-being (e.g., Montano et al., 2017). Contributing to recent efforts in leadership research (Kaluza et al., 2020), our study instead highlights the impact on leaders' own well-being. Paying attention to leader's well-being in leadership research has far reaching implications. For instance, it supports the identification of beneficial leadership behaviors for both leaders and followers, and thus helps to establish a win-win. Our results indicate that action orientation is a significant enabler for that win-win. Moreover, psycho-symptomatic problems, such as burnout, are quite common among leaders and the prevalence is continuously rising (Global Leadership Forecast, 2021). According to Frieze and Boneva (2001), individuals high in power motivation that express it in antisocial or dominant ways (e.g., anger, hostility) are at greater risk to suffer from burnout. In contrast, perceived prosocial impact of own behavior has been shown to act as a protector against burnout (Grant & Sonnentag, 2010). Consequently, we

suggest that enacting *n*Power in a prosocial manner may also act as a protective factor notably in power-related occupations, and thus promoting action orientation in leaders may minimize burnout risk among leaders.

Striving for power, also means once in power, there is a chance one may lose power again. The possibility of losing power triggers threatening or aversive feelings and people high in *n*Power are presumed to be specifically sensitive towards signals of power constraints (Maner & Mead, 2010). Research shows that leaders under power threat are more likely to act in a self-serving manner (Wisse et al., 2019) - even if they are usually prosocial oriented (Williams, 2014) - and try to sustain power although it may harm the interest of their own group members or organization (Maner & Mead, 2010). For instance, facing a power threat, leaders are more likely to antagonize subordinates against each other to prevent alliances among them (Case & Maner, 2014). Further, leaders are less inclined to support a power threatening idea and thus have a higher tendency to inhibit knowledge creation within group processes (Urbach & Fay, 2018). Action orientation, however, has been shown to lead to reduced anxiety in explicit power striving (Chatterjee et al., 2018). Building on this, we demonstrated that action orientation through prosocial power motivation leads to reduced power-related anxiety. This indicates that leaders high in action orientation may experience less power threat concerns and thus show less behaviors that impact followers, colleagues, and organizations in negative ways. Considering these beneficial outcomes, we propose to explore these relations more in future research especially in the leadership context.

Limitations and Future Perspectives

The present research is not without limitations that should be addressed in future research. First, we neither collected information about leaders' environments (e.g., company size, sector, non-profit/profit, amount of followers etc.) nor about their position (e.g., CEO, director, team leader, supervisor etc.). Spangler et al. (2014) suggest that different types of organizations require different types of leadership, implying that there is no gold standard of leadership. Implicit motives are considered rather stable dispositions, whereas their enactment may vary strongly over time in response to context conditions (Baumann et al., 2005; Kuhl & Scheffer, 1999). Although, according to our and previous results (Baumann et al., 2016), action-oriented people are more inclined to enact their *n*Power in a prosocial manner, their enactment strategy may vary in different contexts, if required (Koole & Jostmann, 2004). In contrast to their state-oriented counterparts, this variation is not volatile but based on their self-regulatory ability to

adapt to present conditions (Kuhl, 1994). Nevertheless, in future studies, environment and leadership levels should be assessed to capture if action-oriented individuals refer to different enactment strategies specific to a position or environment.

Second, we did not assess followers' benefits of prosocial leadership but derived them from existing literature (e.g., Harrell & Simpson, 2016). Future research should consider assessing specific follower benefits, for example with 360° assessments when investigating antecedents and benefits of prosocial power motivation enactment. Third, to assess well-being, we asked leaders to report the manifestation of physical and mental complaints, and thus considered the absence of complaints as an indicator of greater well-being. In future research, we suggest verifying the present findings with more established well-being measures, such as the WHO-Five Well-Being Index (WHO, 1998) or the Satisfaction with Life Scale (Diener et al., 1985).

Conclusion

Today's leadership requirements in modern organizations are high and more than ever individual leader qualities are in demand that enable and empower followers. Power motivation is highlighted as central in leadership; however, few have focused on its prosocial side. In order to illuminate *why* leaders may enact their power motivation in a more benevolent way, we examined the influence of self-regulation (i.e., action orientation) on power motivation. Our findings yield that it takes action orientation to bring out the benevolent side of *n*Power. Further, a prosocial enactment of the power motive goes beyond increasing the well-being of others, but also boosts personal benefits for leaders themselves and creates a win-win. In conclusion, the present research gives promise to build more great leaders as the ability to empower others can be promoted.

REFERENCES OF CHAPTER 3

- Antonakis, J., & Day, D. V. (2018). Leadership: Past, present, and future. In J. Antonakis & D. V. Day (Eds.), *The nature of leadership* (pp. 3–26). Sage Publications, Inc. <https://doi.org/10.1177/0018726701544004>
- Arnold, K. A. (2017). Transformational leadership and employee psychological well-being: A review and directions for future research. *Journal of Occupational Health Psychology, 22*(3), 381–393. <https://doi.org/10.1037/ocp0000062>
- Aydinli, A., Bender, M., Chasiotis, A., Cemalcilar, Z., & van de Vijver, F. J. (2014). When does self-reported prosocial motivation predict helping? The moderating role of implicit prosocial motivation. *Motivation and Emotion, 38*(5), 645–658. <https://doi.org/10.1007/s11031-014-9411-8>
- Baumann, N., Chatterjee, M. B., & Hank, P. (2015). Guiding others for their own good: Action orientation is associated with prosocial enactment of the implicit power motive. *Motivation and Emotion, 40*(1), 56–68. <https://doi.org/10.1007/s11031-015-9511-0>
- Baumann, N., Kaschel, R., & Kuhl, J. (2005). Striving for unwanted goals: Stress-dependent discrepancies between explicit and implicit achievement motives reduce subjective well-being and increase psychosomatic symptoms. *Journal of Personality and Social Psychology, 89*(5), 781–799. <https://doi.org/10.1037/0022-3514.89.5.781>
- Baumann, N., Kazén, M., & Kuhl, J. (2010). A look from personality systems interaction theory. In O. C. Schultheiss & J. C. Brunstein (Eds.), *Implicit motives* (pp. 375–403). Oxford: Oxford University Press.
- Baumann, N., & Kuhl, J. (2002). Intuition, affect, and personality: Unconscious coherence judgments and self-regulation of negative affect. *Journal of Personality and Social Psychology, 83*(5), 1213–1223. <https://doi.org/10.1037/0022-3514.83.5.1213>
- Baumann, N., & Kuhl, J. (2003). Self-infiltration: Confusing assigned tasks as self-selected in memory. *Personality and Social Psychology Bulletin, 29*(4), 487–497. <https://doi.org/10.1177/0146167202250916>
- Baumann, N., & Kuhl, J. (2020). Nurturing your self: Measuring and changing how people strive for what they need. *The Journal of Positive Psychology, 16*(6), 726–737. <https://doi.org/10.1080/17439760.2020.1805503>
- Baumann, N., Lürig, C., & Engeser, S. (2016). Flow and enjoyment beyond skill-demand balance: The role of game pacing curves and personality. *Motivation and Emotion, 40*(4), 507–519. <https://doi.org/10.1007/s11031-016-9549-7>

- Baumann, N., & Quirin, M. (2006). Motivation und Gesundheit. [Motivation and Health] *Zeitschrift Für Gesundheitspsychologie*, *14*(2), 46–53. <https://doi.org/10.1026/0943-8149.14.2.46>
- Baumann, N., & Scheffer, D. (2010). Seeing and mastering difficulty: The role of affective change in achievement flow. *Cognition & Emotion*, *24*(8), 1304–1328. <https://doi.org/10.1080/02699930903319911>
- Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of self-control. *Current Directions in Psychological Science*, *16*(6), 351–355. <https://doi.org/10.1111/j.1467-8721.2007.00534.x>
- Birk, M. V., Mandryk, R. L., & Baumann, N. (2020). Just a click away: Action–state orientation moderates the impact of Task Interruptions on initiative. *Journal of Personality*, *88*(2), 373–390. <https://doi.org/10.1111/jopy.12498>
- Bolino, M. C., & Grant, A. M. (2016). The bright side of being prosocial at work, and the dark side, too: A review and agenda for research on other-oriented motives, behavior, and impact in organizations. *Academy of Management Annals*, *10*(1), 599–670. <https://doi.org/10.5465/19416520.2016.1153260>
- Bunderson, J. S., & Reagans, R. E. (2011). Power, status, and learning in organizations. *Organization Science*, *22*(5), 1182–1194. <https://doi.org/10.1287/orsc.1100.0590>
- Byrne, A., Barling, J., & Dupré, K. E. (2013). Leader apologies and employee and leader well-being. *Journal of Business Ethics*, *121*(1), 91–106. <https://doi.org/10.1007/s10551-013-1685-3>
- Case, C. R., & Maner, J. K. (2014). Divide and conquer: When and why leaders undermine the cohesive fabric of their group. *Journal of Personality and Social Psychology*, *107*(6), 1033–1050. <https://doi.org/10.1037/a0038201>
- Chasiotis, A., & Hofer, J. (2017). Implicit prosocial power motivation: Views from evolutionary and developmental cross-cultural psychology. In N. Baumann, M. Kazén, M. Quirin, & S. L. Koole (Eds.), *Why People Do the Things They Do: Building on Julius Kuhl's Contributions to the Psychology of Motivation and Volition* (1st ed., pp. 73–86). Hogrefe Publishing.
- Chasiotis, A., Hofer, J., & Campos, D. (2006). When does liking children lead to parenthood? Younger siblings, implicit prosocial power motivation, and explicit love for children predict parenthood across cultures. *Journal of Cultural and Evolutionary Psychology*, *4*(2), 95–123. <https://doi.org/10.1556/jcep.4.2006.2.2>

- Chatterjee, M. B., Baumann, N., & Osborne, D. (2013). You are not alone: Relatedness reduces adverse effects of state orientation on well-being under stress. *Personality and Social Psychology Bulletin*, 39(4), 432–441. <https://doi.org/10.1177/0146167213476895>
- Chatterjee, M. B., Baumann, N., Osborne, D., Mahmud, S. H., & Koole, S. L. (2018). Cross-cultural analysis of volition: Action orientation is associated with less anxious motive enactment and greater well-being in Germany, New Zealand, and Bangladesh. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.01043>
- Chong, S., Djurdjevic, E., & Johnson, R. E. (2017). Implicit measures for leadership research. In *Handbook of methods in leadership research* (pp. 13-47). Edward Elgar Publishing.
- Chowdhury, S. F., & Pychyl, T. A. (2018). A critique of the construct validity of active procrastination. *Personality and Individual Differences*, 120, 7–12. <https://doi.org/10.1016/j.paid.2017.08.016>
- Day, D. V., & Halpin, S. M. (2001). *Leadership development: A Review of Industry Best Practices*. U.S. Army Research Institute for the Behavioral and Social Sciences.
- De Hoogh, A. H. B., Den Hartog, D. N., Koopman, P. L., Thierry, H., Van den Berg, P. T., Van der Weide, J. G., & Wilderom, C. P. M. (2005). Leader motives, Charismatic Leadership, and subordinates' work attitude in the profit and voluntary sector. *The Leadership Quarterly*, 16(1), 17–38. <https://doi.org/10.1016/j.leaqua.2004.10.001>
- 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(4), 227–268. https://doi.org/10.1207/s15327965pli1104_01
- Diefendorff, J. M., Richard, E. M., Dinh, P. V., & LeNoble, C. (2017). Action-state orientation at work. Dynamic effects in organizational contexts. In N. Baumann, M. Kazén, M. Quirin, & S. L. Koole (Eds.), *Why People Do the Things They Do: Building on Julius Kuhl's Contributions to the Psychology of Motivation and Volition* (1st ed., pp. 303–321). Hogrefe Publishing.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13
- Edelman, P. J., & van Knippenberg, D. (2016). Training leader emotion regulation and leadership effectiveness. *Journal of Business and Psychology*, 32(6), 747–757. <https://doi.org/10.1007/s10869-016-9471-8>

- Folan, L. N. (2019). *Defining a research model of leader resilience and evaluating the dispositional effect of resilience on transformational leadership* (dissertation). Murdoch University.
- Friederichs, K. M., Kees, M.-C., & Baumann, N. (2020). When tough gets you going: Action orientation unfolds with difficult intentions and can be fostered by mental contrasting. *Personality and Individual Differences, 161*, 109970. <https://doi.org/10.1016/j.paid.2020.109970>
- Friederichs, K.M., Jostmann N.B., Kuhl, J., & Baumann N. (under review). *The art of getting things done: Training affective shifting improves intention enactment*. Manuscript under review.
- Frieze, I. H., & Boneva, B. S. (2001). Power motivation and motivation to help others. *The Use and Abuse of Power, 75–89*.
- Galinsky, A. D., Rucker, D. D., & Magee, J. C. (2015). Power: Past findings, present considerations, and future directions. In *APA handbook of personality and social psychology, Volume 3: Interpersonal relations* (pp. 421–460). American Psychological Association. <https://doi.org/10.1037/14344-016>
- Global Leadership Forecast*. DDI. (2021). Retrieved February 17, 2022, from <https://www.ddiworld.com/glf>
- Grant, A. M., & Sonnentag, S. (2010). Doing good buffers against feeling bad: Prosocial impact compensates for negative task and self-evaluations. *Organizational Behavior and Human Decision Processes, 111*(1), 13–22. <https://doi.org/10.1016/j.obhdp.2009.07.003>
- Gröpel, P., Kuhl, J., & Kazén, M. (2005, July 1). Toward an integrated self: Age differences and the role of action orientation. *Conference Proceedings “Self-Concept, Motivation and Identity.”* Third International SELF Research Conference “Self-concept, Motivation and Identity: Where to from here?,” Australia.
- Hambrick, D. C., & Quigley, T. J. (2014). Toward more accurate contextualization of the CEO effect on firm performance. *Strategic Management Journal, 35*(4), 473–491. <https://doi.org/10.1002/smj.2108>
- Harrell, A., & Simpson, B. (2015). The dynamics of Prosocial Leadership: Power and influence in collective action groups. *Social Forces, 94*(3), 1283–1308. <https://doi.org/10.1093/sf/sov110>
- Hartung, J., & Schulte, D. (1994). Action and state orientation during therapy of phobic disorders. In Kuhl, J. & Beckmann, J. (Eds.), *Volition and personality: Action versus state orientation* (pp. 217–231), Hogrefe & Huber Publishers.

- Hayes, A. F. (2012). *PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]*. <http://www.afhayes.com/public/process2012.pdf>
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis, second edition: A regression-based approach*. Guilford Publications.
- Hofer, J., & Busch, H. (2011). Interpersonal identity achievement accounts for the link between action control and self-informed realization of the implicit affiliation-intimacy motive. *Identity, 11*(3), 231–246. <https://doi.org/10.1080/15283488.2011.560813>
- Hofer, J., Busch, H., Chasiotis, A., Kärtner, J., & Campos, D. (2007). Concern for generativity and its relation to implicit prosocial power motivation, generative goals, and satisfaction with life: A cross-cultural investigation. *Journal of Personality, 76*(1), 1–30. <https://doi.org/10.1111/j.1467-6494.2007.00478.x>
- Hoffman, B. J., Woehr, D. J., Maldagen-Youngjohn, R., & Lyons, B. D. (2011). Great man or great myth? A quantitative review of the relationship between individual differences and leader effectiveness. *Journal of Occupational and Organizational Psychology, 84*(2), 347–381. <https://doi.org/10.1348/096317909x485207>
- House, R. J., & Aditya, R. N. (1997). The social scientific study of leadership: Quo vadis? *Journal of Management, 23*(3), 409–473. <https://doi.org/10.1177/014920639702300306>
- Jacobs, R. L., & McClelland, D. C. (1994). Moving up the corporate ladder: A longitudinal study of the leadership motive pattern and managerial success in women and men. *Consulting Psychology Journal: Practice and Research, 46*(1), 32–41. <https://doi.org/10.1037/1061-4087.46.1.32>
- Jais, M., Bakaç, C., Kehr, H. M., Baumann, N., & Quirin, M. (2021). Misattribution of duties as free choices: The role of emotional awareness in self-infiltration. *Acta Psychologica, 220*, 103401. <https://doi.org/10.1016/j.actpsy.2021.103401>
- James, L. R., Bennett, N., & Blum, T. C. (2021). To push performance, check the leader's power motive. *Business Horizons, 64*(2), 181–188. <https://doi.org/10.1016/j.bushor.2020.11.002>
- James, L. R., LeBreton, J. M., Mitchell, T. R., Smith, D. R., DeSimone, J. A., Cookson, R., & Lee, H. J. (2013). Use of conditional reasoning to measure the power motive. In *Modern research methods for the study of behavior in organizations* (pp. 233–263). Routledge/Taylor & Francis Group.

- Jenkins, S. R. (1994). Need for power and women's careers over 14 years: Structural power, job satisfaction, and motive change. *Journal of Personality and Social Psychology*, *66*(1), 155–165. <https://doi.org/10.1037//0022-3514.66.1.155>
- Jostmann, N. B., & Koole, S. L. (2006). On the waxing and waning of working memory: Action orientation moderates the impact of demanding relationship primes on working memory capacity. *Personality and Social Psychology Bulletin*, *32*(12), 1716–1728. <https://doi.org/10.1177/0146167206292595>
- Kaluza, A. J., Boer, D., Buengeler, C., & van Dick, R. (2020). Leadership behaviour and leader self-reported well-being: A review, integration and meta-analytic examination. *Work & Stress*, *34*(1), 34–56. <https://doi.org/10.1080/02678373.2019.1617369>
- Karremans, J. C., & Smith, P. K. (2010). Having the Power to Forgive: When the Experience of Power Increases Interpersonal Forgiveness. *Personality and Social Psychology Bulletin*, *36*(8), 1010–1023. <https://doi.org/10.1177/0146167210376761>
- Kaschel, R., & Kuhl, J. (2004). Motivational counseling in an extended functional context: Personality systems interaction theory and assessment. In W. M. Cox & E. Klinger (Eds.), *Motivational counseling. Concepts, approaches, and assessment* (pp. 99–120). Sussex: Wiley.
- Kehr, H. M. (2004). Implicit/Explicit Motive Discrepancies and Volitional Depletion among Managers. *Personality and Social Psychology Bulletin*, *30*(3), 315–327. <https://doi.org/10.1177/0146167203256967>
- Keller, J., & Bless, H. (2008). Flow and Regulatory Compatibility: An experimental approach to the flow model of intrinsic motivation. *Personality and Social Psychology Bulletin*, *34*(2), 196–209. <https://doi.org/10.1177/0146167207310026>
- Kirkpatrick, S. A., Wofford, J. C., & Baum, J. R. (2002). Measuring motive imagery contained in the vision statement. *The Leadership Quarterly*, *13*(2), 139–150. [https://doi.org/10.1016/S1048-9843\(02\)00096-6](https://doi.org/10.1016/S1048-9843(02)00096-6)
- Koole, S. L., & Coenen, L. H. M. (2007). Implicit self and affect regulation: Effects of action orientation and subliminal self priming in an affective priming task. *Self and Identity*, *6*(2–3), 118–136. <https://doi.org/10.1080/15298860601118835>
- Koole, S. L., & Jostmann, N. B. (2004). Getting a grip on your feelings: Effects of action orientation and external demands on intuitive affect regulation. *Journal of Personality and Social Psychology*, *87*(6), 974–990. <https://doi.org/10.1037/0022-3514.87.6.974>

- Koole, S. L., Jostmann, N. B., & Baumann, N. (2012). Do demanding conditions help or hurt self-regulation?: Self-regulation under demanding conditions. *Social and Personality Psychology Compass*, 6(4), 328–346. <https://doi.org/10.1111/j.1751-9004.2012.00425.x>
- Kuhl, J. (1994). Action versus state orientation: Psychometric properties of the action control scale (ACS-90). In J. Kuhl & J. Beckmann (Eds.), *Volition and personality: Action versus state orientation* (1st ed., pp. 47–59). Hogrefe & Huber Publishers.
- Kuhl, J. (2000). A functional-design approach to motivation and self-regulation: The dynamics of Personality Systems Interactions. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of Self-Regulation* (pp. 111–169). Academic Press.
- Kuhl, J. (2001). Motivation und Persönlichkeit: Interaktionen psychischer Systeme [Motivation and personality: Architectures of mood and mind]. Hogrefe.
- Kuhl, J. (2004). Was bedeutet Selbststeuerung und wie kann man sie entwickeln? [What drives self-management and how can it be developed?]. 37, *Personalführung* 30–39.
- Kuhl, J., & Henseler, W. (2004). Entwicklungsorientiertes Scanning (EOS) [Development-oriented scanning (EOS)]. In L. von Rosenstiel & J. Erpenbeck (Eds.), *Handbuch der Kompetenzmessung* (pp. 428–453). Spektrum Akademischer Verlag.
- Kuhl, J., & Kaschel, R. (2004). Entfremdung als Krankheitsursache: Selbstregulation von Affekten und integrative Kompetenz. [Alienation as cause of illness: self-regulation of affects and integrative competence] *Psychologische Rundschau*, 55(2), 61–71. <https://doi.org/10.1026/0033-3042.55.2.61>
- Kuhl, J., & Koole, S. L. (2008). The functional architecture of approach and avoidance motivation. In A. J. Elliot (Ed.), *Handbook of approach and avoidance motivation* (pp. 535–553). Taylor & Francis.
- Kuhl, J., Quirin, M., & Koole, S. L. (2015). Being Someone: The Integrated Self as a Neuropsychological System: Being Someone. *Social and Personality Psychology Compass*, 9(3), 115–132. <https://doi.org/10.1111/spc3.12162>
- Kuhl, J., & Scheffer, D. (1999). Scoring manual for the Operant Multi-Motive Test (OMT). University of Osnabrück.
- Kuhl, J., Scheffer, D., & Eichstaedt, J. (2003). Der Operante Motiv-Test (OMT): Ein neuer Ansatz zur Messung impliziter Motive [The Operant Motive Test (OMT): A new approach to measure implicit motives]. In J. Stiensmeier-Pelster & F. Rheinberg (Eds.), *Diagnostik von Motivation und Selbstkonzept* (pp.129–149). Hogrefe.
- Lammers, J., & Stapel, D. A. (2011). Power increases dehumanization. *Group Processes & Intergroup Relations*, 14(1), 113–126. <https://doi.org/10.1177/1368430210370042>

- Lammers, J., Stoker, J. I., & Stapel, D. A. (2009). Differentiating Social and Personal Power: Opposite Effects on Stereotyping, but Parallel Effects on Behavioral Approach Tendencies. *Psychological Science*, *20*(12), 1543–1548. <https://doi.org/10.1111/j.1467-9280.2009.02479.x>
- Lorenzi, P. (2004). Managing for the common good: *Organizational Dynamics*, *33*(3), 282–291. <https://doi.org/10.1016/j.orgdyn.2004.06.005>
- Løvaas, B. J., Jungert, T., Van den Broeck, A., & Haug, H. (2020). Does managers' motivation matter? Exploring the associations between motivation, transformational leadership, and innovation in a religious organization. *Nonprofit Management and Leadership*, *30*(4), 569–589. <https://doi.org/10.1002/nml.21405>
- Magee, J. C., & Langner, C. A. (2008). How personalized and socialized power motivation facilitate antisocial and prosocial decision-making. *Journal of Research in Personality*, *42*(6), 1547–1559. <https://doi.org/10.1016/j.jrp.2008.07.009>
- Maner, J. K., & Mead, N. L. (2010). The essential tension between leadership and power: When leaders sacrifice group goals for the sake of self-interest. *Journal of Personality and Social Psychology*, *99*(3), 482–497. <https://doi.org/10.1037/a0018559>
- McClelland, D. C. (1970). The Two Faces of Power. *Journal of International Affairs*, *24*(1), 29–47.
- McClelland, D. C. (1975). *Power: The inner experience*. Irvington Publishers.
- McClelland, D. C. (1985). How motives, skills, and values determine what people do. *American Psychologist*, *40*(7), 812–825. <https://doi.org/10.1037/0003-066X.40.7.812>
- McClelland, D. C., & Boyatzis, R. E. (1982). Leadership motive pattern and long-term success in management. *Journal of Applied Psychology*, *67*(6), 737–743. <https://doi.org/10.1037/0021-9010.67.6.737>
- McClelland, D. C., & Burnham, D. H. (2017). Power is the great motivator. *Leadership Perspectives*, 271–279. <https://doi.org/10.4324/9781315250601-20>
- Montano, D., Reeske, A., Franke, F., & Hüffmeier, J. (2017). Leadership, followers' mental health and job performance in organizations: A comprehensive meta-analysis from an occupational health perspective. *Journal of Organizational Behavior*, *38*(3), 327–350. <https://doi.org/10.1002/job.2124>
- Moon, B., Lee, N. M.-H., & Bourdage, J. S. (2022). Personalized and socialized need for power: Distinct relations to employee traits and behaviors. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*, *54*(1), 28–39. <https://doi.org/10.1037/cbs0000279>

- Morgan, C. D., & Murray, H. A. (1935). A method for investigating fantasies: The Thematic Apperception Test. *Archives of Neurology & Psychiatry*, *34*(2), 289–306. <https://doi.org/10.1001/archneurpsyc.1935.02250200049005>
- Oettingen, G., Pak, H.-ju, & Schnetter, K. (2001). Self-regulation of goal-setting: Turning free fantasies about the future into binding goals. *Journal of Personality and Social Psychology*, *80*(5), 736–753. <https://doi.org/10.1037/0022-3514.80.5.736>
- Paustian-Underdahl, S. C., Walker, L. S., & Woehr, D. J. (2014). Gender and perceptions of leadership effectiveness: A meta-analysis of contextual moderators. *The Journal of Applied Psychology*, *99*(6), 1129–1145. <https://doi.org/10.1037/a0036751>
- Pearce, C. L., & Manz, C. C. (2014). The leadership disease...and its potential cures. *Business Horizons*, *57*(2), 215–224. <https://doi.org/10.1016/j.bushor.2013.11.005>
- Poulin, B. J., Hackman, M. Z., & Barbarasa-Mihai, C. (2007). Leadership and succession: The Challenge to succeed and the vortex of failure. *Leadership*, *3*(3), 301–324. <https://doi.org/10.1177/1742715007079311>
- Schmidt, L. C. (1997). *A motivational approach to the prediction of mentoring relationship satisfaction and future intention to mentor*. University of Pittsburgh.
- Schultheiss, O. C., & Hale, J. A. (2007). Implicit motives modulate attentional orienting to facial expressions of emotion. *Motivation and Emotion*, *31*(1), 13–24. <https://doi.org/10.1007/s11031-006-9042-9>
- Schultheiss, O. C., & Pang, J. S. (2007). Measuring implicit motives. In R. W. Robins, R. C. Fraley, & R. Krueger (Eds.), *Handbook of Research Methods in Personality Psychology* (pp. 322–344). Guilford Press.
- Spangler, W. D., Tikhomirov, A., Sotak, K. L., & Palrecha, R. (2014). Leader motive profiles in eight types of organizations. *The Leadership Quarterly*, *25*(6), 1080–1094. <https://doi.org/10.1016/j.leaqua.2014.10.001>
- Sturm, R. E., & Antonakis, J. (2015). Interpersonal Power: A Review, Critique, and Research Agenda. *Journal of Management*, *41*(1), 136–163. <https://doi.org/10.1177/0149206314555769>
- Sturm, R. E., Herz, H., & Antonakis, J. (2021). The science of leader power. *The Leadership Quarterly*, *32*(4), 101550. <https://doi.org/10.1016/j.leaqua.2021.101550>
- Srinivasan, P., & Yonge, J. M. de. (2021, March 26). *How can today's leaders realize Tomorrow's opportunities?* EY. Retrieved February 17, 2022, from https://www.ey.com/en_gl/ceo/how-can-today-s-leaders-realize-tomorrow-s-opportunities

- Trojak, N., & Galić, Z. (2020). How to select a true leader? Introducing methods for measurement of implicit power motive. *Management: Journal of Contemporary Management Issues*, 25(1), 235–253. <https://doi.org/10.30924/mjcmi.25.1.13>
- Urbach, T., & Fay, D. (2018). When proactivity produces a power struggle: How supervisors' power motivation affects their support for employees' promotive voice. *European Journal of Work and Organizational Psychology*, 27(2), 280–295. <https://doi.org/10.1080/1359432x.2018.1435528>
- van Kleef, G. A., Oveis, C., van der Löwe, I., LuoKogan, A., Goetz, J., & Keltner, D. (2008). Power, distress, and compassion. *Psychological Science*, 19(12), 1315–1322. <https://doi.org/10.1111/j.1467-9280.2008.02241.x>
- World Health Organization (WHO): Regional Office for Europe (1998). “Well-being measures in primary health care: the DepCare Project. in Consensus Meeting, Stockholm, Sweden.
- Williams, M. J. (2014). Serving the Self From the Seat of Power: Goals and Threats Predict Leaders' Self-Interested Behavior. *Journal of Management*, 40(5), 1365–1395. <https://doi.org/10.1177/0149206314525203>
- Winter, D. G. (1973). *The power motive*. Free Press.
- Winter, D. G. (1991). A motivational model of leadership: Predicting long-term management success from TAT measures of power motivation and responsibility. *The Leadership Quarterly*, 2(2), 67–80. [https://doi.org/10.1016/1048-9843\(91\)90023-U](https://doi.org/10.1016/1048-9843(91)90023-U)
- Wisse, B., Rus, D., Keller, A. C., & Sleebos, E. (2019). “Fear of losing power corrupts those who wield it”: The combined effects of leader fear of losing power and competitive climate on leader self-serving behavior. *European Journal of Work and Organizational Psychology*, 28(6), 742–755. <https://doi.org/10.1080/1359432x.2019.1635584>
- Zimbardo, P. G. (1972). *The psychology of imprisonment: Privation, power and pathology*. Stanford University.

CHAPTER 4

THE ART OF GETTING THINGS DONE: TRAINING AFFECTIVE SHIFTING IMPROVES INTENTION ENACTMENT

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“The Secret of Getting Things Done is to Act.”

Dante Aligheri

Abstract

Effectively managing to-do lists and getting things done is a desirable competence. However, when things get difficult or demanding, many individuals struggle to put their intentions into subsequent actions. According to Personality Systems Interactions (PSI) theory, changes in positive affect are decisive for efficient intention enactment. Based on this understanding, in the present study, we designed and evaluated an affect focused intervention that practices shifting between high and low positive affect. In a control group design (N =252, M_{age}= 26.40, SD =10.24, range 18-66) the affective shifting intervention was contrasted against two other conditions (affective boosting & neutral). To test our assumptions, personal real-life intentions were assessed, and multifaceted measures (self-report, non-reactive) were applied and measured at different time points. To evaluate affective shifting, we tested interindividual benefits in the Stroop task. Additionally, we analyzed intervention effects on positive affect and intention enactment in real-life. In line with our assumptions, we found that specifically those individuals who struggle with intention enactment (i.e., state-oriented) benefited in terms of better intention enactment ability in the Stroop task. Further, affective shifting fostered the decisive self-regulation of positive affect that directly improved intention enactment three weeks after the intervention. Lastly, affective shifting leads to more self-coherent intention enactment, meaning a greater integration of expectancy x value considerations three weeks after the intervention. Discussion of our findings highlight the importance of theory-driven and affect-related interventions to close the gap between intention and action.

Keywords: Affective Shifting; Self-Regulation; Intention Enactment; Stroop Interference;
Action versus State Orientation

The key to getting things done and the quest for more productivity has engaged researchers, philosophers, and practitioners alike. The evident solution that philosopher Dante Alighieri proposed, however, is easier said than done, as many people struggle to put their intentions into action. Failure in intention enactment is considered a self-regulation problem (Inzlicht et al. 2021) and according to Personality Systems Interactions (PSI) theory (Kuhl 2000, 2001; Kuhl et al. 2020), a comprehensive framework that addresses cognitive-affective dynamics in self-regulation, the regulation of affect is in particular crucial for efficient intention enactment. More specifically, the affective change hypothesis (Baumann & Scheffer 2010) states that dynamic changes from low (“seeing difficulty”) to high positive affect (“mastering difficulty”) facilitate intention enactment. Thus, changes in positive affect seem to be a vital key for getting things done.

Indeed, theories of self-regulation have long emphasized that affective changes guide cognitive processes (e.g., Baumann & Scheffer 2010; Bledow 2013; Kuhl et al. 2020) and drive outcomes such as work engagement (Bledow et al. 2011), task performance (Yang et al. 2016), creativity (Bledow et al. 2013; Watts et al. 2020), flow experience (Baumann & Scheffer 2010), and intention enactment (Friederichs et al. 2020; Lomberg et al. 2019). However, this insight has not yet been sufficiently translated into applicable methods that foster intention enactment. Hence, in the present study, we designed an intervention (affective shifting) that integrates PSI theory’s dynamic perspective and practices shifting between high and low positive affect. To evaluate affective shifting, we conducted an online experiment, assessed multifaceted measures (non-reactive, self-reports) at several time points (pre-post, time series, follow-up) and contrasted it against two control conditions (affective boosting and neutral). Practicing affective shifting is hypothesized to improve self-regulated changes in positive affect and thus efficient intention enactment.

Positive Affect and Intention Enactment

PSI theory posits that both low and high positive affect play a decisive role in intentional action: low positive affect triggers the formation and maintenance of intentions, while high positive affect facilitates their enactment (Baumann & Scheffer 2010; Kuhl 2001). Low positive affect (e.g., feeling listless or sluggish) typically indicates difficulties or high demands in goal pursuit as the desired outcome cannot be instantly achieved and specific strategies are needed to overcome obstacles (“seeing difficulty”). In this case, behavioral routines fall short and explicit

intentions are vital to manage goal directed behavior (Gruber & Goschke 2004). Therefore, *intention memory* is activated – a central executive system that manages forming and maintaining intentions. With its adaptive function to temporarily impede hasty and imprudent actions, intention memory facilitates analytical problem solving and strategy development and helps to determine favorable contexts for effective enactment (Dreisbach & Goschke 2004; Goschke & Kuhl 1993). Moderate or high positive affect (e.g., happiness, invigoration), on the other hand, signals that difficulties have been resolved or solutions to overcome difficulties have been established and the right enactment opportunity has come (“mastering difficulty”). Thus, an up-regulation of positive affect is required if individuals want to act on their intentions (Isen 2001; Kazén & Kuhl 2005).

This theoretical perspective illustrates how efficient intention enactment relies on a dynamic interplay between high and low positive affect. Several research findings further support this notion, indicating that a unilateral emphasis on either affective experience is not conducive for intention enactment. For instance, low positive affect leads to an impairment of action, as intention memory is constantly activated (Goschke & Kuhl 1996) and research shows that the more individuals ponder on their intentions, the less likely they will act on them (Ruigendijk et al. 2018; Ruigendijk & Koole 2014). In contrast, merely boosting positive affect, does not only reduce effort (Carver & Scheier 1990), but can also impair enactment (Kappes et al. 2011). Moreover, it has been shown that although boosting positive affect leads to an immediate mood repair, in the long run it paradoxically reduces positive affect (Oettingen et al. 2016). Lastly, heightened focus on positive affect is associated with difficulty avoidance (i.e., trouble to tolerate low positive affect), which limits individuals to more easy or pleasant matters that do not require intentions (Kuhl et al. 2020). Despite these findings, interventions prevail that either unilaterally focus on maximizing positive affect (e.g., self-efficacy) or cognitively influence behavioral change (e.g., time management) to foster intention enactment (for a review see van Eerde & Klingsieck 2018). Following PSI theories’ insight, however, successful goal pursuit requires a continuous regulation of positive affect and individuals need to be able to flexibly shift on this affective axis to realize a smooth transition from intention to action (Bledow 2013; Kuhl & Koole 2004). Thus, promoting self-regulated changes in positive affect seems decisive to help individuals to get things done.

Self-Regulation of Positive Affect

There are individuals who are already well able to self-regulate changes in positive affect when difficulty arises (i.e., action-oriented) without being dependent on external regulation, such as encouragement or incentives (Kuhl 1994). Decades of research has shown that they reliably perform and even excel when confronted with difficulty, while state-oriented individuals struggle to close the gap between intention and action due to their impaired self-regulation ability (Birk et al. 2020; Dahling et al. 2015; Friederichs et al. 2020; Koole et al. 2012; Kuhl & Beckmann 1994). PSI theory suggests that the distinct self-regulatory advantage of action orientation is related to a facilitated access to the self (Baumann & Kuhl 2003; Kuhl et al. 2015). Consistent with this, Koole and Jostmann (2004) showed that action-oriented individuals' self-regulatory performance (i.e., speed of detecting happy among angry faces) was mediated by self-access (i.e., faster reaction times in a self-evaluation task). Moreover, action orientation is linked to greater motive-goal congruence (Baumann et al. 2005), higher self-reported self-access (Quirin & Kuhl 2018), and more self-regulated motive enactment (Baumann & Kuhl 2020). Thus, the self seems to be the key driver for changes in positive affect.

The self is considered a parallel-processing neuro-cognitive network that stores and integrates a large sum of autobiographic experiences (e.g., past successes), self-relevant information (e.g., needs, goals, preferences) and personal values (Baumann et al. 2018; Wheeler et al. 1997). While the self incorporates both positive and negative affective experiences (Baumann & Kuhl 2020), these integrated self-aspects are primarily positively charged (Chavez et al. 2017; Koole et al. 2001). Hence, on account of this positivity bias, accessing the self, with its positive imprinted information, allows for the internal provision of positive affect (Quirin et al. 2018). Moreover, due to its highspeed parallel computing power, activation of the self also allows to align associated difficulties of personal intentions with existing, interconnected self-aspects (e.g., values, needs, preferences) to ensure that set intentions are both realistic (i.e., high expectancy) and personally relevant (i.e., high value) (Kuhl et al. 2020; Kuhl & Koole 2004; see also Sedikides et al. 2018; Stephan et al. 2015 Exp.6). Thus, supporting access to the self in the face of difficulties (i.e., low positive affect) should not only help to self-regulate positive affect but also increase self-coherent intention enactment (i.e., integrate expectancy x value considerations).

One way to gain access to the self is by revitalizing personally meaningful autobiographic memories (Baldwin et al. 2015; Kuhl 2000; Sedikides et al. 2015). Almost anyone can relate to

a time, when recalling a valued, self-relevant past event vitalized positive energy for a present challenge (e.g., recalling a successful speech before giving another talk). Scientific findings confirm this perception, showing that reflecting on self-relevant memories increases current levels of positive affect (Austin & Costabile 2021; Demiray & Janssen 2015) as well as self-esteem (Vess et al. 2012) and is considered a superior approach to induce emotional states (Mills & D’Mello 2014). Additionally, revitalizing self-relevant memories facilitates holistic thinking (Hong et al. 2021) and the perception of meaning (Routledge et al. 2012). In contrast, these facilitative effects are not achieved by imagining a desired future (Routledge et al. 2012; Exp. 1). However, consistent with PSI theory’s assumption, reflecting on past glory only unfolds its beneficial potential for present functioning when individuals encounter restraining or difficult circumstances (i.e., low positive affect) (Sedikides et al. 2018; van Dijke et al. 2019, Study 3). Again, this indicates that high positive affect should be coupled with low positive affect for efficient intention enactment.

The Present Study: Affective Shifting

Derived from the previous understanding, we concluded that an affect-focused intervention that practices shifting between low and high positive affect would promote the necessary changes in positive affect for improved intention enactment. Thus, we designed a seven-day audio-based visualization exercise (affective shifting) that guided participants to shift between feelings of low positive affect (e.g., listless, sluggish) and high positive affect (e.g., happy, cheerful). Activation of the affective states was attained by creating images of personal, difficult intentions on the one hand and remembering autobiographical success experiences on the other hand. During the intervention, participants were instructed to deeply engage with the feelings that were aroused in the visualization. In line with the assumptions of the Hebbian learning principle (Hebb 2005: “Neurons that fire together wire together”) and the principles of classical conditioning (Eelen 2018), we presumed that iterated shifting on this affective axis strengthens the link between low and high positive affect and should thus result in an easier regulation of positive affect in the face of difficulty and, in turn, promote intention enactment.

To evaluate the affective shifting intervention, we contrasted it against two control conditions: (a) a modified version of affective shifting, which solely enhanced positive affect (affective boosting) and (b) an affectively neutral condition. Multifaceted measurements (i.e., non-reactive, self-report) were employed and assessed at different time points before, during, and after the interventions. First, we looked at differential benefits of affective shifting in the Stroop

task – a nonreactive measure of intention enactment ability (Friederichs et al. 2020; Kazén & Kuhl 2005; Kuhl & Kazén 1999). As state-oriented individuals are characterized by an impaired self-regulation ability, we expected them to specifically benefit from practicing affective shifting.

Second, we looked at whether practicing affective shifting indeed influences the necessary self-regulation of positive affect and how this, in turn, impacts the enactment of personal intentions. Therefore, we tracked positive affect levels daily before and after the exercises in each condition. Compared to the control groups, we assumed that practicing affective shifting would foster self-regulation of positive affect over time. Further, we hypothesized that this acquired self-regulatory ability should be reflected in the enactment of real-life intentions. Lastly, as affective shifting stimulates the activation of personal values and self-representations, we expected that practicing affective shifting would enhance the integration of expectancy x value considerations in intention enactment. Compared to the control groups, we assumed that affective shifting fosters the quality of own intention enactment, meaning that individuals are more likely to enact those intentions that they consider as realistic and personally valuable.

Method

Participants

Prior to data collection the number of participants was defined based on the size of the intervention effect on performance in the Stroop task reported by Friederichs et al. (2020, Exp. 2). To clarify the needed sample size, we used G*Power (Faul et al. 2009) to detect a small to medium effect size of the Condition x Action Orientation interaction ($f^2 = .10$) with a power of .95 and $\alpha = .05$ (multiple linear regression: ΔR^2). Results suggested a minimum sample of 158 participants. As attrition rates in intricate, longitudinal online studies without monetary incentive are likely amplified, we aimed for a conservative sample of 250 participants. Effectively, two hundred and fifty-two participants (200 female, 51 male, 1 nonbinary; $M_{age} = 26.40$, $SD = 10.236$; range 18-66) were recruited from the University of Trier, the University of Bremen and by recruiting participants through e-mail from the personal networks of the study conductors. For participation, a minimum age of eighteen years was required and due to the color nature of the Stroop task, color blind people could not participate.

Most participants were students (78.6 %), followed by working professionals (17.1%). The remaining sample included three job seekers, two high school students and one senior citizen. In the first half (T2-4), 228 participants took part in the study. In the second half (T5-7), 212

participants completed at least five consecutive exercise days and 209 participants finished all seven days. Due to technical problems, the Stroop task (T7) was only assessed for 197 participants. Finally, 204 participants took part in the follow-up (T8). Prior to the study, we obtained written consent from each participant. Participation was voluntary and participants could drop out at any point. As incentive for participation, individuals could receive participation credits (if part of the University of Trier) or partake in a raffle for either one of five Amazon® vouchers or a coaching session with the first author (professional coach) of this paper. Data are available upon request from the first author.

Procedure

Overview. The experimental set-up (T1: pre-assessment; T1-7: seven daily exercises; T7: Stroop task; T8: follow-up) was implemented online (*Figure 4.1*). Prior to sign up, participants were informed about content and temporal sequence of the study. At registration, participants were randomly assigned to the experimental (affective shifting: $n = 83$) or one of the control conditions (affective boosting: $n = 85$; neutral condition: $n = 84$) and received a personalized link via e-mail to start the study. Participants could start at any time during the study's run time, as long as they completed it according to the predefined temporal sequence. To ensure anonymity E-mail addresses and data was stored separately. Dropout rates from T1 to T7 differed slightly between groups, with the highest dropout rate in the affective shifting condition (22.89%), followed by the neutral (16.67%), and the affective boosting condition (1.76%). This trend continued to the last point of data collection (T8), where a total dropout rate of 26.51% in the affective shifting condition was recorded, compared to 17.86% in the neutral and 12.94% in the affective boosting condition.

Pre-assessment (T1). At T1 three personal achievement-related intentions were assessed that were experienced as difficult or demanding and that participants aimed to implement within the consecutive four weeks (e.g., “*I would like to finish my term paper*”). Participants rated enactment expectancy and value of each intention. Moreover, for the Stroop task they created personal, intention-related (e.g., ‘*difficult*’), and success-related (e.g., ‘*pride*’) prime words and chose neutral ones (e.g., ‘*button*’) from a predefined list. Lastly, action-state orientation and level of positive affect was measured.

Intervention phase (T1-7). After the pre-assessment, participants in the affective shifting and affective boosting condition received their first of seven audio-based exercises (descriptions below). An introduction was given ahead of the audio, comprising the procedure for the

following days (T2-7) and a statement on how visualizations are presumed to support intention enactment. Participants were instructed to listen to their daily audio in a quiet surrounding at any time of the day yet within twenty-four hours of receiving their link. In the neutral condition, participants were first instructed to write a short paragraph about how they will approach their personal intentions. After the writing task, they also received an introduction differing only in the statement that listening to podcasts is presumed to support intention enactment. Finally, all participants rated their positive affect level once more. The following six days (T2-T7) participants received a personalized link with the consecutive audio file (affective shifting, affective boosting, podcast). Each day before and after they had listened to their audio file, participants rated their positive affect levels. Participants could not skip a day, as the following link was only sent out after they had completed their previous affect rating.

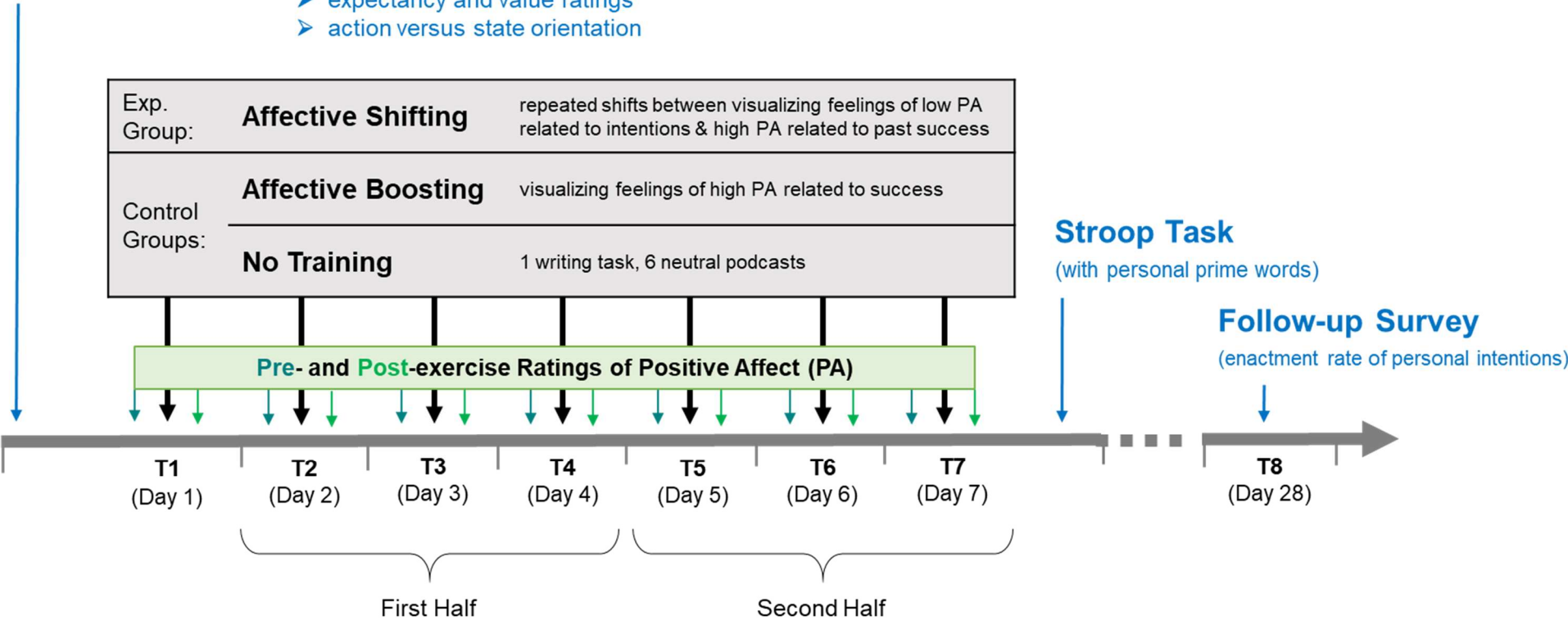
Intention enactment ability task (T7). After their last audio and affect rating, participants completed the Stroop task on pavlovia.org, a platform for online behavioral experiments. The task was explained step by step on the screen. After a practice trial, the actual test started, which included participants' personal intention-related, positive, and neutral primes that were assessed at T1. In case of technical issues during the experiment, participants could reach out to the test administrator via E-Mail. However, there was some data loss due to technical problems and internet connection failure.

Follow-up survey (T8). Four weeks after the pre-assessment at T1, participants were contacted again with a personalized link to a follow-up survey. To evaluate the intervention, they stated their enactment success of their initial intentions from T1 and rated whether enactment was due to external regulation (e.g., pressure, deadline, incentive). In the end, participants in both control groups were informed that their exercises were not expected to foster intention enactment. Instead, they were provided some information on affective shifting. In total, participants had a time investment of 150 minutes in this study.

Figure 4.1 Overview of Training and Evaluation Procedure.

Pre-Assessment

- 3 difficult personal intentions and personal prime words (intention- and success-related)
- expectancy and value ratings
- action versus state orientation



Exercise Conditions

Affective shifting. We drew on visualization techniques for the foundation of the design as they require low cognitive effort, stimulate implicit processes, and provide optimal conditions to acquire self-regulation abilities (Baumann & Kuhl 2020; Chatterjee et al. 2013). The audio-based visualization (8-10 minutes/day) was placed in a fantasy setting ('the castle of own goals'). Weaved into the beginnings of each exercise day were brief explanations of *why* the shift between affective states is important for efficient intention enactment. The distinct levels of positive affect were aroused through an alternating exploration of two initially independent imaginary rooms: the 'room of intentions' (i.e., low positive affect) and the 'room of past successes' (i.e., high positive affect). As low positive affect can be activated with difficulties, the room of intentions was to be imagined as being filled with difficult intentions and participants were guided to experience related feelings (e.g., listless, sluggish). In contrast, based on the idea that stimulating autobiographic memories activates the self with its' positively charged self-aspects, the room of past successes guided participants to remember personal accomplishments and encouraging experiences with mentors to master difficulties and to experience related feelings (e.g., happy, cheerful). In the first days, participants were guided to imagine each room to be accessed via the castle yard. This circumvention was steadily reduced with the building blocks of a connecting bridge between the 'room of intentions' and the 'room of past successes' and eventually a smooth transition from one room to the other was possible. Thus, in their visualization, participants could easily traverse across the newly created bridge and hence shift between low and high states of positive affect.

Affective boosting. The aim of the affect boosting condition was to only enhance positive feelings. The set-up was similar to the affective shifting condition, but participants were only introduced to a positive setting ('the castle of own successes'). Weaved into the beginnings of each exercise day, there were also brief explanations of *why* it is important to feel these positive feelings. Following, participants were guided to experience strong positive feelings by imagining watching a movie about themselves celebrating their successful intention implementation. As affective shifting, the exercise did not explicitly refer to specific goals or intentions.

Neutral condition. The neutral group was given minimal input yet were occupied for a similar time span every day to ensure comparability. At T1, they were instructed to write down a paragraph on how they would implement their intentions. This was not relevant for the present

study. From T2-T7 participants received eight- to ten-minute-long podcasts, which were publicly available and contained topics from mountain climbing, food, neuroscience, and other knowledge-based content.

Measures

Action orientation. The Action Control Scale (ACS; Kuhl 1994) was used to measure decision-related action orientation (AOD; 12 items: Cronbach's $\alpha = .81$) at T1 and T8. The scale has also been labelled as demand-related or prospective action orientation (Kaschel, Kazén, & Kuhl 2016; Koole & Jostmann 2004). An example item is "*When I know I must finish something soon: (a) I have to push myself to get started, or (b) I find it easy to get it done and over with.*" Option "(a)" represents the state-oriented response alternative and option "(b)" the action-oriented one. We calculated continuous orientation scores by counting the number of action-oriented responses. The lower scores indicate a stronger tendency towards state-oriented hesitation and higher scores indicate action-oriented initiative.

Positive affect. A self-report inventory was used to measure high positive affect (*happy, cheerful*) and low positive affect (*listless, sluggish*) before (pre) and after (post) each exercise (T1-T7). Participants rated the extent to which the statement applied to them ("*Right now I feel...*") using a 4-point Likert scale from 1 (*not at all*) to 4 (*very much*). Low positive affect items were reversed before calculating means across the six items (Cronbach's $\alpha = .83-.87$).

Personal intentions and prime words. Participants stated three personal achievement related intentions (e.g., "*I would like to finish my term paper*", "*I would like to exercise two times a week*") that were experienced as difficult or demanding and that they aimed to implement within the consecutive four weeks. In addition, participants created four distinct words that reminded them of each specific intention and the related feelings. Further, participants described three past achievement-related successes, which they connected with positive feelings of accomplishment or pride. As before, four distinct words were created that reminded participants of each specific success and the related feelings. Finally, participants chose 12 out of a list of 60 neutral words that did not elicit any emotional reaction. The generated prime words (intention-related, positive, neutral) were used for the Stroop task at T7 (Friederichs et al. 2020).

Expectancy and value of personal intentions. For each intention, participants rated enactment expectancy ("*It is likely that I will implement this intention within the next four weeks*") and

enactment value (“*It is very important to me to implement this intention within the next four weeks*”) on a 4-point Likert scale from 1 (*not at all*) to 4 (*very much*).

Intention enactment ability in the Stroop task. A modified version of the EMOSCAN® (Friederichs et al. 2020; Kuhl & Kazén 1999) was used as a non-reactive measure of intention enactment ability. The response time task was programmed in PsychoPy (version 2020.1). To run the experiment online, it was transferred to a PsychoJS script. Inspired by the traditional Stroop task (Stroop 1935), the EMOSCAN® assesses participants’ efficiency (i.e., speed and accuracy) to override the natural habit of reading a word (i.e., red) in favor of responding to the color hue of the word (e.g., word “red” in blue). Efficiency is measured in terms of interference in latencies and errors. Stroop interference is the extra time (50–200 milliseconds) required to respond to incongruent compared to control stimuli and low Stroop interference is regarded a valid measure of intention enactment efficiency (Hagger et al. 2010). Personal prime words were presented ahead of the Stroop stimulus (incongruent vs. control), that either facilitate (positive), challenge (intention-related) or have no impact on performance (neutral) (Friederichs et al. 2020). Stroop interference after intention-related primes was of interest, as they, in contrast to positive primes do not provide but further reduce positive affect (Kuhl & Kazén 1999) and thus in this priming condition positive affect required for intention enactment can only be generated through self-regulatory processes.

After a fixation cross was shown on the computer screen (500ms), a personal prime word was presented (750ms), followed by either an incongruent (e.g., word “green” in red) or a control stimulus (row of four “XXXX” in green, blue, red, or yellow). The task is to react to the color hue of the stimuli as fast and correct as possible by pushing the corresponding key on the keyboard (S, D, K, L). In line with previous research (Kazén & Kuhl 2005), we displayed a second Stroop stimulus after the first one. After 16 practice trials, the experimental phase with 96 randomized trials started, which was divided into two blocks with a mandatory break of one minute in-between. Some participants stated the same words for intention-related and positive primes in the pre-assessment at T1. These specific reaction times were excluded from the subsequent analyses. Moreover, to fill up the missing prime words in each category (sixteen in total per block), four words were randomly repeated for each prime category in each block. Thus, there were 3 (prime categories) × 8 (presentations) × 2 (Stroop stimuli: incongruent, control) × 2 (blocks) = 96 trials.

Enactment of personal intentions. At the four-week follow up (T8), a self-report was used to assess the number of successful intention enactments with dichotomous items (“*Have you implemented intention number 1, yes or no?*”). “Yes” answers were coded as 100%. In case of “no” answers, participants stated if they had already partially completed their intention (in %). Ratings were averaged across intentions (e.g., 3 fully enacted intentions = 100%).

External regulation. At the four-week follow up (T8) participants rated whether successful intention enactment could be attributed to external factors (“*Enactment of my intention number 1 was based on external factors, e.g., deadline, pressure of family/colleagues, financial incentive*”) as opposed to self-regulation on a scale from 1 (*not at all*) to 4 (*very much*).

Additional measures. Additional measures were assessed that were not relevant for the present study. For further information please refer to the supplementary.

Results

Latencies. We conducted a hierarchical regression analysis with latencies for incongruent Stroop trials after intention-related primes as the dependent variable ($M = 1109$ ms, $SD = 283$ ms). In Step 1, we controlled for latencies for control trials (‘XXXX’) after intention-related primes ($M = 991$ ms, $SD = 262$ ms). In Step 2, we entered the continuous, z-standardized action orientation scores and the experimental conditions coded as C1 (affective shifting = 1 vs. neutral = -1) and C2 (affective shifting = 1 vs. affective boosting = -1). In Step 3, we entered the interaction terms. As listed in Table 4.1, there were no main effects for action orientation and experimental conditions. However, the C1 x Action Orientation interaction on latencies after intention-related primes was significant, $\beta = .11$, $t(190) = 2.06$, $p = .041$, $B = 41.02$, 95% CI: 1.66, 80.38.

Figure 4.2 (left side) illustrates the interaction effect with values of $M \pm 1SD$ for action orientation. Simple slope analyses revealed that state-oriented participants had significantly shorter latencies after intention-related primes in the affective shifting compared to the neutral condition, $B = -57.14$, $t(190) = -2.21$, $p = .029$. In contrast, action-oriented participants did not differ in latencies after intention-related primes between conditions, $B = 22.69$, $t(190) = 0.80$, $p = .423$. This finding is in line with the assumption that affective shifting increases intention enactment ability among state-oriented participants compared to the neutral condition. An analysis of latencies after positive and neutral instead of intention-related primes showed no significant main effects of action orientation and experimental conditions and no interactions

between orientation and condition. Thus, the benefit of affective shifting is solely demonstrated after intention-related primes, that is, in the priming conditions that challenges self-regulation.

Table 4.1 Summary of Regression Analyses Predicting Stroop Interference after Intention-Related Primes ($N = 197$)

	Incongruent Stroop Trials			
	Latency		Errors	
	ΔR^2	β	ΔR^2	β
Step 1	.57***		.08***	
Control Trials		.75***		.29***
Step 2	.00		.02	
Action Orientation		.02		.01
C1 (Shifting vs. Neutral)		-.06		.03
C2 (Shifting vs. Boosting)		.05		-.16*
Step 3	.01		.02	
C1 x Action Orientation		.11*		-.13
C2 x Action Orientation		-.06		.16*

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

Error rates. We conducted an additional hierarchical regression analysis with error rates during incongruent Stroop trials after intention-related primes as the dependent variable ($M = 5.96\%$, $SD = 8.92\%$) and controlled for errors during control trials after intention-related primes ($M = 5.44\%$, $SD = 7.04\%$) in Step 1. As listed in Table 4.1, there was a significant main effect of C2, $\beta = -.16$, $t(192) = -2.04$, $p = .043$, $B = -1.73$, 95% CI: -3.41, -0.06, indicating that error rates were lower in the affective shifting compared to the affective boosting condition. The main effect was qualified by a significant C2 x Action Orientation interaction on errors after intention-related primes, $\beta = .16$, $t(190) = 2.01$, $p = .046$, $B = 1.73$, 95% CI: 0.04, 3.42.

Figure 4.2. Response Latencies (ms) and Errors (%) in Incongruent Trials (Controlling for Control Trials) after Intention-Related Primes as a Function of Action versus State Orientation and Experimental Condition (N = 197).

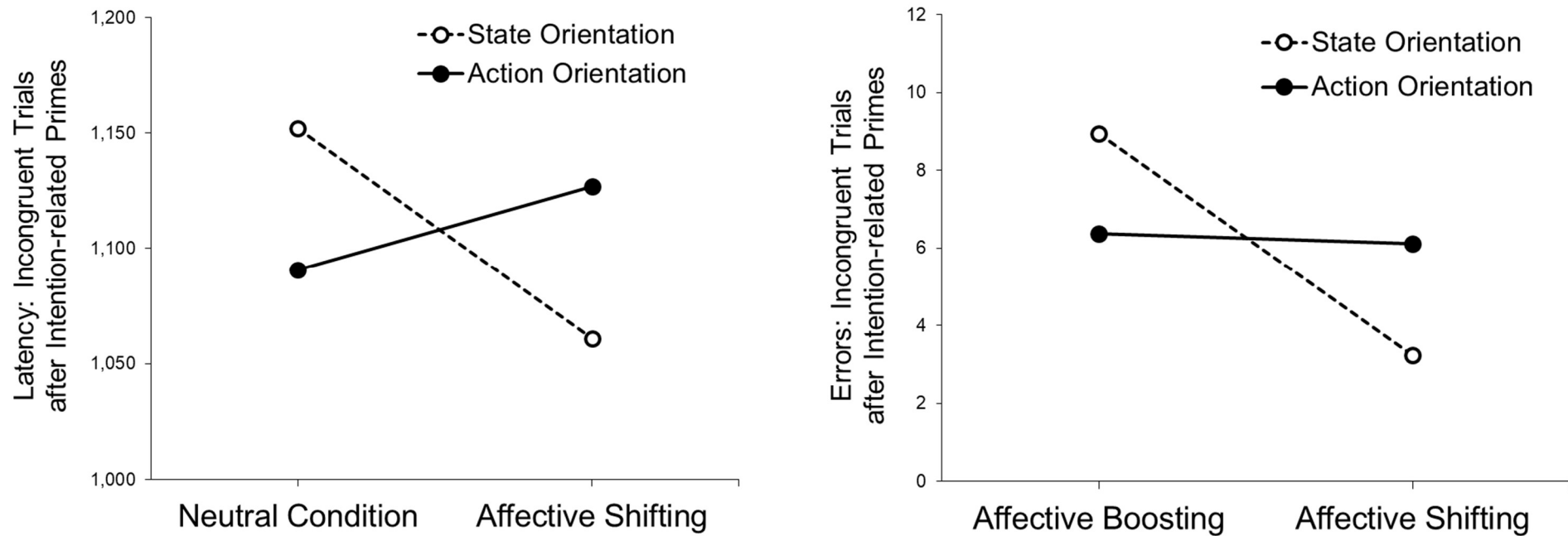


Figure 4.2 (right side) illustrates the interaction effect. Simple slope analyses revealed that state-oriented participants committed significantly fewer errors after intention-related primes in the affective shifting compared to the affective boosting condition, $B = -3.51$, $t(190) = -2.86$, $p = .005$. In contrast, action-oriented participants did not differ in error rates after intention-related primes between conditions, $B = -0.16$, $t(190) = -0.14$, $p = .892$. This finding is consistent with the assumption that affective shifting increased intention enactment ability for state-oriented participants compared to the affective boosting condition. An analysis of error rates after positive and neutral instead of intention-related primes showed no significant main or interaction effects of action orientation and experimental conditions. Thus, the benefit of affective shifting is solely demonstrated after intention-related primes that specifically challenge self-regulation.

Positive Affect

We conducted a 2 (Exercise: pre vs. post) x 7 (Time: T₁ to T₇) x 3 (Condition) ANOVA on positive affect with repeated measures on the first two factors. The significant main effects of Exercise ($F(1, 206) = 57.81$, $p < .001$, $\eta_p^2 = .219$), Time ($F(6, 206) = 4.39$, $p < .001$, $\eta_p^2 = .021$), and Condition ($F(2, 206) = 8.01$, $p < .001$, $\eta_p^2 = .072$) were qualified by significant two-way interactions (Exercise x Time: $F(6, 206) = 7.07$, $p < .001$, $\eta_p^2 = .03$; Exercise x Condition: $F(2, 206) = 18.37$, $p < .001$, $\eta_p^2 = .151$) and a significant three-way interaction (Exercise x Time x Condition: $F(12, 206) = 3.83$, $p < .001$, $\eta_p^2 = .036$). As illustrated in Figure 4.3, the effects of the daily exercise on positive affect differed between conditions as a function of time. To facilitate the interpretation, we compared exercise effects in the first half of the intervention (aggregation across T₂₋₄) with exercise effects in the second half of the intervention (aggregation across T₅₋₇). We analyzed these early and later effects in two separate regression analyses.

First half of intervention (T₂₋₄). We conducted a regression analysis with post-exercise positive affect in the first half of the intervention (T₂₋₄) as a dependent variable. In Step 1, we controlled for pre-exercise positive affect (T₂₋₄) and action orientation. In Step 2, we entered C1 and C2. As listed in Table 4.2, C1, $\beta = .13$, $t(223) = 2.65$, $p = .009$, $B = 0.08$, 95% CI: 0.02, 0.13, and C2 were significant, $\beta = -.10$, $t(223) = -2.03$, $p = .044$, $B = -0.06$, 95% CI: -0.11, -0.00. Findings indicate that affective shifting yielded stronger increases in positive affect as compared to the neutral condition, but initially lower increases as compared to affective boosting. There were no significant main or interaction effects of action orientation.

Figure 4.3. Positive Affect Before (Pre) and After (Post) the Exercise on Seven Consecutive Days as a Function of Experimental Condition (N = 209).

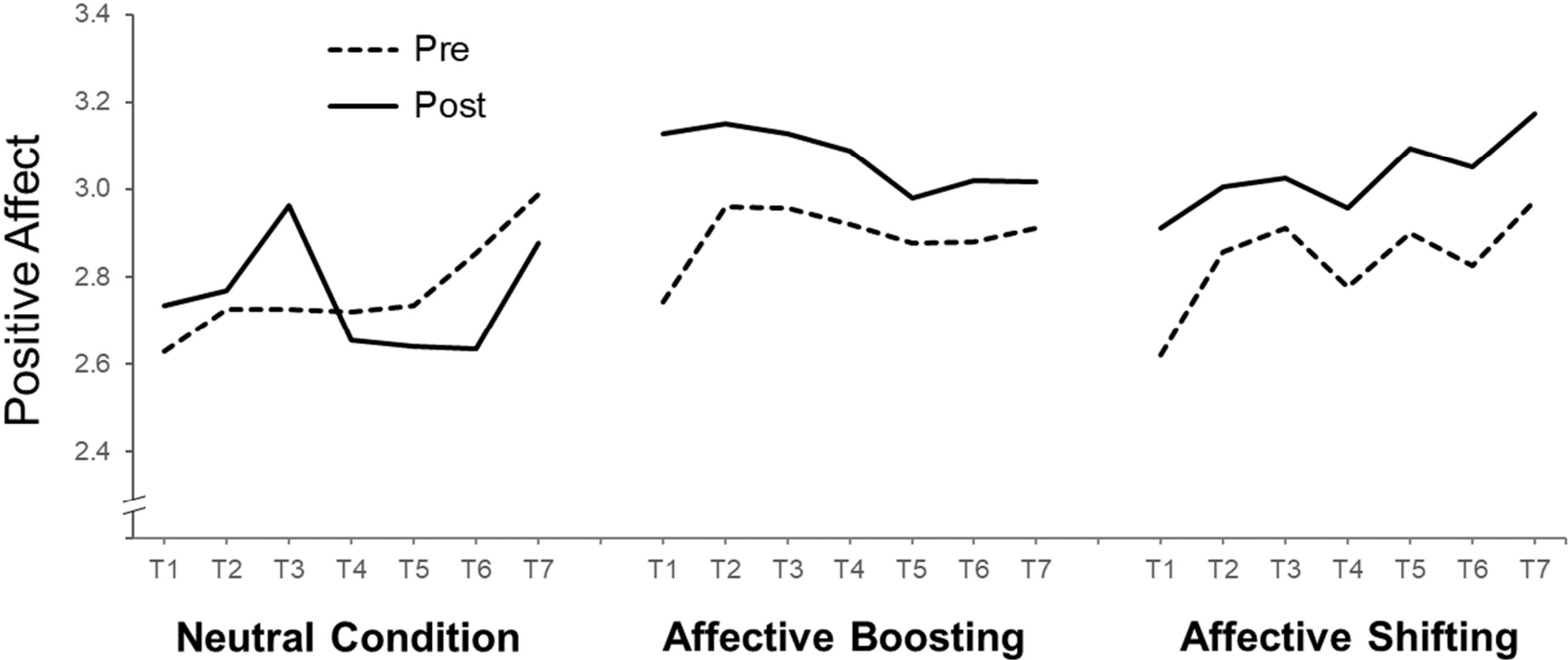


Table 4.2 Summary of Regression Analyses Predicting Post-Exercise Positive Affect in the First Half (T_{2-4} , $N = 228$) and Second Half (T_{5-7} , $N = 212$) of the Intervention

	Post-Exercise Positive Affect			
	First Half		Second Half	
	ΔR^2	β	ΔR^2	β
Step 1	.61***		.56***	
Pre-Exercise Positive Affect		.77***		.72***
Action Orientation		.04		.11*
Step 2	.01*		.11***	
C1 (Shifting vs. Neutral)		.13**		.37***
C2 (Shifting vs. Boosting)		-.10*		-.08

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

Second half of intervention (T_{5-7}). An additional regression analysis was conducted with a composite measure of post-exercise positive affect in the second half of the intervention (T_{5-7}) as a dependent variable, controlling for pre-exercise positive affect (T_{5-7}). As listed in Table 4.2, action orientation was associated with significantly higher increases in positive affect, $\beta = .11$, $t(207) = 2.37$, $p = .019$, $B = 0.05$, 95% CI: 0.01, 0.09. Furthermore, C1 was significant, $\beta = .37$, $t(207) = 8.25$, $p < .001$, $B = 0.20$, 95% CI: 0.16, 0.25, whereas C2 was not, $\beta = -.08$, $t(207) = -1.84$, $p = .068$, $B = -.05$, 95% CI: -0.09, 0.01. Findings indicate that, in this latter phase of the intervention, affective shifting did not produce less positive affect than affective boosting.

Intention Enactment

An ANOVA indicated that condition did not show a significant main effect on intention enactment, $F(2, 201) = 0.05$, $p = .951$, $\eta_p^2 = .001$ ($M_{\text{shifting}} = 68.98\%$, $SD = 22.51\%$; $M_{\text{shifting}} = 68.65\%$, $SD = 25.09\%$; $M_{\text{shifting}} = 67.74\%$, $SD = 22.31\%$). However, we expected a stronger self-regulation and improved quality of intention enactment in the affective shifting condition: a stronger relationship of intention enactment with self-regulation of positive affect and integration of expectancy and value considerations of intentions.

Δ Positive affect. We first regressed post-exercise positive affect aggregated across T_{2-4} on pre-exercise positive affect aggregated across T_{2-4} and saved the residuals for further analysis (Δ

PA at T₂₋₄). Similarly, we created a residualized change score to index pre-post changes in positive affect in the second half of the intervention (Δ PA at T₅₋₇). There were no significant correlations between Δ PA at T₂₋₄ and enactment at T₈ (affective shifting: $r = .20, p = .114$; affective boosting: $r = .07, p = .543$; neutral condition: $r = .01, p = .915$). In contrast, positive affect that participants generated through affective shifting in the second half of the intervention (Δ PA at T₅₋₇) correlated significantly with intention enactment at T₈ ($r = .39, p = .002$). These relationships were absent in the affective boosting condition ($r = .15, p = .217$) and the neutral condition ($r = -.09, p = .476$). The finding is illustrated in Figure 4.4 (left side).

Table 4.3 Summary of Regression Analyses Predicting Intention Enactment (in %) at the Four-week Follow-up (T₈) in the Experimental Conditions as a Function of Pre-Post Changes in Positive Affect in the Second Half of the Intervention (T₅₋₇, N = 204) and Initial Expectancy x Value Ratings (N = 192), Respectively

	Intention Enactment			
	IV:		IV:	
	Δ Positive Affect		Expectancy x Value	
	ΔR^2	β	ΔR^2	β
Step 1	.03*		.02	
External Regulation				.01
Action Orientation		.18*		.14
Step 2	.01		.05*	
Independent Variable (IV)		.13		.22**
C1 (Shifting vs. Neutral)		-.06		.03
C2 (Shifting vs. Boosting)		.04		-.03
Step 3	.03*		.02	
C1 x IV		.20*		-.04
C2 x IV		-.03		.17*

* $p < .05$, ** $p < .01$

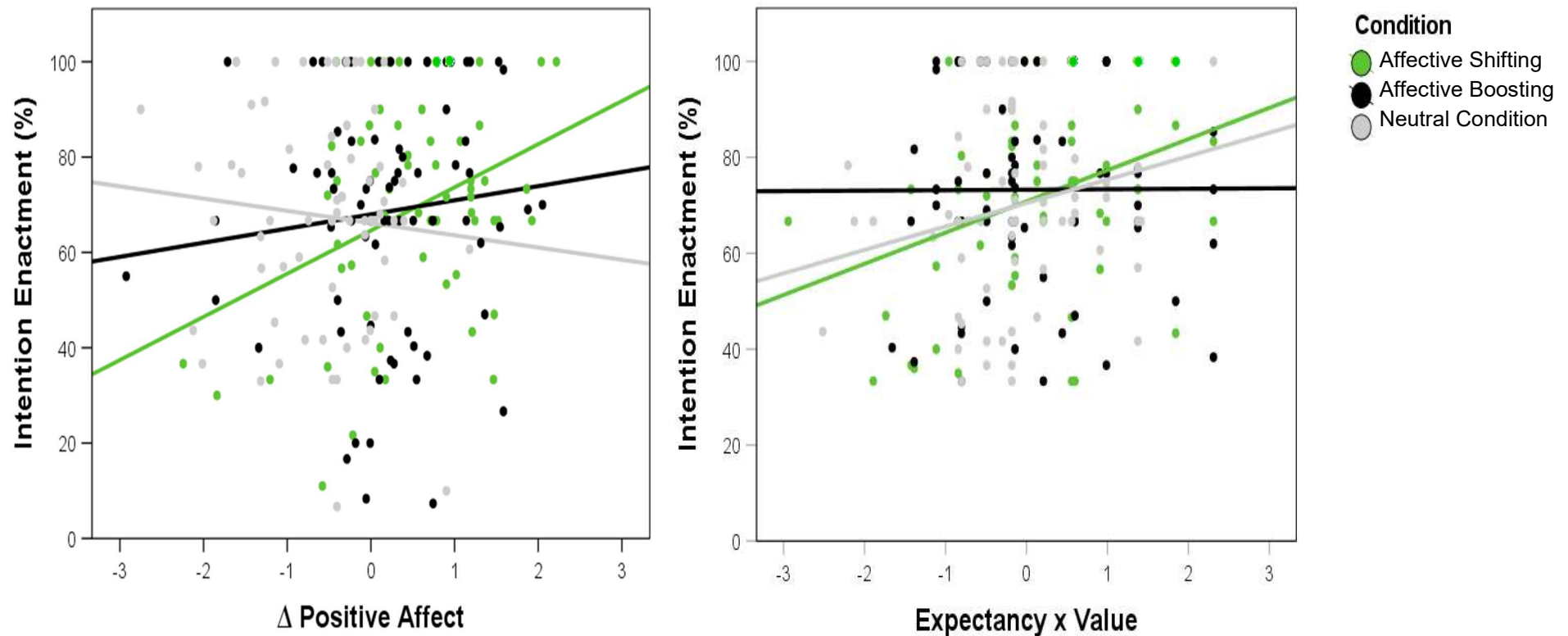
To formally test the differences between conditions, we conducted a regression analysis with intention enactment (in %) as the dependent variable. In Step 1, we controlled for action orientation because it may correlate with intention enactment and mask treatment effects. In Step 2, we entered Δ PA at T₅₋₇ and the two contrasts C1 and C2. In Step 3, we entered the interaction terms. As listed in Table 4.3, action orientation was significant, $\beta = .18$, $t(202) = 2.56$, $p = .011$, $B = 4.17$, 95% CI: 0.96, 7.39. Furthermore, the C1 x Δ Positive Affect interaction was significant, $\beta = .20$, $t(197) = 2.43$, $p = .016$, $B = 6.28$, 95% CI: 1.19, 11.36, indicating that affective shifting significantly differed from the neutral condition.

Expectancy x value. We first calculated the product term of the expectancy and value ratings of intentions (expectancy x value) at T₁ and then standardized the product term. As illustrated in Figure 4.4 (right side), expectancy-value was significantly correlated with intention enactment (in %) at T₈ in the affective shifting condition ($r = .35$, $p = .007$) but not in the affective boosting condition ($r = .01$, $p = .970$) and in the neutral condition ($r = .23$, $p = .064$).

To formally test whether shifting increased the utilization of expectancy and value, we conducted a regression analysis with intention enactment (in %) as the dependent variable. External factors may have affected intention enactment (e.g., covid-19 lock-down; extension of deadlines; loss of financial incentives; pressure/support from colleagues, friends, family). In Step 1, we therefore controlled for external regulation in addition to action orientation. In Step 2, we entered the product term of the expectancy and value ratings at T₁ and the two contrasts C1 and C2. In Step 3, we entered the interaction terms. As listed in Table 4.3, higher expectancy-value was associated with greater intention enactment, $\beta = .22$, $t(186) = 3.02$, $p = .003$, $B = 4.38$, 95% CI: 1.52, 7.25. Furthermore, the C2 x Expectancy-Value interaction was significant, $\beta = .17$, $t(184) = 2.03$, $p = .044$, $B = 4.07$, 95% CI: 0.12, 8.02, indicating that affective shifting significantly differed from the affective boosting condition.

Figure 4.4 Correlations of Changes in Positive Affect from Pre- to Post-Exercise in the Second Half of the Intervention (T₅₋₇) and Initial Expectancy x Value Ratings of Intentions (T₁) with Intention Enactment at the Four-Week Follow-Up (T₈) as a Function of Experimental Condition.

Δ Positive Affect: $R^2_{\text{Shifting}} = .15$, $R^2_{\text{Boosting}} = .02$, $R^2_{\text{Control}} = .01$. Expectancy x Value: $R^2_{\text{Shifting}} = .12$, $R^2_{\text{Boosting}} = .00$, $R^2_{\text{Control}} = .05$.



Discussion

Derived from PSI-theories' insight that intention enactment is facilitated by dynamic changes in positive affect (Baumann & Scheffer 2010; Kuhl 2001), in the present study, we designed and evaluated an intervention that aimed to practice shifts between low and high positive affect. Based on previous findings (Koole et al. 2012), we proposed that specifically state-oriented individuals would benefit from practicing affective shifting. In addition, we tested whether affective shifting indeed fosters the necessary self-regulation of positive affect. We proposed that the skill acquired through affective shifting promotes real-life intention enactment and enables a greater integration of expectancy x value considerations (i.e., the quality) in goal pursuit. To test our assumptions, we contrasted affective shifting against two control conditions (affective boosting and neutral) and (1) applied a non-reactive difficult task (i.e., the Stroop task) to capture interindividual benefits of affective shifting, (2) tracked positive affect levels throughout the intervention phase to obtain differences in self-regulation of positive affect between groups, and (3) conducted a follow-up survey to test whether affective shifting improved enactment of real-life intentions three weeks after the intervention was completed.

State-Oriented Individuals Benefit from Affective Shifting

In line with our assumption, results of the Stroop task after the intervention phase (T7) showed that state-oriented individuals greatly benefited from practicing affective shifting. Compared to the control group, their intention enactment ability (i.e., Stroop interference in latencies) was significantly better in the challenging condition, that is, after personal, intention-related primes. While not outperforming action-oriented individuals, affective shifting helped state-oriented individuals to overcome their demand-contingent decrease in intention enactment ability as they performed equally well. Note, that this is usually only the case when demands on self-regulation are low (Koole et al. 2012). The benefit of affective shifting became further salient considering error rates in the Stroop task: compared to the affective boosting condition, state-oriented individuals made significantly fewer mistakes. This indicates that only maximizing positive affect rather reinforces the premature automatic response (i.e., read word) instead of supporting to connect positive affect to the previously formed intention (i.e., react to hue of word) and thus does not foster self-regulation (Kuhl & Kazén 1999).

General Impact of Affective Shifting

Analysis of daily positive affect levels before and after the interventions showed that practicing affective shifting fosters self-regulation of positive affect over time. While the control group mainly showed decreases in positive affect, the affective boosting group yielded strong significant pre-post increases in positive affect early in the intervention phase (T2-4). However, this trend did not persist, but overall decreased towards the end of the intervention (T5-7). This matches previous findings (Mauss et al. 2011; Oettingen et al. 2016), showing that maximizing positive affect at first may lead to an increase in positive affect but ultimately results in the contradictory effect of reducing it. Results indicate that affective shifting is the most beneficial intervention for sustained self-regulation of positive affect.

Regarding personal, real-life intentions, results showed that an effective up-regulation of positive affect in the second half of the intervention phase (T5-7) significantly related to the amount of personal intentions enacted. This relation was only found after practicing affective shifting, whereas in the control groups this link was absent. Again, this supports the notion that changes in positive affect are decisive for efficient intention enactment and practicing affective shifting improves actual performance of personal, real-life intentions. Moreover, in line with our assumption, results show that affective shifting promotes self-coherent goal pursuit as intention enactment was guided by outcome expectancy and personal values (Baumann et al. 2018), indicating that affective shifting enhances the quality of intention enactment.

In line with prior scientific insights, our approach reinforces that practicing the regulation of one's own emotions effectively bridges the gap between intention and action (Bytamar et al. 2020; Eckert et al. 2016; Sirois & Pychyl 2016; van Eerde 2015). However, to date there are only few interventions that take into account emotional regulation skills (e.g., Eckert et al. 2016; Mirzaei et al. 2013). Also, according to van Eerde and Klingsieck (2018), there is still a lack of theory- and evidence-based interventions in this research field. Thus, with affective shifting we contribute an effective, novel, theory-driven, easy to apply as well as time- and cost- efficient intervention that is in line with current state of research.

Note that the present research meets the majority of recently suggested evaluation standards by van Eerde and Klingsieck (2018). First, with a sizable sample and a low attrition rate, we put forward a properly powered study. Second, our design included two credible, active control groups that were similar to the intervention in time investment (neutral & affective boosting) and content (affective boosting). This allowed to better understand *why* affective shifting is

helpful to promote self-regulation of positive affect and intention enactment. Third, we used multifaceted measures ranging from self-reports and non-reactive measures all the way to real life outcomes. As self-report measures do not show strong correlations with actual performance in self-regulation (Duckworth & Kern 2011) and non-reactive measures may be more sensitive for capturing differential treatment effects (e.g., Kaufmann et al. 2021), the present study followed “[...] the optimal measurement strategy [...]” (Duckworth & Kern 2011, p.11) in including various measures of self-regulation. Fourth, next to pre-post intervention measures, we used a times series assessment and conducted a follow-up questionnaire to obtain both short term benefits as well as sustainable long-term effects of our intervention. Altogether, this highlights the quality of the conducted evaluation and increases confidence in the present findings.

Affective Shifting in Previous Interventions

To our knowledge, affective shifting is the first designed intervention that transferred PSI-theory’s insights on the functional dynamics of positive affect into an applicable method. Yet another method that could be considered to make use of this affective mechanism, if examined through the PSI-theory lens, is mental contrasting (Oettingen et al. 2001). This technique aims to increase goal commitment by instructing individuals to imagine a desired future (high positive affect) in contrast to current obstacles in goal pursuit (low positive affect) and has been successfully applied in various life domains (e.g., Oettingen et al. 2000). Additionally, recent research has shown that its effectiveness increases when specifically targeting affective experiences (Ruissen et al. 2018). Hence, mental contrasting seems to be a valid method to tease the decisive affective shifts for intention enactment. However, in contrast to affective shifting, it was not designed to focus on affective experiences but is a cognition centered technique.

Consequently, affective shifting more precisely targets the core mechanism of efficient intention enactment and comes with several additional benefits. First, utilizing autobiographical memories not only provides necessary positive affect, but also activates the self and its functional characteristics. In contrast, imagining a desired future may certainly lead to an increase in positive affect yet supposedly does not reap the benefits that come with the activation of the self (Routledge et al. 2012 Exp.1). Second, in contrast to mental contrasting, affective shifting does not need one specific goal at hand to be applied: focusing on affective regulation skills, it can unfold its effect content independent and thus can be more universally applied. Third, affective shifting can be considered less cognitively straining and thus might be an easier to apply intervention, especially for those individuals who already suffer from high

cognitive load (i.e., state orientation). Altogether, mental contrasting and affective shifting can both be considered valuable methods that support practicing affective shifts for efficient intention enactment. With its specific affective focus, however, affective shifting reveals additional benefits that support broader self-regulation skills and thus may lead to a more sustainable impact. This should be further explored in future research.

Limitations and Future Directions

The present study is not without limitations that should be considered in future research. First, it was carried out online and thus cannot put forward the same experimental control and standardization conditions as laboratory studies. Reliability of online data collection is, however, constantly improving and recent research indicates that data quality does not significantly differ from lab-based performance studies (Bridges et al. 2020; Miller et al. 2018). Nonetheless, future research should confirm current results in a lab study. Second, intention-related primes in the Stroop task were self-generated and not standardized. This assured that they would reduce positive affect. However, as there was a seven-day gap between generating primes and performing the Stroop task, for future research, we suggest revitalizing personal primes beforehand. Also, as some participants struggled to come up with twelve different prime words, for future research, we propose assessing less primes.

Third, affective shifting did not promote the number of completed intentions per se but the link between intention enactment and expectancy x value considerations. We argue that this self-compatibility check assures that individuals increase their productivity based on self-congruent aspects and not for the sake of pure quantity (“blind activism”). Thus, affective shifting leads to a higher focus on quality in intention enactment. It can be considered a self-regulatory advantage if individuals, who must manage multiple intentions, assign their resources to the personally important goals, and inhibit less critical ones (Shah 2005). Blind activism may also explain why in the affective boosting group relatively many intentions were enacted, while no link was found to expectancy x value. Comparable methods, such as mental contrasting, also only found significant results based on execution expectancy (e.g., Oettingen, Mayer, & Brinkmann 2010) and long-term effects were captured by the quality of performance (i.e., grades; Oettingen et al. 2000). Thus, future research should focus more on the quality rather than mere quantity of intention enactment.

Conclusion

With affective shifting, the present study introduced a novel and theory-driven intervention that practices the decisive shift in positive affect for successful intention enactment. Our findings suggest that when the going gets tough practicing affective shifting supports individuals to master the art of getting things done. This method not only helps to improve the necessary self-regulatory skills for intention enactment but also goes beyond just enacting in supporting self-coherent goal pursuit. Thus, we conclude that affective shifting leads to sustainable outcomes and supports the awareness that it is not all about just to act, but what to act up on.

REFERENCES OF CHAPTER 4

- Austin, A. B., & Costabile, K. A. (2021). The role of autobiographical memory in competence need satisfaction. *Motivation and Emotion*, 45(4), 456–472. <https://doi.org/10.1007/s11031-021-09895-1>
- Baldwin, M., Biernat, M., & Landau, M. J. (2015). Remembering the real me: Nostalgia offers a window to the intrinsic self. *Journal of Personality and Social Psychology*, 108(1), 128–147. <https://doi.org/10.1037/a0038033>
- Baumann, N., Kaschel, R., & Kuhl, J. (2005). Striving for unwanted goals: Stress-dependent discrepancies between explicit and implicit achievement motives reduce subjective well-being and increase psychosomatic symptoms. *Journal of Personality and Social Psychology*, 89(5), 781–799. <https://doi.org/10.1037/0022-3514.89.5.781>
- Baumann, N., Kazén, M., & Quirin, M. (2018). How do we know if you know your self? Measures, causes, and consequences of self-access. In N. Baumann, M. Kazén, M. Quirin, & S. L. Koole (Eds.), *Why People Do the Things They Do: Building on Julius Kuhl's Contributions to the Psychology of Motivation and Volition* (1st ed., pp. 261–280). Hogrefe. <https://doi.org/10.1027/00540-000>
- Baumann, N., & Kuhl, J. (2003). Self-infiltration: Confusing assigned tasks as self-selected in memory. *Personality and Social Psychology Bulletin*, 29(4), 487–497. <https://doi.org/10.1177/0146167202250916>
- Baumann, N., & Kuhl, J. (2020). Nurturing your self: Measuring and changing how people strive for what they need. *The Journal of Positive Psychology*, 1–12. <https://doi.org/10.1080/17439760.2020.1805503>
- Baumann, N., & Scheffer, D. (2010). Seeing and mastering difficulty: The role of affective change in achievement flow. *Cognition and Emotion*, 24(8), 1304–1328. <https://doi.org/10.1080/0269993090331991>
- Birk, M. V., Mandryk, R. L., & Baumann, N. (2020). Just a click away: Action–state orientation moderates the impact of task interruptions on initiative. *Journal of Personality*, 88(2), 373–390. <https://doi.org/10.1111/jopy.12498>
- Bledow, R. (2013). Demand-perception and self-motivation as opponent processes: A response to Bandura and Vancouver. *Journal of Management*, 39(1), 14–26. <https://doi.org/10.1177/0149206312466149>
- Bledow, R., Rosing, K., & Frese, M. (2013). A dynamic perspective on affect and creativity. *Academy of Management Journal*, 56(2), 432–450. <https://doi.org/10.5465/amj.2010>

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- Bledow, R., Schmitt, A., Frese, M., & Kühnel, J. (2011). The affective shift model of work engagement. *Journal of Applied Psychology, 96*(6), 1246-1257. <https://doi.org/10.1037/a0024532>
- Bridges, D., Pitiot, A., MacAskill, M. R., & Peirce, J. W. (2020). The timing mega-study: Comparing a range of experiment generators, both lab-based and online. *PeerJ, 8*, e9414. <https://doi.org/10.7717/peerj.9414>
- Bytamar, J. M., Saed, O., & Khakpoor, S. (2020). Emotion regulation difficulties and academic procrastination. *Frontiers in Psychology, 11*. <https://doi.org/10.3389/fpsyg.2020.524588>
- Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review, 97*(1), 19-35. <https://doi.org/10.1037/0033-295X.97.1.19>
- Chatterjee, M. B., Baumann, N., & Osborne, D. (2013). You are not alone: Relatedness reduces adverse effects of state orientation on well-being under stress. *Personality and Social Psychology Bulletin, 39*(4), 432–441. <https://doi.org/10.1177/0146167213476895>
- Chavez, R. S., Heatherton, T. F., & Wagner, D. D. (2017). Neural population decoding reveals the intrinsic positivity of the self. *Cerebral Cortex, 27*(11), 5222–5229. <https://doi.org/10.1093/cercor/bhw302>
- Dahling, J. J., Kay, S. A., & Vargovic, N. F. (2015). Eyes on the prize: A longitudinal study of action-state orientation, affect, and academic self-regulation. *Research on Emotion in Organizations, 423–441*. <https://doi.org/10.1108/s1746-979120150000011016>
- Demiray, B., & Janssen, S. M. J. (2015). The self-enhancement function of autobiographical memory. *Applied Cognitive Psychology, 29*(1), 49–60. <https://doi.org/10.1002/acp.3074>
- Dreisbach, G., & Goschke, T. (2004). How positive affect modulates cognitive control: Reduced perseveration at the cost of increased distractibility. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 30*(2), 343-353. <https://doi.org/10.1037/0278-7393.30.2.343>.
- Duckworth, A. L., & Kern, M. L. (2011). A meta-analysis of the convergent validity of self-control measures. *Journal of Research in Personality, 45*(3), 259–268. <https://doi.org/10.1016/j.jrp.2011.02.004>
- Eckert, M., Ebert, D. D., Lehr, D., Sieland, B., & Berking, M. (2016). Overcome procrastina-

- tion: Enhancing emotion regulation skills reduce procrastination. *Learning and Individual Differences*, 52, 10–18. <https://doi.org/10.1016/j.lindif.2016.10.001>
- Eelen, P. (2018). Classical conditioning: Classical yet modern. *Psychologica Belgica*, 58(1), 196–211. <https://doi.org/10.5334/pb.451>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Friederichs, K.M., Kees, M.-C., & Baumann, N. (2020). When tough gets you going: Action orientation unfolds with difficult intentions and can be fostered by mental contrasting. *Personality and Individual Differences*, 161, 109970. <https://doi.org/10.1016/j.paid.2020.109970>
- Goschke, T., & Kuhl, J. (1993). Representation of intentions: Persisting activation in memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19, 1211–1226. <https://doi.org/10.1037/0278-7393.19.5.1211>
- Goschke, T., & Kuhl, J. (1996). Remembering what to do: Explicit and implicit memory for intentions. In M. Brandimonte, G. O. Einstein, & M. A. McDaniel (Eds.), *Prospective memory: Theory and Applications* (pp. 53–91). Lawrence Erlbaum Associates Publishers.
- Gruber, O., & Goschke, T. (2004). Executive control emerging from dynamic interactions between brain systems mediating language, working memory and attentional processes. *Acta Psychologica*, 115(2), 105–121. <https://doi.org/10.1016/j.actpsy.2003.12.003>
- Hagger, M. S., Wood, C., Stiff, C., & Chatzisarantis, N. L. D. (2010). Ego depletion and the strength model of self-control: A meta-analysis. *Psychological Bulletin*, 135(4), 495. <https://doi.org/10.1037/a0019486>.
- Hebb, D.O. (2005). *The organization of behavior: A neuropsychological theory*. Psychology Press.
- Hong, E. K., Sedikides, C., & Wildschut, T. (2021). Nostalgia strengthens global self-continuity through holistic thinking. *Cognition and Emotion*, 35(4), 730–737. <https://doi.org/10.1080/02699931.2020.1862064>
- Inzlicht, M., Werner, K. M., Briskin, J. L., & Roberts, B. W. (2021). Integrating models of self-regulation. *Annual Review of Psychology*, 72, 319–345. <https://doi.org/10.1146/annurev-psych-061020-105721>
- Isen, A. M. (2001). An influence of positive affect on decision making in complex situations: Theoretical issues with practical implications. *Journal of Consumer Psychology*, 11(2),

- 75–85. https://doi.org/10.1207/S15327663JCP1102_01
- Kappes, H. B., Oettingen, G., & Mayer, D. (2011). Positive fantasies predict low academic achievement in disadvantaged students. *European Journal of Social Psychology, 42*(1), 53–64. <https://doi.org/10.1002/ejsp.838>
- Kaufmann, M., Rosing, K., & Baumann, N. (2021). Being mindful does not always benefit everyone: Mindfulness-based practices may promote alienation among psychologically vulnerable people. *Cognition and Emotion, 35*(2), 241–255. <https://doi.org/10.1080/02699931.2020.1825337>
- Kazén, M., & Kuhl, J. (2005). Intention memory and achievement motivation: Volitional facilitation and inhibition as a function of affective contents of need-related stimuli. *Journal of Personality and Social Psychology, 89*(3), 426–448. <https://doi.org/10.1037/0022-3514.89.3.426>
- Koole, S. L., Dijksterhuis, A., & Van Knippenberg, A. (2001). What's in a name: Implicit self-esteem and the automatic self. *Journal of Personality and Social Psychology, 80*(4), 669. <https://doi.org/10.1037/0022-3514.80.4.669>
- Koole, S. L., & Jostmann, N. B. (2004). Getting a grip on your feelings: Effects of action orientation and external demands on intuitive affect regulation. *Journal of Personality and Social Psychology, 87*(6), 974–990. <https://doi.org/10.1037/0022-3514.87.6.974>
- Koole, S. L., Jostmann, N. B., & Baumann, N. (2012). Do Demanding Conditions Help or Hurt Self-Regulation?: Self-Regulation Under Demanding Conditions. *Social and Personality Psychology Compass, 6*(4), 328–346. <https://doi.org/10.1111/j.1751-9004.2012.00425.x>
- Kuhl, J. (1994). Action versus state orientation: Psychometric properties of the action control scale (ACS-90). In J. Kuhl & J. Beckmann (Eds.), *Volition and Personality: Action versus State Orientation* (1st ed., pp. 47–59). Hogrefe.
- Kuhl, J. (2000). A functional-design approach to motivation and self-regulation: The dynamics of Personality Systems Interactions. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of Self-Regulation* (pp. 111–169). Academic Press. <https://doi.org/10.1016/B978-012109890-2/50034-2>
- Kuhl, J. (2001). *Motivation und Persönlichkeit. Interaktion psychischer Systeme* [Motivation and personality: Interactions of psychological systems]. Hogrefe.
- Kuhl, J., & Beckmann, J. (Eds.). (1994). *Volition and Personality: Action and state Orientation*. Hogrefe.
- 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(3), 382-399. <https://doi.org/10.1037/0096-3445.128.3.382>
- Kuhl, J., & Koole, S. L. (2004). Workings of the will: A functional approach. In *Handbook of Experimental Existential Psychology* (pp. 411–430). Guilford Press.
- Kuhl, J., Quirin, M., & Koole, S. L. (2015). Being Someone: The integrated self as a neuropsychological system: Being someone. *Social and Personality Psychology Compass*, 9(3), 115–132. <https://doi.org/10.1111/spc3.12162>
- Kuhl, J., Quirin, M., & Koole, S. L. (2020). The functional architecture of human motivation: Personality systems interactions theory. In A. J. Elliot (Ed.), *Advances in Motivation Science* (7th ed.). Elsevier.
- Lomberg, C., Thiel, J., & Steffens, P. (2019). The hare and the tortoise: The impact of action-versus state-orientation on entrepreneurial progress and persistence. *International Small Business Journal*, 37(6), 604–625. <https://doi.org/10.1177/0266242619836615>
- Mauss, I. B., Tamir, M., Anderson, C. L., & Savino, N. S. (2011). Can seeking happiness make people happy? Paradoxical effects of valuing happiness. *Emotion*, 11(4), 807–815. <https://doi.org/10.1037/a0022010>
- Miller, R., Schmidt, K., Kirschbaum, C., & Enge, S. (2018). Comparability, stability, and reliability of internet-based mental chronometry in domestic and laboratory settings. *Behavior Research Methods*, 50(4), 1345–1358. <https://doi.org/10.3758/s13428-018-1036-5>
- Mills, C., & D’Mello, S. (2014). On the Validity of the Autobiographical Emotional Memory Task for Emotion Induction. *PLOS ONE*, 9(4), e95837. <https://doi.org/10.1371/journal.pone.0095837>
- Mirzaei, M., Gharraee, B., & Birashk, B. (2013). The role of positive and negative perfectionism, self-efficacy, worry and emotion regulation in predicting behavioral and decisional procrastination. *Iranian Journal of Psychiatry and Clinical Psychology*, 19(3), 230–240.
- Oettingen, G., Hönig, G., & Gollwitzer, P. M. (2000). Effective self-regulation of goal attainment. *International Journal of Educational Research*, 33(7), 705–732. [https://doi.org/10.1016/S0883-0355\(00\)00046-X](https://doi.org/10.1016/S0883-0355(00)00046-X)
- Oettingen, G., Mayer, D., & Brinkmann, B. (2010). Mental contrasting of future and reality. *Journal of Personnel Psychology*, 9(3), 138–144. <https://doi.org/10.1027/1866-5888/a000018>

- Oettingen, G., Mayer, D., & Portnow, S. (2016). Pleasure now, pain later: Positive fantasies about the future predict symptoms of depression. *Psychological Science, 27*(3), 345–353. <https://doi.org/10.1177/0956797615620783>
- Oettingen, G., Pak, H., & Schnetter, K. (2001). Self-regulation of goal-setting: Turning free fantasies about the future into binding goals. *Journal of Personality and Social Psychology, 80*(5), 736–753. <https://doi.org/10.1037/0022-3514.80.5.736>
- Quirin, M., Fröhlich, S., & Kuhl, J. (2018). Implicit self and the right hemisphere: Increasing implicit self-esteem and implicit positive affect by left hand contractions. *European Journal of Social Psychology, 48*(1), 4–16. <https://doi.org/10.1002/ejsp.2281>
- Quirin, M., & Kuhl, J. (2018). The Self-Access Form. Development and validation in the context of personality functioning and health. *Journal of Individual Differences, 39*(1), 1–17. <https://doi.org/10.1027/1614-0001/a000244>
- Routledge, C., Wildschut, T., Sedikides, C., Juhl, J., & Arndt, J. (2012). The power of the past: Nostalgia as a meaning-making resource. *Memory, 20*(5), 452–460. <https://doi.org/10.1080/09658211.2012.677452>
- Ruigendijk, H.A.H., Jostmann, N.B., & Koole, S.L. (2018). Why the road to hell is paved with good intentions. Paradoxical effects of volitional action control. In N. Baumann, M. Kazén, M. Quirin, & S.L. Koole (Eds.), *Why People Do the Things They Do: Building on Julius Kuhl's Contributions to the Psychology of Motivation and Volition* (1st ed., pp. 151–165). Hogrefe.
- Ruigendijk, H.A.H., & Koole, S. L. (2014). When focusing on a goal interferes with action control: Action versus state orientation and over-maintenance of intentions. *Motivation and Emotion, 38*(5), 659–672. <https://doi.org/10.1007/s11031-014-9415-4>
- Ruissen, G.R., Rhodes, R.E., Crocker, P.R., & Beauchamp, M.R. (2018). Affective mental contrasting to enhance physical activity: A randomized controlled trial. *Health Psychology, 37*(1), 51–60. <https://doi.org/10.1037/hea0000551>
- Sedikides, C., Cheung, W.-Y., Wildschut, T., Hepper, E. G., Baldursson, E., & Pedersen, B. (2018). Nostalgia motivates pursuit of important goals by increasing meaning in life. *European Journal of Social Psychology, 48*(2), 209–216. <https://doi.org/10.1002/ejsp.2318>
- Sedikides, C., Wildschut, T., Routledge, C., & Arndt, J. (2015). Nostalgia counteracts self-discontinuity and restores self-continuity. *European Journal of Social Psychology, 45*(1), 52–61. <https://doi.org/10.1002/ejsp.2073>
- Shah, J. Y. (2005). The automatic pursuit and management of goals. *Current Directions in Psy-*

- chological Science*, 14(1), 10–13. <https://doi.org/10.1111/j.0963-7214.2005.00325.x>
- Sirois, F. M., & Pychyl, T. A. (2016). Future of research on procrastination, health, and well-being: Key themes and recommendations. In F. M. Sirois & T. A. Pychyl (Eds.), *Procrastination, Health, and Well-Being* (pp. 255–271). Elsevier Academic Press. <https://doi.org/10.1016/B978-0-12-802862-9.00012-8>
- Stephan, E., Sedikides, C., Wildschut, T., Cheung, W.-Y., Routledge, C., & Arndt, J. (2015). Nostalgia-evoked inspiration: Mediating mechanisms and motivational implications. *Personality and Social Psychology Bulletin*, 41(10), 1395–1410. <https://doi.org/10.1177/0146167215596985>
- Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, 18(6), 643–662. <https://doi.org/10.1037/h0054651>.
- van Dijke, M., Leunissen, J. M., Wildschut, T., & Sedikides, C. (2019). Nostalgia promotes intrinsic motivation and effort in the presence of low interactional justice. *Organizational Behavior and Human Decision Processes*, 150, 46–61. <https://doi.org/10.1016/j.obhdp.2018.12.003>.
- van Eerde, W. (2015). Time management and procrastination. In M. D. Mumford, & M. Frese (Eds.), *The Psychology of Planning in Organizations* (pp. 328–349). Routledge.
- van Eerde, W., & Klingsieck, K. B. (2018). Overcoming procrastination? A meta-analysis of intervention studies. *Educational Research Review*, 25, 73–85. <https://doi.org/10.1016/j.edurev.2018.09.002>
- Vess, M., Arndt, J., Routledge, C., Sedikides, C., & Wildschut, T. (2012). Nostalgia as a resource for the self. *Self and Identity*, 11(3), 273–284. <https://doi.org/10.1080/15298868.2010.521452>
- Watts, L. L., McIntosh, T. J., Gibson, C., Mulhearn, T. J., Medeiros, K. E., Mecca, J. T., & Cohen-Charash, Y. (2020). Mild affective shifts and creativity: Effects on idea generation, evaluation, and implementation planning. *The Journal of Creative Behavior*, 54(4), 985–1001. <https://doi.org/10.1002/jocb.427>
- Wheeler, M. A., Stuss, D. T., & Tulving, E. (1997). Toward a theory of episodic memory: The frontal lobes and autonoetic consciousness. *Psychological Bulletin*, 121(3), 331–354. <https://doi.org/10.1037/0033-2909.121.3.331>
- Yang, L.-Q., Simon, L. S., Wang, L., & Zheng, X. (2016). To branch out or stay focused? Affective shifts differentially predict organizational citizenship behavior and task performance. *Journal of Applied Psychology*, 101(6), 831–845. <https://doi.org/10.1037/apl0000088>

CHAPTER 5

GENERAL DISCUSSION

SUMMARY OF RESULTS

The present thesis was designed to highlight the importance of self-regulation abilities and to propose opportunities to empower self-regulation. To accomplish these defined goals four studies were designed that followed three major strands: (1) gain a profound understanding about the underlying functions and mechanisms of self-regulation, (2) highlight the benefits of distinct self-regulation and (3) derive, develop, and evaluate target-oriented interventions that empower self-regulation. To obtain a comprehensive picture of the phenomenon of self-regulation I took a differential approach (action vs. state orientation), applied a wide spectrum of methods (e.g., self-reports, non-reactive measures), and investigated my research questions among different age groups (age range across all studies from 9-72) and in various contexts (high school, work, university). In the following, the results of each chapter are briefly summarized and subsequently discussed in terms of contributions of the present work. Lastly, future research directions for empowering self-regulation are suggested, and a conclusion is drawn.

CHAPTER 2. WHEN TOUGH GETS YOU GOING:

ACTION ORIENTATION UNFOLDS WITH DIFFICULT INTENTIONS AND CAN BE FOSTERED BY MENTAL CONTRASTING (FRIEDERICHS, KEES, & BAUMANN, 2020)

In this chapter, I took a closer look at the dynamic of demands and self-regulation ability (action vs. state orientation) in difficult intention enactment. The first aim was to theoretically analyze the underlying mechanism of intention enactment (i.e., affective change) and confirm action-oriented individuals' self-regulatory advantage under demands. For this, a critical self-regulation test was designed, based on the well-established Stroop test. The second aim was to evaluate mental contrasting, which, based on the elaborated theoretical insights, was assumed to promote self-regulatory ability. Research questions were investigated in two studies ($N_1=132$, $N_2=128$) in a high school setting among school children starting from age 9 up to 21. Study 1

and 2 confirmed that action vs. state orientation is decisive when demands are high and difficult intentions have to be implemented. Compared to their state-oriented counterparts, action-oriented individuals were efficiently able to enact difficult intentions, as indicated by reduced Stroop interference, under demands and when further primed with difficulty. To help state-oriented individuals overcome their self-regulatory impairment, in study 2, we proposed mental contrasting, as a method to practice the necessary changes in positive affect. Results showed that mental contrasting effectively supports state-oriented individuals to enact despite present demands. After having practiced mental contrasting, the crucial self-regulation test revealed no significant differences between action-state orientation. These results extend previous research findings (e.g., Koole et al., 2012; Oettingen, 2012): Difficulties seem to downright inspire action-oriented individuals to mobilize their self-regulation abilities and state-oriented individuals can learn how to overcome their self-regulatory impairment with simple exercise. In sum, the presented studies strengthened PSI theory's assumption that changes in positive affect are the decisive underlying mechanism of intention enactment, highlighted action orientation's advantage under demands with a crucial self-regulation test and offered mental contrasting as a valuable method to help state-oriented individuals to get going when the going gets tough.

CHAPTER 3. THE BENEFITS OF PROSOCIAL POWER MOTIVATION IN LEADERSHIP:

ACTION ORIENTATION FOSTERS A WIN-WIN – A REPLICATION OF BAUMANN, CHATTERJEE AND HANK (2016) (FRIEDERICHS, WALDENMEIER, & BAUMANN, UNDER REVIEW)

This chapter focused on the integration of volitional and motivational factors in action. The aim of the presented study was to investigate whether interindividual differences in self-regulation impact the way individuals enact their power motive (prosocial vs. dominant) and if this has positive implications on their well-being. According to PSI theory, prosocial power enactment is an intrinsic motive enactment strategy, that relies on the self-regulation of positive affect. As action- compared to state-oriented individuals are better able to self-regulate positive affect, it can be expected that they enact their power motive rather prosocial than dominant. Initial findings within a student sample already indicate that action orientation is a predictor for prosocial power enactment (Baumann et al., 2016). In the present study, we investigated this research question among a large leadership sample ($N=383$) comprising on average middle-aged leaders ($M_{age}=44.08$ years). Results confirm prior research, showing that action orientation predicts prosocial power enactment. Further, action orientation through prosocial power enactment leads to reduced power related anxiety, and in turn to greater leader well-being. Altogether, these findings clearly emphasize the benefits of good self-regulation ability. Further,

regarding the underlying mechanism of self-regulation, the present results point towards the participation of the self in self-regulation. Many findings show that the distinct self-regulatory advantage of action orientation is based on a better self-access (Jais et al., 2021; Koole & Jostmann, 2004; Kuhl, 2001; Kuhl et al., 2020) and self-regulated motive enactment (e.g., prosocial guidance) can be considered as an indicator of self-access (see also Baumann & Kuhl, 2020).

CHAPTER 4. THE ART OF GETTING THINGS DONE:

TRAINING AFFECTIVE SHIFTING IMPROVES INTENTION ENACTMENT

(FRIEDERICHS, JOSTMANN, KUHLE, & BAUMANN, UNDER MINOR REVISION)

The final chapter integrated prior elaborations and insights of affective change and action orientation's ability to regulate positive affect through the self for the development of an affect-focused intervention. Affective shifting is an audio-based visualization that targets the decisive changes in positive affect by guiding participants to shift between feelings of low positive affect (e.g., listless) and high positive affect (e.g., happy). Based on previous research findings (e.g., Austin & Costabile, 2021; Kuhl et al., 2020; Sedikides et al., 2015) activation of the affective states was attained by creating images of difficult intentions on the one hand and remembering autobiographical success experiences on the other hand. The sample ($N=252$) consisted mainly of young adults ($M_{age}=26.40$). To evaluate affective shifting, it was contrasted against two control groups (affective boosting, neutral). The crucial self-regulation test from chapter 2 was applied for the present evaluation and results show that (1) compared to the neutral condition affective shifting supports state-oriented individuals to overcome their demand contingent self-regulation deficit and perform significantly faster in the self-regulation test and (2) in contrast to the affective boosting condition state-oriented individuals that have practiced affective shifting show significantly less errors in the self-regulation test. In sum, results yielded that affective shifting effectively supports individuals with impaired self-regulation abilities to bridge the gap between intention and action. Moreover, as the underlying mechanisms of self-regulation were of interest, our investigation further showed that affective shifting indeed fosters self-regulation of positive affect and that this acquired ability is positively correlated with personal goal enactment three weeks after the intervention. Last but not least, results also revealed that affective shifting leads to more self-coherent goal enactment, meaning a greater integration of expectancy x value consideration in goal striving. Overall, with affective shifting an effective intervention was introduced that supports the underlying functional mechanism of self-regulation and helps in particular state-oriented individuals to get going when the going gets tough.

CONTRIBUTIONS OF THE PRESENT DISSERTATION

Understanding Self-Regulation

The present work contributes to recently emerging efforts in self-regulation research focusing on the development of interventions and their experimental evaluation. With its theory-informed approach, aiming to initially dismantle underlying mechanisms of self-regulation, it particularly stands out, as this allows to precisely target the critical functions and to gain a better understanding on *why* certain interventions promote self-regulation. In contrast, “...most researchers are understandably focused on demonstrating effects [of self-regulation interventions] rather than [first] establishing their [underlying] mechanisms...” (Berkman, 2016, p. 20). Based on PSI theory’s central notions (Kuhl, 2001) and previous research insights (Baumann & Scheffer, 2010), I proposed dynamic changes in positive affect as a crucial mechanism that underlies goal-directed behavior, which in turn makes the regulation of positive affect once it has been reduced by difficulty or demands a crucial key to close the gap between intention and action. Interindividual considerations show that individuals differ in their ability to efficiently self-regulate these affective changes. Whereas action-oriented individuals consistently get going despite present demands, state-oriented individuals need to rely on external cues (encouragement, incentives) to act when demands are high, or difficulties are presented (Kuhl et al., 2020).

In line with previous research, the presented studies demonstrate benefits of distinct action orientation under demands (for overviews see Koole et al., 2012; Kuhl, 2018). Chapter 2 confirms previous findings that under demands action- compared to state-oriented individuals are better in intention enactment (Kazén & Kuhl, 2005; Kuhl & Kazén, 1999). Chapter 3 showed, in line with previous findings (Baumann et al., 2016), that action orientation in leaders fosters a prosocial enactment of the power motive, which in turn leads to less anxiety in power strivings and greater well-being. In both chapters, I specifically focused on a micro level contemplation of action-state orientation, examining self-regulation abilities with non-reactive (i.e., Stroop test) and projective (i.e., Operant Motive Test, OMT) measures and thus did not solely rely on self-reports.

This micro-level approach has several advantages: First, it allows to analyze subtle differences in self-regulation and can therefore help to understand the constituent properties and their interrelations better (e.g., Kazén & Kuhl, 2005; Koole & Jostmann, 2004; Kuhl & Kazén, 1999).

Second, self-regulation ability can be assessed independent from social desirability. Third, with the designed crucial self-regulation test (see chapter 2), by additionally challenging self-regulation, I demonstrated, beyond the benefit of a distinct action orientation, that difficulties seem to stimulate self-regulatory ability within action-oriented individuals, and thus downright help to unfold their internal resources. According to prior research the self-regulatory advantage of action orientation vanishes in comforting settings where state-oriented individuals show an equal or even better performance (Koole et al., 2005, 2012). Therefore, to unlock their self-regulatory potential action-oriented individuals seem to at least require some demands (Waldenmeier et al., 2022) and as my results indicate when it gets tough, they really get going.

Last but not least, applying the OMT to measure the relation between self-regulation and intrinsic motive enactment (see Chapter 3) provides clues beyond the mere benefit of a greater prosocial power enactment: self-regulated motive enactment (e.g., intrinsic) is a recognized indicator of self-access (Baumann & Kuhl, 2020). Several research findings indicate that action-oriented individuals utilize the self to direct own emotions, thoughts, and behaviors (Jais et al., 2021; Koole & Jostmann, 2004; Kuhl, 2001; Quirin et al., 2021). Note, that in line with this, the tested conceptual model points to the self's participation in action orientation's regulation ability.

In sum, findings of chapter 2 and 3 complement already well-established effects of good self-regulation abilities, and thus at the same time evince the value of empowering self-regulation. Further, the theory-driven and micro analytic approach illuminated underlying mechanisms that consequently helped to derive and develop interventions to foster self-regulation.

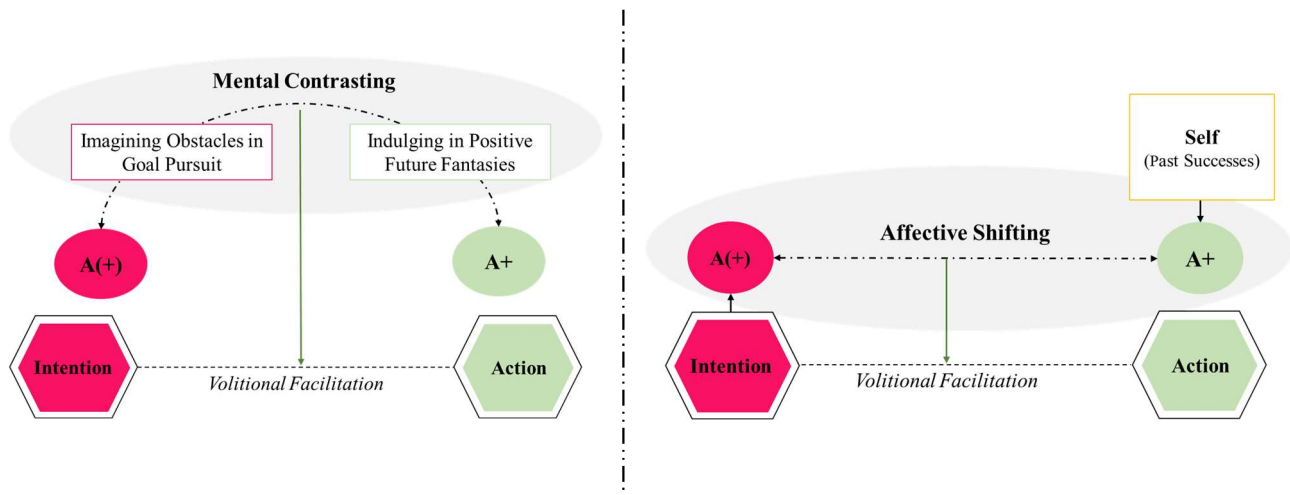
Empowering Self-Regulation

One major aim of the present work was to propose possibilities to empower self-regulation specifically for those individuals who are, in particular under demands, more dependent on external regulation. Based on the conceptual elaboration of the underlying mechanisms in goal-directed behavior and self-regulation, I presented and evaluated two interventions in this thesis that are (a) presumed to involve changes in positive affect (mental contrasting) and (b) specifically aimed to practice the decisive changes in positive affect (affective shifting; see Figure 5.1 for a graphic illustration). The idea that these suggested interventions are effective for empowering self-regulation abilities is derived from the principles of classical conditioning (e.g., McSweeney & Murphy, 2014) and assumptions of the Hebbian learning principle (Hebb, 2005: “Neurons that fire together wire together”): repeatedly oscillating between the activation of

high and low positive affect strengthens the connection, and thus it becomes more natural over time to facilitate positive affect once it has been reduced by difficulty.

Figure 5.1 Underlying Affective Processes of Mental Contrasting and Affective Shifting.

Cognitive prompts (desired future vs. obstacles) in mental contrasting are assumed to trigger changes between high (A+) and low (A(+)) positive affect; affective shifting specifically targets the change between high (A+) and low positive affect (A(+))



Mental contrasting and affective shifting were evaluated with our designed crucial self-regulation test (see chapter 2 and 4) and results show that both interventions effectively supported state-oriented individuals in their self-regulatory ability and facilitated better performance. Note that especially the rigorous evaluation design and implementation of affective shifting in chapter 4 can be highlighted: with (1) a sizable sample and low attrition rate, (2) two credible, active control groups (affective boosting, neutral), (3) multifaceted measures (self-reports, non-reactive), (4) pre-post intervention measures, time-series assessment and long-term assessments, the majority of recently suggested evaluation standards were met (van Eerde & Klingsieck, 2018). In addition, in contrast to a wide range of evaluations of self-regulation trainings, I accepted a possible tradeoff of a reduced probability to find differences between conditions by using two active control groups, instead of no treatment or waiting groups (Berkman, 2016). Still, we found that state-oriented individuals in the affective shifting group compared to the control groups significantly profited from the intervention. Combined with the presented findings for mental contrasting, this thesis specifically pinpoints to exercising the regulation of positive affect as a central mechanism to empower self-regulation. Altogether, with mental contrasting and affective shifting I bring forward two theory-driven, evidence-based, simple, and easy to apply self-regulation interventions.

Moreover, present outcomes are in line with previous research showing that self-regulation can be improved through intervention (Baumeister et al., 2006; Hartung & Schulte, 1994; Kuhl, 2004). Initially, action-state orientation was proposed as a stable personality construct that primarily develops through socialization processes during early childhood years (Koole et al., 2006; Kuhl, 2001) and thus was presumed to be a socialized trait that remains relatively stable over time (Jostmann & Koole, 2010). However, further research has shown that action orientation stays malleable across the lifespan, increases with age and has been found to be significantly more pronounced in older compared to younger individuals (Backes et al., 2017; Bettchart et al., 2021; Gröpel et al., 2005; Hennecke & Freund, 2016). Bringing forward two effective self-regulation interventions (mental contrasting and affective shifting) that support state-oriented individuals to overcome their self-regulatory deficit further supports the notion that action orientation can be developed beyond early childhood years. Therefore, state-oriented individuals, who did not grow up in an environment that nurtured self-regulation abilities, are not out of luck, but can improve their abilities through intervention later in life.

Connecting Multiple Research Fields

The conceptualization of the present thesis is grounded in the insights of PSI theory and integrates and informs multiple research disciplines such as self-regulation and motivation research, individual differences, personality science, training, and counseling, as well as leadership research. Note that – to the best of my knowledge – the present thesis is the first work to combine two well-established concepts in the field of self-regulation and motivation: action-state orientation (Kuhl, 1994) and mental contrasting (Oettingen et al., 2000). Thereby, results are informative for both the literature on mental contrasting and the literature on action-state orientation. Investigating mental contrasting, a cognition focused intervention, from a “PSI-lens” helped to reveal the underlying affective processes (see Figure 5.1). This supports a better understanding on *why* mental contrasting is an effective method and may prompt researchers and practitioners to integrate an affective focus in the intervention. Preliminary research already showed that explicitly targeting affective experiences in the mental contrasting exercise increases its effectiveness (Ruissen et al., 2018). At the same time, with mental contrasting, I discovered an intervention that is in particular supportive for state-oriented individuals and thus provide a specific tool to help these individuals to overcome their self-regulatory deficit. These findings hopefully encourage other researchers to continue to find valuable intersections between different research fields.

FUTURE RESEARCH DIRECTIONS FOR EMPOWERING SELF-REGULATION

The present work significantly contributes to advance research in self-regulation and its empowerment. However, there still remain many unanswered questions that hopefully inspire further research. In the following, I suggest a few opportunities where future research may be able to follow up and thus broaden the gained insights of the present work.

With the present research, I emphasized the importance of dynamic changes in positive affect for successful goal-directed behavior. In contrast to other research streams that rather focus on fixed affective states (e.g., positive psychology: spotlight on positive emotions), this perspective illustrates how the connection between affects is significant to close the gap between intention and action. According to our analysis, goal-directed behavior does depend on both: the toleration of unpleasant feelings associated with hesitation and frustration (i.e., low positive affect) to allow for planning and problem-solving, and the subsequent regulation of pleasant feelings, such as joy or happiness (i.e., high positive affect) to facilitate behavior. Interindividual considerations point out that state-oriented individuals especially struggle with the termination of low positive affect once it has been activated by difficulty or demands, whereas action-oriented individuals are well able to self-regulate positive affect to facilitate behavior. However, what about individuals that are well able to regulate positive affect, but struggle to endure difficulty and associated feelings of uncertainty or frustration (i.e., frustration intolerance)? Current results show that mental contrasting and affective shifting support individuals that specifically struggle with one side of the postulated seesaw (i.e., regulation of positive affect). Yet, as both interventions aim to establish a connection between high and low positive affect, these interventions should also be beneficial for those individuals that tend to avoid difficulties. Future research should shed light on this assumption to extend the sphere of action of the provided interventions and the composed insights of the present work.

That dynamic changes in affect drive cognitive processes is strictly speaking not a novel idea (Kuhl, 2001; Kuhl et al., 2020). Indeed, a variety of findings show that they guide outcomes, such as work engagement (Bledow et al., 2011), task performance (Yang et al., 2016), creativity (Bledow et al., 2013; Watts et al., 2020), flow experience (Baumann & Scheffer, 2010), and intention enactment (Lomberg et al., 2019). However, as well as the present work, these studies primarily rely on theoretical reasoning and to my knowledge there is no study yet that implemented direct measures to assess the decisive affective changes. This is mainly based on the fact that “measuring general affective and more specific emotional changes is complex and

fraught with difficulties” (Quigley et al., 2014, p. 22) and explicit mood ratings are not able to depict the subtle changes in affect (Kazén et al., 2015). Further, although implicit affect measures, such as the IPANAT (Quirin et al., 2009), for example, may reflect those changes in affect, they also have limitations: a simultaneous assessment while conducting other tasks (e.g., Stroop task) is not possible. Instead, for future research, I suggest referring to physiological measures which would not interfere with the valid assessment of other variables under scrutiny. For instance, with measuring facial muscle activity, electromyography (EMG) has been found to be a quite effective instrument to capture temporal dynamics in affect (e.g., Golland et al., 2018).

As previously stated, self-regulation has been shown to increase with age and develops into advanced old age (e.g., Bettschart et al., 2021; Gröpel et al., 2005; Hennecke & Freund, 2016). Regarding the development of self-regulation across the lifespan, researchers have defined critical periods in which self-regulation is particularly malleable. Especially during early childhood and adolescence there is an open window, where self-regulation abilities have been shown to increase dramatically (Kuhl & Kraska, 1992, 1993; Murray et al., 2019). Moreover, during transition periods, such as from childhood to adolescence or adolescence to young adulthood, where external regulation from parents and teachers, for example, is gradually removed, may also be time spans in where individuals have at least the opportunity to advance their self-regulation abilities faster and more sustainable (Friederichs et al., 2020). In line with this assumption, Bettschart and colleagues (2021), for instance, pointed out in their analyses of changes in action orientation across the lifespan that there is a significant peak in advances during middle adulthood. Providing tools to improve self-regulation abilities specifically during those critical periods of lifetime may even lead to more promising advancements. Future studies should pursue to examine these hypotheses to encourage lifelong learning and opportunities to empower self-regulation.

My present analysis of interindividual differences in self-regulation emphasized affective change as a central underlying mechanism of goal-directed behavior. Build on this, I presented two possible interventions that empower self-regulation; however, I hope that this approach will encourage future research to develop and evaluate many more, as the need for it is clearly there. Mental contrasting and affective shifting rely on the reciprocal stimulation of cognition and affect to practice changes in positive affect. Yet are there further possibilities that can stimulate these processes in different ways? One opportunity, that I have started to investigate in our lab is to use motoric activation to practice these shifts. According to Kuhl (2018), changes

in affect are so crucial because they allow for “a short ‘window of opportunity’ during which both [brain] hemispheres are activated to roughly the same degree and are thus able to exchange [...] information” (Kuhl, 2018, p. 562), indicating that affective changes establish a connection between brain hemispheres (Kuhl et al., 2015; Quirin et al., 2018). Previous research has shown, that squeezing a softball in one hand, can lead to an activation of the contralateral hemisphere and its connected functions (e.g., left hand squeezing activates right hemisphere; Baumann, Kuhl, et al., 2005; Beckmann et al., 2013). Therefore, I replaced one part of the seesaw in affective shifting with a motoric activation, whereas the other side was either stimulated by presenting a personal difficult intention (i.e., activation of left hemisphere) or a personal positive success experience (i.e., activation of right hemisphere). Initial pilot data show already promising results indicating that this training seems to be equally effective: compared to a control group that only received a one-sided stimulation (e.g., right hand squeezing, while presenting a difficult intention) participants performed significantly better in the crucial self-regulation test. All in all, I hope this encourages other researchers to become creative and build new and easy applicable interventions that empower self-regulation.

Finally, is it always helpful to improve self-regulation abilities? Existing literature has specifically focused on the benefits of distinctive action orientation under demanding situations (e.g., Koole et al., 2012). But are there situations where state orientation may be more adaptive than action orientation, and thus improving self-regulation abilities would not be beneficial but rather obstructive? Koole et al. (2005) already pointed out in their examination of action-state orientation that there are hidden benefits of state orientation that are easily overlooked in our fast-paced, performance-driven society. For instance, in complex or unpredictable environments, being more hesitant instead of jumping into risky behavior could be advantageous. Further, state-oriented individuals can even stick to and accomplish very unattractive tasks (Fuhrmann & Kuhl, 1998) and thus benefit from a high frustration tolerance. Lomborg and colleagues (2019) examined action-state orientation in the context of entrepreneurship and observed that state-oriented individuals may be less likely to prematurely dismiss venture efforts when difficulties arise and are more likely to hold on to them even through long challenging periods. Further, Waldenmeier et al. (2022), counteracted the rather negative image of state orientation, highlighting state-oriented individuals’ relatively stable self-regulation ability under low demanding situations. Taking these findings into account, I conclude that empowering self-regulation is highly valuable for state-oriented individuals, considering the benefits of action orientation under demands, and thus to help state-oriented individual to become independent

from external regulation when facing difficulty. However, care should be taken to not blindly empower self-regulation, just because someone is state-oriented; instead, an individual's environment should always be considered as well.

CONCLUSION

The art of getting things done requires more than just good will – it takes self-regulation. With the present research, I underpinned the assumption that the regulation of affect is crucial to get going when the going gets tough. Based on this, I introduced two interventions that help individuals, who get stuck in a stage of shiftlessness, when demands rise, to facilitate action by practicing shifting between affects. Thus, with the present research, I will have to reject *Wir sind Helden*'s claim, that if “we just want it, we can accomplish anything”; however, I did show how “we can be happy and still lead corporations” (“...Wir können glücklich sein und trotzdem Konzerne leiten...”). Closing the gap between intention and action is thus just a little shift away.

REFERENCES OF CHAPTER 1 AND 5

- Austin, A. B., & Costabile, K. A. (2021). The role of autobiographical memory in competence need satisfaction. *Motivation and Emotion*, 45(4), 456–472. <https://doi.org/10.1007/s11031-021-09895-1>
- Backes, S., Brandstätter, V., Kuster, M., Nussbeck, F. W., Bradbury, T. N., Bodenmann, G., & Sutter-Stickel, D. (2017). Who suffers from stress? Action-state orientation moderates the effect of external stress on relationship satisfaction. *Journal of Social and Personal Relationships*, 34(6), 894–914. <https://doi.org/10.1177/0265407516661045>
- Baumann, N., Chatterjee, M. B., & Hank, P. (2016). Guiding others for their own good: Action orientation is associated with prosocial enactment of the implicit power motive. *Motivation and Emotion*, 40(1), 56–68. <https://doi.org/10.1007/s11031-015-9511-0>
- Baumann, N., Kaschel, R., & Kuhl, J. (2005). Striving for unwanted goals: Stress-dependent discrepancies between explicit and implicit achievement motives reduce subjective well-being and increase psychosomatic symptoms. *Journal of Personality and Social Psychology*, 89(5), 781–799. <https://doi.org/10.1037/0022-3514.89.5.781>
- Baumann, N., Kazén, M., & Kuhl, J. (2010). A look from personality systems interaction theory. In O. C. Schultheiss & J. C. Brunstein (Eds.), *Implicit motives* (pp. 375–403). Oxford University Press.
- Baumann, N., & Kuhl, J. (2020). Nurturing your self: Measuring and changing how people strive for what they need. *The Journal of Positive Psychology*, 1–12. <https://doi.org/10.1080/17439760.2020.1805503>
- Baumann, N., Kuhl, J., & Kazén, M. (2005). Left-hemispheric activation and self-infiltration: Testing a neuropsychological model of internalization. *Motivation and Emotion*, 29(3), 135–163. <https://doi.org/10.1007/s11031-005-9439-x>
- Baumann, N., & Scheffer, D. (2010). Seeing and mastering difficulty: The role of affective change in achievement flow. *Cognition and Emotion*, 24(8), 1304–1328. <https://doi.org/10.1080/02699930903319911>
- Baumeister, R. F., Gailliot, M., DeWall, C. N., & Oaten, M. (2006). Self-regulation and personality: How interventions increase regulatory success, and how depletion moderates the effects of traits on behavior. *Journal of Personality*, 74(6), 1773–1802. <https://doi.org/10.1111/j.1467-6494.2006.00428.x>

- Baumeister, R. F., Vohs, K. D., & Tice, D. M. (2007). The strength model of self-control. *Current Directions in Psychological Science, 16*(6), 351–355. <https://doi.org/10.1111/j.1467-8721.2007.00534.x>
- Beckmann, J., Gröpel, P., & Ehrlenspiel, F. (2013). Preventing motor skill failure through hemisphere-specific priming: Cases from choking under pressure. *Journal of Experimental Psychology: General, 142*(3), 679–691. <https://doi.org/10.1037/a0029852>
- Berkman, E. T. (2016). Self-regulation training. In K. D. Vohs, & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 440–457). Guilford.
- Bettschart, M., Wolf, B. M., Herrmann, M., & Brandstätter, V. (2021). Age-related development of self-regulation: Evidence on stability and change in action orientation. *Journal of Research in Personality, 91*, 104063. <https://doi.org/10.1016/j.jrp.2020.104063>
- Bledow, R., Rosing, K., & Frese, M. (2013). A dynamic perspective on affect and creativity. *Academy of Management Journal, 56*(2), 432–450. <https://doi.org/10.5465/amj.2010.0894>
- Bledow, R., Schmitt, A., Frese, M., & Kühnel, J. (2011). The affective shift model of work engagement. *Journal of Applied Psychology, 96*(6), 1246–1257. <https://doi.org/10.1037/a0024532>
- Carver, C. S., & Scheier, M. F. (2011). Self-regulation of action and affect. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of self-regulation: Research, theory, and applications* (2nd ed., pp. 3–21). The Guilford Press.
- Chatterjee, M. B., Baumann, N., Osborne, D., Mahmud, S. H., & Koole, S. L. (2018). Cross-cultural analysis of volition: Action orientation is associated with less anxious motive enactment and greater well-being in Germany, New Zealand, and Bangladesh. *Frontiers in Psychology, 9*. <https://doi.org/10.3389/fpsyg.2018.01043>
- Dahling, J. J., Kay, S. A., & Vargovic, N. F. (2015). Eyes on the prize: A longitudinal study of action-state orientation, affect, and academic self-regulation. *Research on Emotion in Organizations, 423–441*. <https://doi.org/10.1108/s1746-979120150000011016>
- Diefendorff, J. M. (2004). Examination of the roles of action-state orientation and goal orientation in the goal-setting and performance process. *Human Performance, 17*(4), 375–395. https://doi.org/10.1207/s15327043hup1704_2
- Dietrich, S., & Latzko, B. (2020). Action orientation in novice pre-service teachers-A predictor for academic success and academic progress. *Performance Enhancement & Health, 7*(3), 100156. <https://doi.org/10.1016/j.peh.2019.100156>

- Friederichs, K. M., Kees, M.-C., & Baumann, N. (2020). When tough gets you going: Action orientation unfolds with difficult intentions and can be fostered by mental contrasting. *Personality and Individual Differences, 161*, 109970. <https://doi.org/10.1016/j.paid.2020.109970>
- Fuhrmann, A., & Kuhl, J. (1998). Maintaining a healthy diet: Effects of personality and self-reward versus self-punishment on commitment to and enactment of self-chosen and assigned goals. *Psychology & Health, 13*(4), 651–686. <https://doi.org/10.1080/08870449808407423>
- Golland, Y., Hakim, A., Aloni, T., Schaefer, S., & Levit-Binnun, N. (2018). Affect dynamics of facial EMG during continuous emotional experiences. *Biological Psychology, 139*, 47–58. <https://doi.org/10.1016/j.biopsycho.2018.10.003>
- Goschke, T., & Kuhl, J. (1996). Remembering what to do: Explicit and implicit memory for intentions. In M. Brandimonte, G. O. Einstein, & M. A. McDaniel (Eds.), *Prospective memory: Theory and Applications* (pp. 53–91). Lawrence Erlbaum Associates Publishers.
- Gröpel, P., Kuhl, J., & Kazén, M. (2005, July 1). Toward an integrated self: Age differences and the role of action orientation. *Conference Proceedings “Self-Concept, Motivation and Identity.”* Third International SELF Research Conference “Self-concept, Motivation and Identity: Where to from here?,” Australia.
- Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry, 26*(1), 1–26. <https://doi.org/10.1080/1047840x.2014.940781>
- Hartung, J., Schulte, D., 1994. Action and state orientation during therapy of phobic disorders. In J. Kuhl, & J. Beckmann (Eds.), *Volition and Personality: Action Versus State Orientation* (pp. 217–232). Hogrefe.
- Hebb, D. O. (2005). *The organization of behavior: A neuropsychological theory*. Psychology Press.
- Hennecke, M., & Freund, A. M. (2016). Age, Action Orientation, and Self-Regulation during the Pursuit of a Dieting Goal. *Applied Psychology: Health and Well-Being, 8*(1), 19–43. <https://doi.org/10.1111/aphw.12060>
- Inzlicht, M., Werner, K. M., Briskin, J. L., & Roberts, B. W. (2021). Integrating models of self-regulation. *Annual Review of Psychology, 72*(1), 319–345. <https://doi.org/10.1146/annurev-psych-061020-105721>

- Jais, M., Bakaç, C., Kehr, H. M., Baumann, N., & Quirin, M. (2021). Misattribution of duties as free choices: The role of emotional awareness in self-infiltration. *Acta Psychologica*, 220, 103401. <https://doi.org/10.1016/j.actpsy.2021.103401>
- Jostmann, N. B., & Koole, S. L. (2010). Dealing with high demands: The role of action vs. State orientation. In R. H. Hoyle (Ed.), *Handbook of Personality and Self-Regulation* (1st ed., pp. 332–352). Wiley-Blackwell. <https://doi.org/10.1002/9781444318111.ch15>
- Kazén, M., & Kuhl, J. (2005). Intention memory and achievement motivation: Volitional facilitation and inhibition as a function of affective contents of need-related stimuli. *Journal of Personality and Social Psychology*, 89(3), 426–448. <https://doi.org/10.1037/0022-3514.89.3.426>
- Kazén, M., Kuhl, J., & Quirin, M. (2015). Personality interacts with implicit affect to predict performance in analytic versus holistic processing. *Journal of Personality*, 83(3), 251–261. <https://doi.org/10.1111/jopy.12100>
- Koole, S. L., & Jostmann, N. B. (2004). Getting a Grip on Your Feelings: Effects of Action Orientation and External Demands on Intuitive Affect Regulation. *Journal of Personality and Social Psychology*, 87(6), 974–990. <https://doi.org/10.1037/0022-3514.87.6.974>
- Koole, S. L., Jostmann, N. B., & Baumann, N. (2012). Do demanding conditions help or hurt Self-regulation? Self-regulation under demanding conditions. *Social and Personality Psychology Compass*, 6(4), 328–346. <https://doi.org/10.1111/j.1751-9004.2012.00425.x>
- Koole, S. L., Kuhl, J., Jostmann, N. B., & Finkenauer, C. (2006). Self-Regulation in Interpersonal Relationships: The Case of Action versus State Orientation. In K.D. Vohs & E.J. Finkel (Eds.) *Self and relationships: Connecting intrapersonal and interpersonal processes* (pp. 360–383). Guilford Press.
- Sander, S. L., Kuhl, J., Jostmann, N. B., & Vohs K. (2005). On the hidden benefits of state orientation: Can people prosper without efficient affect-regulation skills? *Building, Defending, and Regulating the Self*, 235–262. <https://doi.org/10.4324/9780203998052-13>
- Kuhl, J. (1994). Action versus state orientation: Psychometric properties of the action control scale (ACS-90). In J. Kuhl & J. Beckmann (Eds.), *Volition and personality: Action versus state orientation* (1st ed., pp. 47–59). Hogrefe.
- Kuhl, J. (2000). *The volitional basis of Personality Systems Interaction Theory: Applications in learning and treatment contexts*. 33(7–8), 665–703.

- Kuhl, J. (2001). *Motivation und Persönlichkeit: Interaktion psychischer Systeme* [Motivation and personality: Interactions of psychological systems]. Hogrefe.
- Kuhl, J. (2004). Was bedeutet Selbststeuerung und wie kann man sie entwickeln? [What drives self-management and how can it be developed] *Personalführung*, 37(4), 30–39.
- Kuhl, J. (2018). Individual differences in self-regulation. In *Motivation and Action* (pp. 529–577). Springer.
- Kuhl, J., & Beckmann, J. (Eds.). (1994). *Volition and Personality: Action and state Orientation*. Hogrefe.
- 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(3), 382–399. <https://doi.org/10.1037/0096-3445.128.3.382>
- Kuhl, J., & Kraska, K. (1992). Selbstregulations-und Konzentrationstest für Kinder (SRKT-K) [Self-regulation test for children (SRTC)]. Hogrefe.
- Kuhl, J., & Kraska, K. (1993). Self-regulation: Psychometric properties of a computer-aided instrument. *German Journal of Psychology*, 17(1), 11–24.
- Kuhl, J., Quirin, M., & Koole, S. L. (2015). Being someone: The integrated self as a neuropsychological system. *Social and Personality Psychology Compass*, 9(3), 115–132. <https://doi.org/10.1111/spc3.12162>
- Kuhl, J., Quirin, M., & Koole, S. L. (2020). The functional architecture of human motivation: Personality systems interactions theory. In A. J. Elliot (Ed.), *Advances in Motivation Science* (7th ed.). Elsevier.
- Kuhl, J., & Scheffer, D. (1999). *Der Operante Multi-Motiv-Test (OMT): Manual*. [The operant multi-motive-test (OMT): Manual].
- Lomberg, C., Thiel, J., & Steffens, P. (2019). The hare and the Tortoise: The impact of action-versus state-orientation on entrepreneurial progress and persistence. *International Small Business Journal: Researching Entrepreneurship*, 37(6), 604–625. <https://doi.org/10.1177/0266242619836615>
- McSweeney, F. K., & Murphy, E. S. (2014). *The Wiley Blackwell Handbook of Operant and Classical Conditioning*. John Wiley & Sons.
- Murray, D. W., Rosanbalm, K., Christopoulos, C., & Meyer, A. L. (2019). An applied contextual model for promoting self-regulation enactment across development: Implications for prevention, public health and future research. *The Journal of Primary Prevention*, 40(4), 367–403. <https://doi.org/10.1007/s10935-019-00556-1>

- Oettingen, G. (2012). Future thought and behaviour change. *European Review of Social Psychology*, 23(1), 1–63. <https://doi.org/10.1080/10463283.2011.643698>
- Oettingen, G., Hönig, G., & Gollwitzer, P. M. (2000). Effective self-regulation of goal attainment. *International Journal of Educational Research*, 33(7-8), 705–732. [https://doi.org/10.1016/s0883-0355\(00\)00046-x](https://doi.org/10.1016/s0883-0355(00)00046-x)
- Oettingen, G., Pak, H.-ju, & Schnetter, K. (2001). Self-regulation of goal-setting: Turning free fantasies about the future into binding goals. *Journal of Personality and Social Psychology*, 80(5), 736–753. <https://doi.org/10.1037/0022-3514.80.5.736>
- Quigley, K. S., Lindquist, K. A., & Barrett, L. F. (2014). Inducing and measuring emotion and affect: Tips, tricks, and secrets. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 220–252). Cambridge University Press.
- Quirin, M., Fröhlich, S., & Kuhl, J. (2018). Implicit self and the right hemisphere: Increasing implicit self-esteem and implicit positive affect by left hand contractions. *European Journal of Social Psychology*, 48(1), 4–16. <https://doi.org/10.1002/ejsp.2281>
- Quirin, M., Jais, M., Di Domenico, S. I., Kuhl, J., & Ryan, R. M. (2021). Effortless willpower? The integrative self and self-determined goal pursuit. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.653458>
- Quirin, M., Kazén, M., & Kuhl, J. (2009). When nonsense sounds happy or helpless: The implicit positive and negative affect test (IPANAT). *Journal of Personality and Social Psychology*, 97(3), 500–516. <https://doi.org/10.1037/a0016063>
- Rönnau-Böse, M., & Fröhlich-Gildhoff, K. (2020). *Resilienz und Resilienzförderung über die Lebensspanne* [Resilience and promotion of resilience across the lifespan]. Kohlhammer Verlag.
- Ruigendijk, H. A. H., Jostmann, N. B., & Koole, S. L. (2018). Why the road to hell is paved with good intentions. Paradoxical effects of volitional action control. In N. Baumann, M. Kazén, M. Quirin, & S. L. Koole (Eds.), *Why people do the things they do: Building on Julius Kuhl's contributions to the psychology of motivation and volition* (1st ed., pp. 151–165). Hogrefe.
- Ruigendijk, H. A. H., & Koole, S. L. (2014). When focusing on a goal interferes with action control: Action versus state orientation and over-maintenance of intentions. *Motivation and Emotion*, 38(5), 659–672. <https://doi.org/10.1007/s11031-014-9415-4>

- Ruissen, G. R., Rhodes, R. E., Crocker, P. R., & Beauchamp, M. R. (2018). Affective mental contrasting to enhance physical activity: A randomized controlled trial. *Health Psychology, 37*(1), 51–60. <https://doi.org/10.1037/hea0000551>
- Schlinkert, C., & Koole, S. L. (2018). Dealing with life demands: Action-state orientation moderates the relation between demanding conditions and drops in body vitality. *Motivation Science, 4*(2), 118–136. <https://doi.org/10.1037/mot0000078>
- Sedikides, C., Wildschut, T., Routledge, C., & Arndt, J. (2015). Nostalgia counteracts self-discontinuity and restores self-continuity. *European Journal of Social Psychology, 45*(1), 52–61. <https://doi.org/10.1002/ejsp.2073>
- Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology, 18*(6), 643–662. <https://doi.org/10.1037/h0054651>
- van Eerde, W., & Klingsieck, K. B. (2018). Overcoming procrastination? A meta-analysis of intervention studies. *Educational Research Review, 25*, 73–85. <https://doi.org/10.1016/j.edurev.2018.09.002>
- Waldenmeier, K., Friederichs, K.M., Kuhl, J., & Baumann, N. (2022). (Un) Locking Self-Motivation: Action versus State Orientation Moderates the Effect of Demanding Conditions on Self-Regulatory Performance. Manuscript under review.
- Watts, L. L., McIntosh, T. J., Gibson, C., Mulhearn, T. J., Medeiros, K. E., Mecca, J. T., & Cohen-Charash, Y. (2020). Mild Affective Shifts and Creativity: Effects on Idea Generation, Evaluation, and Implementation Planning. *The Journal of Creative Behavior, 54*(4), 985–1001. <https://doi.org/10.1002/jocb.427>
- Yang, L.-Q., Simon, L. S., Wang, L., & Zheng, X. (2016). To branch out or stay focused? Affective shifts differentially predict organizational citizenship behavior and task performance. *Journal of Applied Psychology, 101*(6), 831.

APPENDIX

SUPPLEMENTARY OF CHAPTER 4

- Supplementary Measures, Results and References -

Additional Measures

Intention Ratings (T₁). Thirteen self-generated items (Cronbach's $\alpha = .69$) were assessed that captured personal feelings and attitudes toward selected intentions. The items were rated on a 4-point scale how much they applied to each participant (not at all – some – much – completely). Example items are: *'I think a lot about this intention'* and *'I am very motivated to implement this intention'*.

Well-Being (T₁, T₈). The WHO-Five Well-Being Index (World Health Organization 1998) was applied to measure subjective well-being. It comprise five items (Cronbach's $\alpha = .81$) that are rated on a 6-point scale (1 = 'at no time' - 6 = 'all of the time'). Example items are: During the last 2 weeks ... *"I have felt cheerful and in good spirits"* and *"I have felt active and vigorous"*. As an additional measure we used the Satisfaction With Life Scale (SWLS; Diener et al., 1985). It comprises five items (Cronbach's $\alpha = .79$) that are rated on a 7-point scale (1= 'strongly disagree' – 7= 'strongly agree'). Example items are: *'I am satisfied with my life'* and *'In most ways my life is close to my ideal'*.

Demands (T₁, T₈). The subscale "demands" (4 items, Cronbach's $\alpha = .83$) of the Volitional Components Questionnaire (VCQ; Kuhl & Fuhrmann, 1998) was used to measure the extent of every day stress, which results from the amount of yet unresolved intentions, difficult tasks, and still to finish duties (*"I am currently confronted with many difficulties in my life"*). Items were rated on a four-point scale how much they applied to each participant (not at all – some – much – completely).

Non-Implementation Ratings (T₈). If participants did not implement their intentions four weeks after T₁, twelve self-generated items (Cronbach's $\alpha = .78$) were assessed that captured personal feelings and attitudes towards non-implementation. Items were rated on a 4-point scale how much they applied to each participant (not at all – some – much – completely). Example items are: *'When I think about that I have not implemented my intention, I feel disappointed'* and *'I did not implement my intention because I worried about the implementation too much'*.

Partial Implementation Rating (T₈). If participants stated a partial enactment success four weeks after T₁, five additional items (Cronbach's $\alpha = .55$) were assessed that captured feelings and attitudes towards completion of intention. Items were rated on a 4-point scale how much they applied to each participant (not at all – some – much – completely). Example items are: *'It is likely that I will complete my intention soon'* and *'It takes great effort for me to still complete my intention soon'*.

Exercise evaluation. At the four-week follow up (T₈) participants formally evaluated the exercise. Two items (Cronbach's $\alpha = .68$) assessed how effortlessly participants executed the exercise on a daily basis (e.g., *"It was easy for me to complete the visualization exercise every day"*; reversed: *"I experienced the daily visualization exercise as a burden"*). Five items (Cronbach's $\alpha = .88$) assessed how effective the exercise was (e.g., *"I experienced a significant change due to the visualization"*; *"The visualization has helped me to successfully implement my intentions within in the last four weeks"*). Participants rate these items on a scale from 1 (*not at all*) to 4 (*very much*).

Additional Results

Descriptives and Correlations. Table A lists descriptive information and correlations between study variables across conditions. Action orientation was associated with higher pre-post changes in positive affect at the end of the intervention (T₅₋₇), lower expectancy-value ratings of intention at T₁, and higher intention enactment. Stroop interference in latencies and errors did not significantly correlate indicating that there was no speed-accuracy trade-off. Higher Stroop interference in errors was associated with lower pre-post changes in positive affect at the end of the intervention (T₅₋₇) and lower intention enactment. Higher expectancy-value ratings of intentions at T₁ were associated with higher enactment rates at T₈.

Stroop Interference

Latencies. The Condition x Action Orientation interactions were not significant after positive primes (C1xAOD: $\beta = .02$, $t(190) = .34$, $p = .731$; C2xAOD: $\beta = -.05$, $t(190) = -.91$, $p = .364$) and neutral primes (C1xAOD: $\beta = -.00$, $t(190) = -.06$, $p = .952$; C2xAOD: $\beta = .00$, $t(190) = .05$, $p = .962$).

Error rates. The Condition x Action Orientation interactions were not significant after positive primes (C1xAOD: $\beta = -.07$, $t(190) = -0.94$, $p = .349$; C2xAOD: $\beta = .06$, $t(190) = 0.82$, $p = .411$)

and neutral primes (C1xAOD: $\beta = -.08$, $t(190) = -1.13$, $p = .259$; C2xAOD: $\beta = .08$, $t(190) = 1.06$, $p = .290$). #

Exercise Evaluation. We conducted two separate ANOVAs to test whether participants' ratings of exercises as “*effortful*” and “*effective*” differed between conditions. The effect of condition was significant for effortful, $F(1, 202) = 5.29$, $p = .006$, $\eta_p^2 = .05$, and effective, $F(1, 202) = 18.76$, $p < .001$, $\eta_p^2 = .16$. Bonferroni post-hoc tests indicated that participants found the shifting ($M = 3.03$, $SD = 0.68$; $p = .035$, Diff. = -0.31 , 95% CI: $-0.60, -0.02$) and affective boosting exercises ($M = 2.99$, $SD = 0.76$; $p = .009$, Diff. = -0.35 , 95% CI: $-0.63, -0.07$) more effortful than the control exercise ($M = 3.34$, $SD = 0.62$). Shifting and affective boosting exercises did not differ in perceived effort (*ns*, Diff. = 0.04 , 95% CI: $-0.25, 0.33$). Participants rated the shifting ($M = 2.16$, $SD = 0.64$; $p < .001$, Diff. = 0.57 , 95% CI: $0.30, 0.85$) and affective boosting exercises ($M = 2.19$, $SD = .71$; $p < .001$, Diff. = 0.60 , 95% CI: $0.34, 0.86$) as more effective than the control exercise ($M = 1.59$, $SD = 0.59$). Affective shifting and affective boosting exercises did not differ in perceived effectiveness (*ns*, Diff. = 0.03 , 95% CI: $-0.24, 0.30$).

Table A. Means, Standard Deviations, and Correlations between Study Variables

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Gender ^a	.14*	.09	.01	.08	-.09	.06	.02	-.03
(2) Age		.07	.21**	.14	-.11	-.10	-.31***	-.27***
(3) AOD			-.01	.03	.06	.16*	-.15*	.18*
(4) SI Latencies (ms)				-.02	-.05	.02	-.08	.02
(5) SI Errors (%)					.02	-.13	-.02	-.18*
(6) Δ Pos. Affect (T ₂₋₄)						.36***	.09	.10
(7) Δ Pos. Affect (T ₅₋₇)							.06	.13
(8) Expectancy-Value								.24***
(9) Intention Enactment (%)								
<i>M</i>	26.37	5.33	121	0.50	.13	.05	9.40	68.58
<i>SD</i>	10.25	3.34	188	9.67	.31	.31	2.85	23.28

^a female = 1, male = 2; SI = Stroop interference; * $p < .05$, ** $p < .01$, *** $p < .001$

Additional References

- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). Satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 7175. https://doi.org/10.1207/s15327752jpa4901_13
- Koole, S. L., & Jostmann, N. B. (2004). Getting a grip on your feelings: Effects of action orientation and external demands on intuitive affect regulation. *Journal of Personality and Social Psychology*, 87(6), 974–990. <https://doi.org/10.1037/0022-3514.87.6.974>
- Kuhl, J. (1994). Action versus state orientation: Psychometric properties of the action control scale (ACS-90). In J. Kuhl & J. Beckmann (Eds.), *Volition and personality: Action versus state orientation* (1st ed., pp. 47–59). Hogrefe & Huber Publishers.
- 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* (1st ed., pp. 15–49). Cambridge University Press.

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Affidavit

I, Katja M. Friederichs, hereby confirm that the present thesis “The Importance of Empowering Self-Regulation” is the result of my own work. All sources and/or material applied are listed and specified in the thesis. Furthermore, I confirm that this thesis has not yet been submitted as part of any other examination process at a higher education institute, nationally or internationally, neither in identical nor in similar form.

Hiermit erkläre ich, Katja M. Friederichs, an Eides statt, dass ich die vorliegende Dissertation, „The Importance of Empowering Self-Regulation“, eigenständig und nur mit den angegebenen Hilfsmitteln verfasst habe und die wörtlich oder dem Inhalt nach aus fremden Arbeiten entnommenen Stellen als solche kenntlich gemacht wurden. Ferner versichere ich, dass ich die Arbeit nicht für eine andere wissenschaftliche Prüfung an einer Hochschule des In- oder Auslands eingereicht und mit der gleichen Abhandlung weder bereits einen Doktorgrad erworben noch einen Doktorgrad zu erwerben versucht habe.

Berlin, 31.03.2022



Katja M. Friederichs