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If It's to Be, It Starts With Me!

The Bidirectional Relation between Goals and the Self

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PREFACE

With the current global financial crisis threatening individuals, organizations, and entire economies, concerns about ethical management and strong leadership have taken center stage. To little surprise, then, a growing number of companies is seeking help from professional consultants to train their leaders on how to become 'stewards of the future that can be counted on to behave honorably; to have strong leadership "muscles", based on their own personal values; and to provide a strong and energizing vision for followers to follow and on which to concentrate their efforts' (Cole, 2008).

According to Kris Cole (2008), author of the best-selling book 'Leadership for Dummies', true "leadership begins inside. Your powerbase comes from the beliefs, views and opinions you hold about yourself". For managers who want to achieve their goals – and who want to ensure they are pursuing the right ones – she has following piece of advice. In addition to goals being few in number; ambitious, but achievable; formulated in positive and specific terms; and tied to target dates, goals are likely to have the greatest impact if they share following characteristics:

- Your mother would approve of them
- You are comfortable for your actions to become public, for example, if they were reported in the media
- You would endorse others pursuing the same goal, even if the actions affected you
- Upon goal achievement, you are still comfortable with seeing yourself in the mirror the next morning

The common denominator of the characteristics listed in bullet points above is that they are related to self-activation.

Being practitioners, training consultants go with what they have found to work best; for the most part, they are less concerned with the scientific underpinnings and underlying mechanisms of their methods. Clearly, Cole's views have intuitive appeal: Every day experience confirms that we feel good about ourselves when we attain our goals; likewise we are most committed to attain those goals that are closest to our hearts.

In this sense, then, it would be functional for humans to develop a bidirectional link between goals and the self. Surprisingly, however, although several theories at least implicitly assume a link between goals and the self, this hypothesis has never been articulated explicitly and to the present day no study exists that directly tests this relation empirically. The studies of the present thesis have been designed to explore this cavity.

THEORETICAL PART

General Introduction

Philosophers in ancient Greece believed in the pursuit of self-knowledge. This being said, they also considered it impossible for man to ever truly understand the human mind and, thus, complete self-knowledge was considered unthinkable (e.g., Socrates, in Stokes, 1997). But the often quoted desire to "know thyself" (Greek: gnōthi seauton) may also have simply referred to developing a better grasp of one's own habits, goals, personal traits, and behavioral patterns in everyday life; in sum, to have a better understanding of one's own behavior. This cultural heritage of investigating the self continues up to today, with modern day psychologists addressing, for example, whether the same cognitive principles apply to the self as to other mental representations; whether the self is a stable property in each person or rather something that is context-dependent and has to be inferred time and again; whether an individual's self is fully accessible through introspection; or how to resolve the dilemma of measuring self-awareness without creating it, just to name a few.

In a similar vein, one could argue that the importance of goals for understanding one's own behavior has also already been acknowledged in ancient Greece. It was Aristotle who stated, "Man is a goal seeking animal. His life only has meaning if he is reaching out and striving for his goals." In the past decades, goal research has become a major domain of scientific inquiry. To little surprise, researchers have used many different goal constructs, like personal projects (Palys & Little, 1983), current concerns (Klinger, 1975), life tasks (Cantor & Kihlstrom, 1987), possible selves (Markus & Nurius, 1986), personal strivings (Emmons, 1986), or self-guides (Self-discrepancy Theory; Higgins, 1987). Though the goal constructs listed above might vary in their specifics, I argue that their common denominator may be the self.

Notably, the self and goals seem to be intimately linked to one another. In many theories, goals contribute to the definition of the self and are expressed through self-directed action. At the same time, aspects of the self, such as self-efficacy beliefs, influence goal-directed behavior. Furthermore, it is assumed that the self-concept includes self-referential goals (e.g., Hannover, 1997). Moreover, Read and Miller (1989) suggest that various aspects of the self, such as self-awareness may be associated with the activation of goals, and that the self-concept plays a key role in initiating goals and deciding which strategies to follow. Surprisingly, however, although several theories at least implicitly assume a bidirectional goal-self relationship, this hypothesis has never been articulated explicitly and to the present day, no study exists that tests this relation empirically.

With the present proposal I aim to extend the existing literature on goals and the self in three important ways. First, I will introduce a new implicit measure of self-activation that is based on response latencies, because their widespread application notwithstanding, traditional measures of self-activation are often difficult to interpret, as their very use is prone to alter the object of measurement (e.g., Duval & Wicklund, 1972; Silvia & Gendolla, 2001). Despite this obvious methodological dilemma, there is still a surprising paucity of viable research instruments that allow scientists to deal with this problem. For the current studies, a picture task has been developed designed to implicitly assess self-activation based on response latencies. Second, I aim to contribute to the field of self and goal research by demonstrating a close connection between personal goals and the self. I suggest that the involvement of the self plays a key role in goal-pursuit, i.e., the self should come into play when relevant evaluations are linked to their behavioral execution; consequently, it is assumed that the self constitutes an important distinguishing factor between personal goals and personal evaluations. Third, I seek to investigate the bidirectional nature of the relation between goals and the self, which might tell us more about the underlying mechanisms. It

might be functional for individuals to develop such a bidirectional link, because it appears that under increased self-activation people are better in attaining their goals; several studies suggest that a focus on the self might be indispensable for behavior that is consistent with one's standards, implying that the self might be a first important premise for self-regulation and goal pursuit. At the same time, attaining a goal has considerable affective consequences and alters one's self-views.

What follows is a review of theories and empirical results regarding the self and goals with the aim of identifying overlaps that may link these two concepts. In the first section of the Theoretical Part, I will briefly address a model that explains social behavior as a joint effect of two systems of information processing (Strack & Deutsch, 2004), which will form the framework for the present proposal. Next, I will turn to past and present research on the self that relates to our studies. After that, the topic of goals will be discussed in more detail, reviewing theoretical accounts of the understanding of goals and empirical findings on this issue. Finally, I will outline theories and concepts that suggest an elementary link between goals and the self, allowing me to generate the predictions for the present experiments.

Two-Systems Perspective

To understand how the self may be connected with goal-directed behavior, it is necessary to consider the processes that determine social behavior in general. In the recent past, social and cognitive psychologists have developed dual-process theories to describe mechanisms of information processing (for a review, see Smith & DeCoster, 2000). As a common denominator, all models distinguish two modes of information processing. The first mode is rule-based processing and occurs when motivation and capacity are available. This mode is structured by logic and language, can be learned by few experiences, and requires controlled or conscious processing. The other mode is based on associations, which

are formed on the principles of similarity and contiguity by frequent common activation of different constructs; they are slowly learned over many experiences; and relate to automatic mechanisms of which only the end result is accessible to conscious awareness.

Accordingly, the Reflective Impulsive Model (RIM; Strack & Deutsch, 2004) is a recently developed two-systems model that explains social behavior as a joint function of two in parallel operating distinct systems, which were labeled *Reflective System* (RS) and *Impulsive System* (IS). Unlike other accounts, the RIM does not focus on specific phenomena, such as stereotypes (e.g., Devine, 1989) or attitude change (e.g., Fazio, 1986), but rather considers general mechanisms of thinking and behavior; hence, it was chosen as a framework for the present proposal. It seems most suitable to explain processes that might underlie the *interplay* between goals and the self because

(1) it is assumed that the two types of processes occur simultaneously,

(2) the RIM extends the focus from judgments and information processing to behavioral consequences of the mental mechanisms that are described, and

(3) considers behavior that is not preceded by a judgment or a decision, including insights from motivational psychology.

These characteristics are especially important when examining the relation between goals and the self and will be addressed in greater detail later in this thesis when applying the RIM to these two constructs. Because dual-process models share several components, I will focus the description of this model only on those components that are unique to it. Importantly, the RIM integrates behavioral, cognitive, and motivational processes into a two-systems model of social behavior, endowing behavior with a central role. One main assumption is that the two systems are concurrently active and compete for control over overt behavior; the Impulsive System (IS) is responsible for routine actions that are controlled by immediate cues and consequences; the Reflective System (RS) takes over

when long-term consequences are pursued; thus, IS and RS may sometimes conflict, for example, when immediate pleasures are incompatible with delayed objectives. Hence, the two systems interact at all stages of information processing and operate parallel in a synergistic or antagonistic fashion. Thereby, the IS is always engaged in processing, whereas the RS may also be inactive. Specifically, semantic relations, rule-based reasoning, and symbolic thinking characterize the RS. Here, relationships that are retrieved from the IS are combined into propositional representations and are assigned a truth-value. Knowledge about values and potential consequences is weighted and integrated to a behavioral decision. In the IS - characterized by associative links - perceptual input or reasoning processes (from the RS) directly trigger the activation of components in an associative network; spreading activation automatically leads to activation of behavioral schemata. Impulsive processes are moreover influenced by motivational orientations of approach and avoidance, which may directly elicit approach-avoidance behavior. Finally, social behavior is executed whenever activation of a behavioral schema exceeds a certain threshold; this activation may occur through both impulsive and reflective processes. Hence, behavioral schemata form a final common pathway of IS and RS to actual behavior.

Noteworthy, in the RIM the two-systems-division is not based on the presence or absence of conscious awareness as in other dual-process models (e.g., Greenwald & Banaji, 1995); the authors of the RIM argue that consciousness provides little information about the nature of the underlying mechanisms and might only be an epiphenomenon (Strack & Deutsch, 2004). Instead, the partition into implicit and explicit is based on the psychological processes and operational characteristics: implicit processes are located in the IS and explicit processes in the RS (and do not pertain to mental contents). Regarding explicit and implicit measures, from a RIM perspective they are defined by the cognitive processes they enter (explicit *knowledge* and implicit *associations*).

In the following, I will turn to past and present research on the self as it might be relevant for the present studies.

The Self in Social Psychology

As mentioned before, the importance of the self for human behavior not only has been discussed in philosophical circles for 3000 years but also is implicitly hold in the advices of professional consultants who train leaders on how to achieve their goals. Up to today, the self has remained an important issue in psychologists' discussions and research, too; however, they have had particular difficulties to define and conceptualize the self. Many different uses of the term "self" illustrate the confusion about the definition of this construct. For example, Leary and Tangney (2003) identified five distinct ways in which scientists use the word "self" and its compounds. Some researchers use "self" synonymous with the total person. Despite of its intuitive appeal due to resemblance with our use of the self in everyday language, from a psychological standpoint, theorists do not "seem to think that a person *is* a self but rather that a person *has* a self" (Leary & Tangney, 2003, p.6). Others refer to a person's personality when talking about the self, specifically to their abilities, goals or values (Wicklund & Eckert, 1992; Tesser, 2002). In turn, others refer to the conscious experience of the self, which is reflected in the phenomenology of identity (the "I" in the distinction introduced by James, 1890). Yet other researchers use "self" synonymous with people's thoughts, feelings, and the knowledge about oneself (the "Me", James, 1890), which would be better described with self-concept or self-beliefs. And again others refer to the self as an entity that regulates people's behavior as a decision maker (Carver & Scheier, 1981), emphasizing its executive functions. In this proposal, the generic term "self" will be used to refer to the self as a mental device that underlies self-reflection and consists of attentional, cognitive and executive processes.

The long and fascinating history of self psychology lies outside the scope of the theoretical section of this thesis. As illustrated above, however, it seems difficult to provide a clear answer to the question what the self actually is. I will not offer the final word on the definition and meaning of self, but I will discuss some of the classic theories on the self as well as review some of the progress that has recently been made in research and understanding of the self. In particular, I shall now consider (a) increased activation of self-related contents as it is important for the present proposal, i.e., traits like self-consciousness and self-monitoring, as well as situational self-activation manipulations; (b) methods to measure self-activation; and (c) theories on structure, content and operation of the self, as they are relevant for the present work, i.e., the self-concept, the motivated self, the issue of whether the self is stable or malleable, and explicit vs. implicit self-related processes.

Activation of Self-Relevant Knowledge

As mentioned above, there are many different uses of the word "self" and its compounds in order to describe an increased activation of self-related contents. Likewise, terms found in the literature such as self-consciousness or self-awareness are often used synonymously. Therefore, I will now discuss those terms regarding *dispositional* activation of self-knowledge - such as self-consciousness and self-monitoring, and those terms regarding *situational* activation of self-related knowledge - such as self-awareness and self-activation - that are considered in the present work.

Dispositional Activation of the Self

Self-Consciousness (SC) is the explicit understanding that one exists as an individual being, with private thoughts, separate from other people, and is tightly linked with the development of identity (e.g., Mead, 1934). Due to constant self-involvement, some people are habitually more self-conscious than others, while others hardly ever perceive

themselves. More precisely, high SC is characterized by high chronic accessibility of self-related knowledge and describes a dispositional tendency to be self-focused. Theorists distinguish between private and public SC: private SC is the tendency to be aware of one's own internal thoughts, feelings, and presumably attitudes or goals due to private cognitive thinking and ruminating about the self, whereas public SC refers to the concern and awareness of the self as a social object (e.g., Fenigstein, Scheier, & Buss, 1975). Both private and public SC are seen as personality traits that are relatively stable over time.

Self-Monitoring (SM) is an individual's habitual tendency to control his or her verbal and nonverbal self-presentations (Snyder, 1979). In particular, high self-monitors are sensitive to situational cues, control their emotional expressions and flexibly adapt their behavior to the situation, whereas low self-monitors are indifferent to situational cues and act on the basis of their principles and attitudes. SM can be assessed with the Self-monitoring Scale (Snyder & Gangestad, 1985); for example, items of this scale pertain to the degree in which individuals are concerned about their self-presentation, and their ability to control it. Given that SC and SM may include different levels of accessibility of self-related knowledge, they were considered as control variables in the present studies.

Situational Activation of the Self

Besides the chronic accessibility of self-related knowledge as mentioned above, situational manipulations may alter the accessibility of self-contents, too.

Objective Self-Awareness. One of the earliest theories on the self is objective self-awareness theory, assuming that when "attention is directed inward and the individual's consciousness is focused on himself, he is the object of his own consciousness - hence 'objective' self awareness" (Duval & Wicklund, 1972, p. 2). The theory will be addressed in greater detail later; for now I will only discuss the term "objective self-awareness"

(OSA). Specifically, when people are manipulated to be self-aware, they temporarily become more aware of their own existence than they habitually are. OSA is a state of situational heightened awareness of one's self, induced by environmental cues. For example, sitting in front of a mirror or a camera, and realizing that we are being observed can temporarily increase OSA. Evidence suggests that situational self-awareness can impair one's ability to perform complex actions (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Kluger and DeNisi (1996) argue that this impairment might be attributable to self-attention taxing too much of a person's limited attentional capacity and cognitive resources. Furthermore, people are more likely to behave in line with their standards when they are self-aware, an important point which will be addressed in more detail when possible links of goals and the self are described. In a similar vein as with trait SC, theorists distinguish between private and public OSA. In particular, private OSA is a state in which people introspect and examine their inner thoughts and feelings, which might be induced by a mirror or self-reflection (Study 1 and 2; Study 5 and 6), whereas public OSA is a perspective on the self as it is seen by others, and can be induced by an audience, or by being videotaped (Study 1). Several studies that compared the effects of trait SC with manipulated OSA revealed similar results for SC and OSA on participants' performance (Carver & Scheier, 1981, 1998). Furthermore, people with low levels of SC seem to be less susceptible to situational manipulations of self-awareness.

Self-activation. In the literature, the constructs of self-focus, self-attention, and self-awareness are often interchangeably used with the concept of self-activation (SA). However, self-focus and self-attention seem to refer more to the *actions* of focusing onto the self, which in turn may *result* in a state of heightened self-awareness or self-activation. As mentioned above, self-awareness refers to a situational state of heightened accessibility of self-related knowledge. Similarly, SA can also be defined as a situational state of

increased accessibility of self-contents and cognitions, and is hence very similar to objective self-awareness (OSA). However, Stapel and Tesser (2001) proposed to distinguish OSA from self-activation, mainly because the latter does not necessarily require conscious self-attention. Accordingly, SA is defined as the more general construct; thus, in some respects, self-awareness may be understood as a particular subset of SA, namely those effects that relate to the activation of reflective self-related information; in this sense, in the present work, different manipulations of OSA will be used in order to increase SA. Notably, SA effects can be induced below conscious awareness, whereas active attention and conscious awareness seem to be necessary conditions for OSA (Duval & Wicklund, 1972; Trapnell & Campbell, 1999). In the following, some methods to induce SA will be discussed.

Supraliminal methods. The concept of accessibility is used to indicate the degree in which a mental representation is currently active in one's mind (e.g., Higgins, 1996). Thereby, an accessible piece of information can be easier retrieved from memory; in terms of the RIM this depends on the associative strength between the perceptual input and the concept in the Impulsive System. Research on accessibility has shown that constructs are more accessible the more often they are activated (i.e., "frequent priming", e.g., Bargh & Pratto, 1986; Higgins, King, & Mavin, 1982) and the less time has passed since their last activation (i.e., "recent priming", e.g., Wyer & Srull, 1986). Specifically, *recent* contextual priming seems to temporarily increase the *current* (situational) accessibility of a category, and frequent contextual priming additionally increases the chronic accessibility of a category, indicating that any temporary activation increases the chronic accessibility of the same category, too (e.g., Higgins & Bargh, 1987; Strack & Mussweiler, 1997). As a consequence, this activation affects subsequent judgments and behavior in the direction of the thoughts and constructs that are momentarily more accessible. In the early priming studies, primes were presented supraliminally, i.e., participants were exposed to the primes

in a fashion that they could consciously perceive them. Assuming that the self-construct operates like other knowledge structures (see next section), the same principles of accessibility may apply to it. To give a brief overview, several studies on self-priming have convincingly shown that a heightened accessibility of self-related contents can be the result of either implicit manipulations, such as guessing pronouns in a foreign language (see Davis & Brock, 1975; Dijksterhuis & Van Knippenberg, 2000) and underlining pronouns in a proofreading task (Brewer & Gardner, 1996; Stapel & Tesser, 2001; Perugini, O´Gorman, & Prestwich, 2007), or the result of more explicit priming procedures, such as self-description tasks by deciding whether or not certain words describe oneself ("me vs. not me", e.g., Hippel, Jonides, Hilton, & Narayan, 1993; Klein & Kihlstrom, 1986; Rogers, 1977), thinking about oneself by listing important vs. unimportant personal attributes (e.g., Stapel & Tesser, 2001), self-characterization (ie., "What makes you who you are?", Kuhn & McPartland, 1954), and self-novelty manipulations (i.e., "What makes you different from other people?", McGuire & McGuire, 1981; Snow, Duval, & Silvia, 2003; Silvia & Eichstaedt, 2003; Perugini et al., 2007). Specifically, the self-characterization and self-novelty manipulations include a process of introspection; therefore, in the present work, "self-reflection" is used as the generic term for examining one's conscious inner thoughts and feelings. More precisely, it is a conscious mental process related to the Reflective System relying on thinking, which may result in private OSA (e.g., Silvia, 2002).

In the present studies, the self-novelty and the self-characterization manipulations were adopted to induce self-activation (SA); hence, these manipulations will be described in greater detail in this paragraph. Given that active attention and conscious awareness are required for these two SA manipulations, the result may be called either private self-awareness or self-activation. Specifically, in the self-novelty manipulation (used in Study 1 and 5), in the high self-focus condition, people write about how they differ from others by

responding to three questions: (1) What is it about you that makes you different from your family? (2) What is it about you that makes you different from your friends? and (3) What is it about you that makes you different from people in general? In the control condition, people write about three neutral topics. It is assumed that novel, distinctive, and salient stimuli attract attention (Koffka, 1935). Hence, one way to increase SA is to make individuals feel distinctive. Notably, such activated self-aspects do not necessarily have particular personal importance. Several studies have shown that this manipulation increases self-awareness (for a review, see Duval & Silvia, 2001). For example, in one study, participants who were told that their astrological pattern was very unusual (versus quite common) showed increased self-activation (Mayer, Duval, Holtz, & Bowman, 1985); similarly, feeling distinctive in the sense of minority status within a group also influences SA (e.g., Mullen, 1983). In contrast, in the self-characterization manipulation (used in Study 2 and 6), individuals have to respond to only one question, namely "What makes you who you are?". One advantage over the self-novelty manipulation is that here people mention only those aspects that are particularly salient and hence, presumably extremely self-descriptive, without activating a comparison process. From the perspective of the Reflective Impulsive Model, I assume that both induction methods affect the accessibility of self-related contents by reasoning processes. Because the Reflective System uses contents from the Impulsive System, thinking about the self as operation of the RS will alter the accessibility of self-knowledge and its associative connections in the IS. Noteworthy, some of the described procedures are not only used to manipulate SA, but also to measure it.

Suboptimal methods. Furthermore, there is a stream of research concerning the effects of suboptimal priming. This line of research will be only briefly discussed, because suboptimal methods were not employed in the present studies. When participants are suboptimally exposed to stimuli, they do not perceive them consciously, because the stimuli

are presented beneath the sensory threshold of human perception. Nevertheless, they can affect later thoughts, judgments, and behaviors. To illustrate with a study by Bargh and Pietromonaco (1982), after being suboptimally presented with words related to hostility, participants were more likely to judge the ambiguous behavior of another person as hostile. Analog effects were found for *self*-judgments, showing that students rated their research ideas more poorly after suboptimal presentation with a doubtful face of their advisor than after presentation to a smiling person (Baldwin, Carrell, & Lopez, 1990). Suboptimal presentations not only affect judgments but they also influence behavior. For instance, people behaved more aggressively towards another person after their concept of hostility had been suboptimally activated (Bargh, Chen, & Burrows, 1996; Chen & Bargh, 1997). Relating to the self, studies have demonstrated that suboptimal self-priming may also increase self-activation, supporting the above-mentioned notion that SA does not necessarily require conscious attention. In a study conducted by Dijksterhuis Preston, Wegner, and Aarts (2008) participants were suboptimally presented with *I*-primes vs. *control* primes in a lexical decision task. The results revealed that suboptimal self-primes that were given before an action increased the personal feeling of authorship for that action.

Measurement of the Self

In the following, the issue of measuring self-activation is addressed in more detail, which is particularly relevant for the present work, because I aim at demonstrating that a bidirectional link between goals and the self does exist; hence, SA has to be considered both as independent and dependent variable. For the most part, the effect of SA as an independent variable on judgments and behaviors was studied; to the present day, only few experiments have analyzed SA as a dependent variable; in part, the studies do not even include SA manipulation checks, and if they do, the results often yield no variations in self-activation between experimental and control groups. Therefore, the interpretation of the

findings often has to be based on group differences in the dependent measures. Already Duval and Wicklund stated, “We can think of no easy way to ask a subject how self-aware he is without creating self-awareness.” (1972, p. 221). Actually, conventional measures of self-activation like self-report scales or open-ended responses very often elicit self-directed attention. For example, the private Self-consciousness Scale uses items such as, “I reflect about myself a lot“, or “I’m generally attentive to my inner feelings” (German version by Hoyer & Kunst, 2001; Fenigstein et al., 1975). Similarly, completing the Situational Self-awareness Scale (Govern & Marsh, 2001) participants are asked to indicate “Right now, I am conscious of my inner feelings” (private self-aspects), or “Right now, I am self-conscious about the way I look” (public self-aspects). Similarly, self-monitoring is measured by asking, for example, “I’m not always the person I appear to be” (Self-monitoring Scale; Snyder & Gangestead, 1986). Another type of measure assesses open-ended responses (e.g., Greenberg & Pyszczynski, 1986). Here participants are asked to list their thoughts or write daily in their diary. Then, their statements are coded for self-related content. Similarly to self-report scales, the introspection that is required to answer the questions elicits self-attention, reducing the sensitivity of such measures. Moreover, because the coding systems often are not standardized, additional validity problems emerge. Another method is the selection of a pronoun that best fits a sentence (e.g., Davis & Brock, 1975), presuming that people high in self-awareness choose more self-pronouns.

There are only few procedures that assess implicit aspects of the self, bearing on implicit associations in the Impulsive System as described earlier. As mentioned initially, the first aim of the present work was to develop an implicit measure of self-activation, to avoid problems of traditional measures as described above. For example, one indicator for implicit associations is the latency with which people react on self-related words. Specifically, it is assumed that the accessibility of a self-related content is increased when

this construct has been recently activated. In this way, the components of the self-construct acquire a specific activation potential that makes these contents more readily accessible. Particularly, less subsequent activation is necessary for retrieval or further processing (RIM; Strack & Deutsch, 2004). The only measures of SA based on response latencies that could be found in the literature are the self-Stroop task (Higgins, Van Hook, & Dorfman, 1988; Segal & Vella, 1990) and a new measure using word recognition latencies (Eichstaedt & Silvia, 2003). First, in the self-Stroop task, activated semantic self-contents should interfere with naming the colour of self-relevant words, resulting in slower reactions to self-relevant stimuli. However, the evidence for the Stroop effect is mixed. For example, Mayer and colleagues (1985) measured latencies with the Stroop task and found increased Stroop interference for participants who were manipulated with self-novelty (i.e., "What makes you different from other people?"; Mayer et al., 1985). Other researchers primed with words that varied in self-relevance before presenting the target words, but did not find Stroop interference (Higgins et al., 1988; Segal & Vella, 1990). Hence, the validity and reliability of the self-Stroop task requires further testing. Second, Eichstaedt and Silvia (2003) examined SA with an implicit measure based on word recognition latencies. They presented subjects self-relevant versus neutral words and impeded the word recognition with flickering random letters to increase the semantic effects. It was hypothesized that subjects with both high self-consciousness and self-awareness should recognize self-related words faster, due to higher accessibility of self-relevant knowledge. This latency-based measure revealed the expected results for both dispositional and situational self-focus. Thus, it seems to be a promising SA measure and its effectiveness should be further examined in relation to other implicit methods. To anticipate, in the present studies this line of work was expanded by developing a new implicit measure of SA that operates with visual stimuli.

Structure, Content, and Operation of the Self

What follows is a review on the recurrent issues and major recent trends in research on the structural and operational characteristics of the self that might also explain some underlying processes in the present work. The conception of the self as it is understood in modern day psychology is generally attributed to William James (1842-1910). More precisely, in his account he includes diverse aspects of self, such as emotions of self, self-as-knower (the *I*) and self-as-known (the *Me*), as well as the analysis of attention, the stream of consciousness and thought. Importantly, and immanent in many later theories on the self, James describes the duality of our self-perception. Specifically, James stated:

> Whatever I may be thinking of, I am always at the same time more or less aware of *myself*, my *personal existence*. At the same time it is *I* who am aware; so that the total self of me, being as it were duplex, partly known and partly knower, partly object and partly subject, must have two aspects discriminated in it, of which for shortness we may call one the *Me* and the other the *I*. (James, 1892, p.159).

Thus, on the one hand the self is composed of the "knower" (the *I*), which is the active subject, engaging in self-reflection. Consequently, this executive *I*-self processes self-relevant information and may reflect upon behavior, may control it, and even anticipate future behavior. On the other hand, the self is the passive object of self-reflection and consists of thoughts and beliefs about oneself, referred to as the "known" (the *Me*). Based on James' idea of the duality of the self, in recent theories the *I* represents processes like self-awareness, introspection, self-recognition and access to the private self, whereas the *Me* incorporates the self-concept, which will be addressed in the next section.

In the time of behaviorism, the self was excluded as a legitimate topic of psychological research in mainstream psychology. However, in the 1950s, the empirical interest in the self reappeared and with it the development of measures of self-concept and diverse trait-assessments. Since the 1970s, influenced by the cognitive revolution, social psychologists

turned to examining the self as a knowledge structure, based on the main assumption that researchers could obtain substantial psychological insights only by including the underlying mental processes (e.g., Strack, 1988). This newer research, mostly in the domain of social cognition, embraced the self as object. Finally, with the use of the computer metaphor great advances were made in understanding the self structure (Greenwald & Pratkanis, 1984).

Self-Concept

Content. Within social cognition, theorists dealt with the self-concept corresponding to James' self-as-known and conceptualized it as a memory structure (Kihlstrom & Klein, 1994). Despite the fact that all self-theories work on the assumption that each of us has a self-concept, what is meant by self-concept often varies or is ambiguous. To begin with, self-concept and identity refer to the overall understanding a human being has of him- or herself (e.g., Oyserman, 2001). Thereby, the self-concept provides answer to the question "Who am I?" and "What am I like?". In this sense, the self-concept presupposes self-consciousness as described above concerning the *I*, but also includes the person's knowledge or beliefs about him- or herself. Specifically, self-concept is seen as what comes to mind when we think about ourselves (Neisser, 1993), it also is our theory about our personality (Markus & Cross, 1990), as well as an organizer of our experiences, the storage of our autobiographical memories (Markus & Wurf, 1987), and the knowledge of our abilities, traits, and hobbies. In particular, James' *Me* includes diverse interrelated aspects of the self: the material self (all aspects of material existence related to a strong feeling of ownership, possessions, bodies, families), the social self (feelings of our social relations), and the spiritual self (feelings of our subjective being, psychic dispositions). Furthermore, theorists assume that the self-concept includes both past selves and future selves (Markus & Nurius, 1986; Oyserman, 2001). Future selves are "possible selves" that represent what persons would like to become, and what they are afraid of becoming. They relate to hopes,

fears, standards, and goals, provide an evaluative and interpretive context for the current view of the self, and also may motivate future behavior. Possible selves will be addressed in more detail in the third section on possible links between goals and the self.

Structure and Operation. There are different assumptions on the structure of the self-concept. For example, some psychologists have the idea of the self-concept as a schema (Markus, 1977), whereas other self theorists conceptualize it as a hierarchical category (Carver & Scheier, 1981; Rogers, 1981), and again others adopt the notion of the self-concept as a node in an associative network (Bower & Gilligan, 1979; Kihlstrom, Beer, & Klein, 2003). However, it is difficult to test the different ideas on the structure against one another, because they yield very similar predictions concerning judgments and memory processes. Albeit the question on the structure of the self-concept is an ongoing issue in the understanding of the self, it goes beyond the scope of this thesis to illustrate in depth the empirical findings that address this discussion. For the present proposal it is only relevant to conceive how the self can become activated due to its structure, i.e., whether it may become activated by each of its components. As discussed earlier in the section on the activation of the self, it seems that the same mechanisms that guide not self-related constructs (e.g., accessibility), might also be applied to self-activation. Notwithstanding, some authors assume that self-related constructs are characterized by specific qualities, for example self-referential encoding (Kuiper & Rogers, 1979; Markus, Crane, Bernstein, & Siliadi, 1982; Rogers, Kuiper, & Kirker, 1977). In particular, they find better recall for stimuli that are encoded in reference to the self compared to stimuli with structural or semantic encoding (Rogers et al., 1977) and stimuli that are judged to be self-descriptive (Derry & Kuiper, 1981). However, the studies conducted to prove the idea of self-referential encoding seem to have some methodological problems and the results might also be explained by differences in quantity of self-related contents compared to other memory structures.

Likewise, Linville and Carlston stated, “the self is almost certainly ordinary in the sense that it must obey the same general laws of cognition that govern other cognitive structures“ (Linville & Carlston, 1994, p. 173). In line with this assumption many other researchers support the idea that the self does not differ qualitatively from other highly accessible constructs (Bargh, & Pratto 1986; Higgins, 1990; Higgins & Bargh, 1987; Kihlstrom et al., 2003). This being said, in the present proposal it is assumed, too, that the self-concept (a) operates like other mental representations, (b) consists of a greater quantity of information than not self-related constructs even if these are highly accessible (e.g., Linville & Carlston, 1994); (c) is a hierarchical structure consisted of differentiated knowledge (e.g., Markus, 1977); (d) is more idiosyncratic than other constructs (e.g., Strack, Förster, & Werth, 2005); and (e) consists of more experiential and sensory information (e.g., Stepper & Strack, 1993). To illustrate the latter, in line with recent theories of embodied cognition, Schubert and Koole (in press) posit that the self-concept may be embodied in sensory-motor representations. They examined the effects of body feedback from a gesture associated with power (making a fist) on the self-concept. The results revealed, that only male (not female) subjects making a fist perceived themselves as more assertive, esteemed, and showed stronger associations between self and power, suggesting that people's conceptions of themselves are partly grounded in physical experiences (Schubert & Koole, in press).

Moreover, the idea of stability versus malleability of the self-concept seems variable across research methodologies, and is important for understanding how the self operates in a specific situation. I will address this issue in more detail in the section after next.

Motivated Self

After focusing some years on the self-as-known (the *Me*) and making great advances in understanding the structure of the self-concept, researchers soon began to go beyond the self as an object and to look at it as an active “doer”, similarly to James’ *I*. Since the 1980s,

research on the self has put greater emphasis on the motivational mechanisms that guide social behavior, and acted on the assumption that there are different self-motives, such as self-presentation, impression-management, self-verification, self-enhancement, self-assessment, and many others that drive self-regulation and self-evaluation processes. The operation of such motives might explain some processes that occur when people see pictures of themselves in the newly developed SA measure (e.g., Study 1 and 2). Just to illustrate some of them, self-presentation and impression management refer to the motive to create a certain impression in front of others (e.g., Baumeister, 1982; Schlenker, 1980; Tedeschi, 1981); the self-assessment motive reflects a motivation for accurate self-knowledge (e.g., Dunning, 1995; Festinger, 1954; Trope, 1980); the self-verification motive refers to a motivation to seek feedback that confirms one's positive or negative self-views (e.g., Bernichon, Cook, & Brown, 2003; Swann, Pelham, & Krull, 1989); self-completion comprises the motive of a perfect self-definition, being concerned with the contents of self-presentation (e.g., Wicklund & Gollwitzer, 1982); whereas the self-enhancement motive refers to a motivation to maintain or enhance the positivity of one's self (e.g., Dunning, 1995; Kunda, 1990; Taylor & Brown, 1988). In this respect, the self-concept was now studied as an information structure with certain cognitive, but also affective features, evaluations, goals, expectations, beliefs, and desires (see Hoyle, Kernis, Leary, & Baldwin, 1999; Kihlstrom & Cantor, 1984; Kihlstrom et al., 1988). However, the renaissance of the motivated self, again, brought up the classic dilemma of the self as a causal agent, leading to a return of the homunculus threat. Now, the challenge was how to conceptualize the motivated self as an agent while avoiding the homunculus idea. To meet these requirements, self-regulation models (Carver & Scheier, 1981; Higgins & Kruglanski, 1996) addressed in depth the specifics of the processes that underlie self-regulation by considering, for example, concepts such as feedback loops and the use of cognitive strategies (e.g., Mischel,

Cantor, & Feldman, 1996) and, thus, going beyond the mere naming of self-motives. Furthermore, depending on the motives that are active, different self-views might be salient. In the next paragraph I will address this issue of the self that is particularly salient and active in a specific situation.

Self: Stable or Malleable?

As mentioned before, another phenomenon that is being controversially discussed in theory and research is stability versus malleability of the self-concept. In the past, the self was often conceptualized as a unitary construct that remains invariant across situations (e.g., Swann, 1985). The main assumption was that individuals have a stable set of personality traits, which are resistant to change, resulting in similar behavior across contexts. However, in the past decades, a considerable amount of research on the spontaneous self-concept (McGuire & McGuire, 1981, 1988) and priming (e.g., Banse, 1999, 2001; Baldwin et al., 1990; Hannover, 1997; Markus & Kunda 1986) has shown that the self is a highly malleable construct. More precisely, these approaches emphasize that, overall, the self-concept may be stable; however, different self-representations can be activated by contextual influences. Consequently, an individual's momentary self-view may depend on a subset of self-information, referring to as the "working self-concept" (Markus & Kunda, 1986; Markus & Wurf, 1987). The working self-concept is understood as being a temporary structure that is composed of currently active self-contents, and changes depending on the person's internal states (motivational states) and the social context (e.g., Brewer & Gardner, 1996; Markus & Kunda, 1986). For example, subjects were presented with charismatic versus individualized messages and subsequently generated answers to the question "Who am I?". The results revealed that charismatic messages increased the accessibility of collective self-cognitions, while individualized messages increased accessibility of the private self (Paul, Costley, Howell, Dorfman, & Trafimow, 2001).

In her concept of the dynamic self, Hannover (1997) posits that both structure of the self-concept and processes that work on this structure determine the context-dependent self. Despite the fact that the idea of a dynamic self was at least implicitly held in approaches on the motivated self (e.g., self-presentation, Schlenker 1980) as well as in assumptions about situational altering levels of self-awareness (Duval & Wicklund, 1972), the underlying processes have not been analyzed in these contexts. Concerning the structure of the self, Hannover (1997) assumes that self-related knowledge is organized around different contexts and hence is *multiple* (see also James, 1892). Additionally, the self is *flexible*, because in a particular context only a part of the self-knowledge clusters is accessed, depending on relevant associations and requirements of the situation or of a person's motives and need states. That is, specific cues in the situation or in the person make the corresponding self-knowledge highly accessible, which in turn assimilates responses towards the implications of the activated self-contents. This leads to context-dependent self-judgments, as well as behaviors and affective reactions that refer to that particular context. As mentioned before, the extent of the hierarchical structure of the self-concept (as schema, category, and associative node) determines how the self-construct as well as discrete self-relevant information can become activated.

In the assumption of a dynamic self, Hannover (1997) posits that (a) the self-concept is organized hierarchically and may become activated through any single associated information, (b) self-information is organized around different contexts, (c) associations of self-relevant information are stronger within the same context, and (d) activation spreads first within the same contexts and then to other associated clusters. A study exemplifying the effects of the dynamic self revealed that even subtle manipulations like the language pronunciation of the experimenter altered the accessibility of subjects' self-contents. This

working self-concept influenced subsequent self-descriptions, self-esteem and even memory, as assessed by a word completion task (Hannover, 1997).

Particularly relevant for the present proposal is the fact that goals are also included in this model. Hannover (1997) assumes that goals are associated with the self in knowledge clusters around a specific context. Specifically, like other attributes, goals are linked to other contents in a self-cluster, being also associated with experiential and sensory information. As mentioned above, it is expected that activation spreads from every possible node within one context, suggesting that activating goals should activate the self-concept; this should and first occur within the same contexts and then spread to other associated self clusters. In the following, I will address different modes in which individuals may process self-related information that becomes activated in a specific context to provide a better understanding of possible mechanisms underlying the manipulations in the present studies.

Explicit and Implicit Self-Processes

According to several dual-process accounts, people process social information not only in an explicit but also in an implicit way (e.g., Greenwald & Banaji, 1995). More precisely, in these models the explicit mode refers to conscious, controlled or reflective information processing, whereas the implicit mode implies unconscious, automatic, or intuitive processing. As already mentioned, according to the Reflective Impulsive Model (RIM; Strack & Deutsch, 2004) the division into implicit and explicit is based on the psychological processes and operational characteristics, instead of mental contents or the presence of consciousness. Already early research on the operation of the self suggests that besides explicit operation the self might also work in an automatic way (e.g., Nuttin, 1985; Rogers et al., 1977). In the following, some research on explicit and implicit operation of the self will be reviewed in order to integrate the processes involved in our experimental manipulations. To reiterate, even though several authors address implicit and explicit

mental *contents* (e.g., Kihlstrom et al., 1988; Spalding & Hardin, 1999), in the present work the term implicit is used to refer to processes that occur in the IS without reflective control. Specifically, implicit self-processes are based on spreading activation within the associative network of the self-concept, and individuals are only aware of the results of the operations; in contrast, explicit self-processes - located in the RS - are operations that are based on deliberate self-judgment and decision processes.

Explicit. As already posited by James (1890), individuals are self-conscious, reflect on their experiences, and deliberate about the meaning of things. It seems that the self is involved in taking decisions, making choices, and pursuing goals. A relevant stream of research on OSA theory (Duval & Wicklund, 1972) demonstrated that directing conscious attention to the self (e.g., through self-reflection) does change information processing and behavior, leading people to behave in line with their values that are salient in a particular situation. Noteworthy, these effects of standard-consistent behavior under high self-awareness were mostly observed on overt behavior, as well as on judgments and decisions measured with explicit methods (e.g., picture-ratings, Gibbons, 1978; stealing sweets, Gibbons, 1990; verbal expression of stereotypical thoughts, Macrae, Bodenhausen, & Milne, 1998). In a sense, then, self-awareness effects may be viewed as being related to controlled processing. The findings suggest that the link between SA and behavior is related to a specific type of information processing, and the self may come into action when people regulate themselves. According to Silvia and Duval (2001) the self may serve as a standard for one's behavior, resulting in reflective processing, and standard-consistent behavior. Thus, SA may be the cause as well as the consequence of reflective processing.

These findings lead to the question whether deliberative thinking *always* involves the self. According to the RIM (Strack & Deutsch, 2004) not all types of reflection comprise the self. The RS transforms knowledge and is responsible for symbolic operations in a more

general way and operates whenever individuals engage in deliberative judgments. Of course not all kinds of factual or evaluative decisions involve the self. However, when, for example, positively judged targets and long-term consequences are pursued, the self might link evaluative decisions with overt behavior (Study 3 to 6). So, it is assumed that the self comes into action when people begin to act on the basis of judgments in the RS. However, the self seems to operate also in an implicit way, as will be described in the next paragraph.

Implicit. As presented above, the self is often conceptualized in terms of conscious, reflective mechanisms. In what follows I will look at some findings on the operation of implicit processes, which demonstrate that operations related to the self might also occur automatically. Several studies on implicit self-processes focus on their link with explicit attitudes (e.g., name letter evaluations, Nuttin 1985; Paulhus, 1993), associated cognitive and affective processes (e.g., self-Stroop task: Higgins et al., 1988; affective consequences of self-discrepancies: Strauman & Higgins, 1987), and social influences on the self-concept. In this context, research in the domain of group processes showed that group membership can automatically become associated with the self, and self-assessments are influenced by automatically associated knowledge about groups (e.g., Devos & Banaji, 2003; Nosek, Banaji, & Greenwald, 2002). Furthermore, studies revealed that self-esteem measured with implicit methods was considerably different from self-esteem measured with explicit methods (e.g., Bosson, Swann, & Pennebaker, 2000; Greenwald & Farnham, 2000). Across some further studies, name letter evaluations were positively biased, confirming that self-esteem is generally positive when measured implicitly; however, implicitly measured self-esteem became inhibited when participants were led to respond in a deliberative manner (Greenwald & Banaji, 1995). Moreover, studies found that implicit measurements corresponded with self-reported self-evaluations, but only when people were evaluating themselves very quickly or under cognitive load (Paulhus, 1993). Also, Asendorpf, Banse,

and Mücke (2002) showed that there is a moderate correlation between Implicit Association Test for shyness and explicit shyness judgments. The study yielded that the implicitly measured self-concept of shyness significantly improved the prediction of spontaneous shy behavior in social situations (i.e., body tension) but not the prediction of controlled behavior, whereas explicit judgments uniquely predicted controlled behavior (i.e., speech) but not spontaneous behavior (Asendorpf et al., 2002).

Conclusions. To conclude, it becomes clear that the self may operate on both the implicit (pertaining to processes in the IS) and the explicit level (pertaining to processes in the RS). The reported results indicate that implicitly measured self-aspects predict spontaneous or highly automatized behavior better than controlled behavior, whereas explicitly measured self-aspects predict controlled behavior better than spontaneous behavior (e.g., Asendorpf et al., 2002). Studies on the relationship of explicit and implicit measures of self-concept find low to moderate correlations (e.g., Banse & Gawronski, 2003; Greenwald & Farnham, 2000; Spalding & Hardin, 1999). However, low correlations between explicit and implicit measures may also be due to the low reliability of the implicit measures and do not necessarily provide evidence that implicit and explicit self-processes are dissociated. To anticipate, in the present studies I focused on reflective processes by using self-reflection and thinking about goals as a means to activate the self. Moreover, as dependent measure a new implicit method based on response latencies was adopted to assess SA; as indicators for goal activation I assessed explicit judgments, observed overt behavior, accessibility of goal-related words, as well as approach motivation. Hence, in the present studies both explicit and implicit dependent measures were employed after having activated the self with a deliberate task. Similarly, Perugini and colleagues adopted a subtle method of SA (circle pronouns by Brewer & Gardner, 1996) and a reflective task (self-novelty), as well as implicitly and explicitly measured attitudes to predict self-reported

behavior and explicit judgments. The results revealed that both manipulations led to a better prediction of behavior by the IAT in the high SA condition. Furthermore, one study yielded that SA activated not only automatic associations but also corresponding propositional evaluations, indicating that the self can work at both the implicit and the propositional level (Perugini et al., 2007). However, the results of the other studies suggest that SA mainly enhances associative structures depending on the demands of the subsequent task, suggesting that increased accessibility is the underlying process.

To summarize, from research and theories reported on the self the following aspects are particularly relevant for the present work: (1) the self-concept can be seen as a knowledge structure containing the total amount of information a person encodes in memory during the course of his or her life (e.g., body features, traits, beliefs), including past, current, and future selves (e.g., Markus & Nurius, 1986); (2) the self operates on the same principles as knowledge structures in general (e.g., self-activation, accessibility; e.g., Linville & Carlston, 1994); (3) hence, situational SA manipulations function as cognitive primes to temporarily increase the level of accessibility of self-knowledge (e.g., Duval & Wicklund, 1972); similarly, high self-consciousness is associated with an increased chronic accessibility of self-knowledge; (4) different self-motives lead to a specific self-view that is salient in a particular context, driving behavior to satisfy these motives (e.g., Kunda, 1987); (5) the self is flexible, and the part of it that is operating in a specific context is conceptualized as the working self-concept, which is changing as a result of individuals' internal states and the requirements of the situation (e.g., Hannover, 1997); (6) the self may link judgments and behavior when people engage in reflective information processing leading to more attitude-consistent behavior (e.g., Ajzen, Timko, & White, 1982); (7) there are only few measures of SA that are not susceptible to self-presentation concerns and focus on implicit aspects pertaining to processes in the IS (e.g., Eichstaedt & Silvia, 2003); and (8) when the self is

measured implicitly it predicts spontaneous behavior better than controlled behavior, whereas when the self is measured explicitly it predicts controlled behavior better than spontaneous behavior (e.g., Asendorpf et al., 2002). In the following, theoretical accounts and empirical findings on the topic of goals will be reviewed.

Goals in Social Psychology

Much of what people do, what they think about, or what they feel is connected with the goals they are trying to attain. Goals influence major life decisions, such as starting a family, as well as everyday choices, such as where to go for lunch. Generally speaking, a goal is something a person desires or wants to attain, because it is rewarding. More specifically, a goal can be defined "as a cognitive representation of a desired end-point that impacts evaluations, emotions and behaviors" (Fishbach & Ferguson, 2007, p.3). Goals have been explored ranging from single task goals to lifelong objectives. In the following, some approaches in the study of goals will be reviewed, like their structure, content, and operation, including the unique features of goals, different ways in which they become activated, and aspects of goal striving that might be relevant for the present studies.

Structure, Content, and Operation of Goals

In the goal literature, terms like reference values, standards, goals, or desired end-states are often used synonymously. For example, Carver and Scheier explicitly state that they "use the terms goal, standard, and reference value interchangeably" (Carver & Scheier, 1998, p. 306). In the present proposal, the term "standard" will refer to a reference value for a desired state or behavior in the *present*; the terms "goal" and "desired end-state" will refer to desired states or behaviors in the *future* (see also Boldero & Francis, 2002); "reference values", on the other hand, will serve as the umbrella term to encompass all the goal related constructs discussed above.

Goal Structure

Researchers in the past century have mostly acted on the assumption that goals are cognitive representations in memory (e.g., Hull, 1931; Kruglanski, 1996), implying that they have many of the same properties that more generally characterize knowledge

structures (Fishbach & Ferguson, 2007). Thus, the same principles that apply to acquisition, activation and change of knowledge structures in general should also apply to goals, similarly to the mechanisms I described for the self as a knowledge structure. Specifically, as a first common characteristic of goals and mental representations the *accessibility* of goals should vary both situational and chronically (e.g., Förster & Liberman, 2007; Förster, Liberman, & Higgins, 2007). Furthermore, *multiple memories*, such as means or different opportunities of goal attainment, should be part of any given goal. Specifically, one goal should be related to a wide number of memories, which may have developed either through direct experience or through adoption of knowledge. Another characteristic of knowledge structures refers to the *activation* of memories by priming, assuming that the activation of one memory at the same time automatically activates those memories that are associated with it (e.g., Bargh et al., 1996; Devine, 1989). Such associations can be either facilitative or inhibitory in nature. I will address this issue of goal activation as well as the handling of conflicts between overriding goals and short-term desires later in greater detail by presenting goal systems research conducted by Kruglanski and his colleagues (2002).

Goal Content

But what types of knowledge do goal memories consist of? Considering that goals are mental representations of desired end-states, they first and foremost contain either concrete or abstract information about such reference points (a.k.a. end-states) toward which behavior is directed (Kruglanski, et al., 2002; Miller, Galanter, & Pribram, 1960). Concerning the content and origin of overall end-states, it is further assumed that our goals sometimes consist of our ideals and sometimes of obligations that significant others expect us to fulfill. Hence, although personal goals may often arise from internal sources, such as personal needs of competence, autonomy, and relatedness, they may also result from external sources, such as parents, or other authorities (Deci & Ryan, 2000; Higgins, 1997).

However, goals also include the variety of behaviors, procedural information and objects that enable a person to reach that desired end-state. The representation of the means for goal attainment may also vary in abstractness, and any end-state can be understood at the same time as a means for a higher-order end-state. In such a hierarchical organization, the terms "end-state" and "means" can be used interchangeably, and are meaningful only in relation to one another (Kruglanski et al., 2002).

Fishbach and Ferguson (2007) share the assumption that goals consist of information about overall end-states, as well as of behaviors and objects that are needed for attaining the very same end-states. But this knowledge alone does not constitute a goal. Another important feature of goals is that they are *desired* end-states (Carver & Scheier, 1981; Custers & Aarts, 2005). Thus, they also involve a reference point that comprises evaluative information. Specifically, a goal should be associated with positive affect, which represents its motivational power to guide behavior (Atkinson, 1974; Tolman, 1932). It is this very motivational characteristic that might constitute the uniqueness of goals.

Goal Systems Theory

In social psychological theories, motivation and cognition are often treated as separate phenomena. Goal Systems Theory (GST, Kruglanski et al., 2002) has adopted a "motivation as cognition approach". Specifically, GST is concerned with the structure of goal systems by considering the joint dynamics of cognition and motivation. As the general basis of their theory, Kruglanski and his colleagues (2002) suppose that many thoughts are motivational, including, goals, means of goal attainment, as well as discrepancies between actual and desired future states. GST makes predictions about the ways in which goals are mentally represented and how goal representations finally affect motivated action and self-regulation. Overall, the authors posit that the structural and allocational properties of goal systems are the same as for other cognitive systems, being characterized by interconnected nodes that

differ in associative strength to one another. Moreover, based on the assumption of limited mental resources, goal pursuit is considered resource-dependent, too. Consequently, goals that are active at the same time pull resources away from one another and alternative means to the same goal also compete for mental resources. Kruglanski and his colleagues (2002) posit that what makes goal systems unique are their motivational components (i.e., subjective utility, affective feedback, and persistence).

In particular, GST describes a network of cognitive associations differing in form and strength between goals and their means (vertical connection), between goals and alternative goals (lateral elements), as well as between means and other means (lateral elements). The structure of the goal system is hierarchical, with superordinate goals that are cognitively connected to different subgoals, which are in turn connected to their own means of goal attainment. Importantly, automatic associations may develop between goals and other representations, which are frequently and consistently activated at the same time (Bargh & Ferguson, 2000; Kruglanski, 1996). These associative links may be either facilitative (e.g., between superordinate goals and their means of attainment) or inhibitory (e.g., between two competing goals). For example, the activation of goals facilitates recognition and memory for means of goal attainment: Aarts, Dijksterhuis, and De Vries (2001) induced a drinking goal by manipulating participants' thirst. Subsequently, thirsty subjects revealed a greater accessibility of drinking-related words in a lexical decision task and were better in recalling drinking-related objects. Further studies demonstrated that when goal representations are activated, those stimuli that can facilitate the goal are evaluated more positively (e.g., Ferguson & Bargh, 2004; Sherman, Rose, Koch, Presson, & Chassin, 2003), whereas those stimuli that undermine the goal obtain more negative evaluations (e.g., Ferguson, 2006; Trope & Fishbach, 2000). In almost the same manner, the activation of one goal may also automatically lead to the inhibition of another, competing goal, resulting in a lower

accessibility of the other goal. Thereby, the degree of goal inhibition is greater for goals that apply to the same situation, but consist of different strategies for goal attainment (Shah, Friedman, & Kruglanski, 2002; see also e.g., Fishbach, Friedman, & Kruglanski, 2003). For example, results revealed that an increased accessibility of a competing goal impeded task persistence and performance (Shah & Kruglanski, 2003). Mc Culloch and colleagues also found an inhibition of competing means (Mc Culloch, Aarts, Fujita, & Bargh, 2008).

Finally, studies demonstrate that there are automatic goal associations between conflicting low- and high-priority goals. The results further yield that the association between temptations and goals appears to be asymmetrical. For example, for several self-regulatory domains, Fishbach and her colleagues (2003) showed that cues of current tempting short-term objectives activated the corresponding high-priority goals with which they interfered. However, activation of high-priority goals inhibited the short-term motives or led to more negative evaluations of words related to the low-priority goal (e.g., Ferguson, 2006).

Applied to the present thesis, I agree that individuals have different self-views of what they value highly in life and what means of attainment they habitually choose. These individual self-views are activated with different frequencies, resulting in different chronic accessibilities of certain self-representations and goals. Consequently, people differ in their chronic goal structures due to diverse socialization histories and experiences. From a self-regulatory perspective, however, it may be that, regardless of specific self-views, the self is often activated together with high-priority goals so that reflective processing and behavior control are possible and goals can be attained. In this way, automatic associations between goal constructs and the self may form, too. This mechanism might be functional for successful self-regulation.

Uniqueness of Goal Constructs

As mentioned above, Kruglanski and his colleagues (2002) presumed that goals share many properties of memory structures in general. However, some unique properties might distinguish goals from other types of knowledge structures. First, many authors have distinguished goals from other constructs by the unique properties of the effects that goals have on behavior (Aarts, Gollwitzer, & Hassin, 2004; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001; Shah & Kruglanski, 2003). Specifically, studies showed that the activation of a goal does not decay until the goal has been reached (e.g., Förster, Liberman, & Higgins, 2005), whereas activation of only semantic knowledge rapidly dissipates over time (e.g., Bargh et al., 2001). Specifically, goals as well as efforts to achieve them stay active until the discrepancy is reduced (Lewin, 1935) and may even increase over time (McClelland, Atkinson, Clark, & Lowell, 1953).

Furthermore, it is assumed that goals consist of more experiential information than other constructs (see also Hannover, 1997; Kruglanski et al., 2002). As mentioned above, they comprise affective information concerning the desired end-state and the means of attainment and might be characterized by a multifaceted encoding of information, which also might include more sensory information. Kruglanski, too, posits that motivational components make goal systems unique, i.e., the subjective utility determines goal commitment, which is expressed in the persistence with which a goal is pursued; also, success and failure of goal attainment engender affective feedback.

Finally, it could be argued that goals are more tightly linked to the self-concept than other knowledge structures. Many theories imply such a connection between goal constructs and self-concept, but they do not further specify it. For example, it is argued that the self-concept includes mental representations of personal goals (e.g., Cross & Markus, 1991; Higgins, 1987; Markus & Nurius, 1986; Lee & Oyserman, in press).

To reiterate, the same mechanisms seem to apply to goals as to knowledge structures in general, indicating that (a) goals may be characterized by an increased situational and chronic accessibility of desired end-states and means; (b) goals consist of many associated memories (end-states, means, affect); (c) they consist of motivational components that make them different from other cognitive structures (GST; Kruglanski et al., 2002); (d) goals have unique effects on behavior (e.g., activation decreases only *after* goal-attainment). In the following, literature on different conditions for the activation of goals will be reviewed, considering both research on implicit and explicit processes in goal activation, in order to deduce the manipulations that are used in the present work.

Goal Activation

Thinking About Goals

Classic research on goals assumed that the degree to which a person is consciously thinking about a goal determines the likelihood that the person will pursue it (e.g., Ajzen, 1991; Bandura, 1986; Gollwitzer, 1990; Lewin, 1926; Locke & Latham, 1990). For example, when an individual thinks about wanting to have fun at the carnival's party tonight, this goal becomes activated via deliberate thought and the person might intentionally decide to wear a costume for the party. Due to the structural characteristics of goal constructs discussed above, thinking about any stimulus that is strongly associated with a particular goal should be sufficient to activate it (e.g., Gollwitzer, 1999). Gollwitzer (1999) assumes that making plans, i.e., thinking about goal-relevant actions and the implementation of intentions, are important mental strategies toward goal attainment. Especially in the domain of goal setting, intentional thought is seen as a necessary condition for anticipating and choosing goals (e.g., Heckhausen & Gollwitzer, 1987). Of course, thinking about goals, in turn, should activate them. In the present work, too, I used the mere thinking about personal goals in order to activate them.

Significant Others and Goal-Activation

As mentioned above, although personal goals may often arise from internal sources, such as personal needs, they may also result from external sources, such as from authorities, or significant others (e.g., Deci & Ryan, 2000; Higgins, 1997). Consequently, individuals sometimes pursue their own ideals, and sometimes they pursue obligations that significant persons have for them. Of course, individuals may gradually internalize the goals others expect them to pursue, but it has been shown that others can also automatically trigger goal pursuit. For example, Shah (2003) demonstrated that significant others automatically elicit goal pursuit, indicating that they direct us toward and away from certain goals by increasing the salience of goals those persons represent for us.

Shah's studies raise the question whether the effects of significant others on goal pursuit might be moderated by an increased self-activation. Priming others who are important to oneself might activate self-relevant aspects resulting in a heightened SA, which in turn might increase the accessibility of ideal or internalized goals. This idea is supported by the findings that the priming effects were stronger for participants who indicated to have a close relationship to the significant other, e.g., their father. This has also been pointed out by Shah (2003) who states, "these representations have been […] closely linked to the concept of the self and the process of self-regulation" (p. 662), implying that the self plays a key role in goal-activation by significant others.

Methods to Activate Goals

Supraliminal. If the general principles of knowledge structures also apply to goal activation, then, the mere perception of goal related stimuli might activate the corresponding goal-structure (e.g., Bargh & Barndollar, 1996; Shah & Kruglanski, 2003). Bargh and Gollwitzer (1994) have demonstrated in their studies that semantic priming affects goal activation appropriately. Specifically, they semantically primed the goal of

either achievement or affiliation, and then placed participants in a conflict between those two goals. The results revealed that participants who were primed with an achievement goal performed better when paired with an incompetent confederate in a team task than subjects primed with an affiliation goal, indicating that participants tended to solve the conflict by assimilating their behavior to the primed goal construct. Furthermore, participants persisted significantly longer on a performance task when they were previously primed with an achievement goal (vs. neutral goal). The greater persistence, which may be seen as a property of goal pursuit, implies a motivational process underlying the behavioral effects, and hence, accounts for alternative explanations such as that the effects were only due to an activation of behavioral schemata. In a study by Chartrand and Bargh (1996), participants were primed with either a memory or impression formation goal via scrambled sentence task (see Srull & Wyer, 1979) and subsequently read behaviors about a fictional person. Results in a subsequent recall test showed that participants who were primed with impression formation words processed the information about the fictional target like persons do who intentionally try to form an impression. Similarly, in another experiment, priming cooperation via a scrambled sentence technique led participants to behave more cooperatively in a game, identical to those explicitly instructed to cooperate (Bargh et al., 2001). In other studies, where participants circled achievement-related words (e.g., *win*, *compete*) in a word matrix (e.g., Stajkovic, Locke, & Blair, 2006), the findings yielded that the mere perception of words related to the goal-construct led to behaviors in line with the activated construct. However, it seems important to distinguish between actual goal-directed behavior characterized by the decision to act on the primed construct and higher persistence to attain the goal on the one hand, and behavior that is only the consequence of increased accessibility of a construct in the Impulsive System (Strack & Deutsch, 2004) and leads the activation of corresponding behavioral schemata on the other hand.

Suboptimal. Even though not incorporated in the present studies, it should be noted that according to several researchers goals can be activated subconsciously to affect outcomes (e.g., Bargh, Chen, & Burrows, 1996; Bargh & Chartrand, 1999; Shah & Kruglanski, 2003). Research on goal activation conducted by Bargh and his workgroup has found evidence that for example, achievement, and affiliation (see Bargh & Gollwitzer, 1994), as well as helping (Fitzsimmons & Bargh, 2003), and impression formation goals (Chartrand & Bargh, 1996) can be nonconsciously activated by environmental cues and are then applied to the tasks that follow. Experiments on nonconscious goal activation use a variety of methods, such as lexical decision tasks with suboptimally presented goal primes (Bongers & Dijksterhuis, 2009; Shah et al., 2002); here, the primes are presented very briefly in the participant's parafoveal field and are immediately masked with a non-word letter string, making it highly unlikely to consciously process them (see Bargh & Chartrand, 2000).

To summarize, the findings reported on goal activation suggest that goals not only become activated when people think about them (as in the present Study 3 and 4), but they can also be primed, i.e., conscious or nonconscious perception of a goal-related stimulus can suffice for goal activation. Furthermore, it seems that priming of significant others also activates the corresponding mental representations and - moderated by the closeness of the relationship to the significant other - can increase goal accessibility and goal commitment.

Goal Striving

So far, in the studies presented above, goal activation was inferred from overt behavior, such as performance in an achievement task or cooperation in a game. In this section some possible mediators between goals and overt behavior will be discussed in order to identify the underlying processes in goals influencing behavior. In the following, characteristics of

goal pursuit will be introduced, as they are relevant for the dependent measures that were chosen for the present studies.

Goal-Relevant Knowledge

As discussed before, a goal can be activated by a cue that increases the accessibility of goal-related stimuli. However, at the same time the accessibility of goal-related knowledge might be the consequence of goal striving, suggesting that during goal pursuit goal-relevant contents should be more accessible than before goal initiation or after goal attainment. In this respect, in the present studies increased accessibility of goal-related stimuli served as indicator for goal-activation. There are numerous recent supports for the claim that an active goal increases the accessibility of goal-related knowledge (Aarts et al., 2001; Balcetis & Dunning, 2006). Studies that tested whether knowledge related to an active goal automatically captures attention revealed that stimuli related to the fulfillment of the goal become more accessible and automatically attract attention (e.g., Moskowitz, 2002). Similarly, it will be recalled that in their thirst studies, Aarts and his colleagues (2001) showed that the accessibility of goal-related knowledge determines the stimuli participants pay attention to. Not only did thirsty subjects reveal greater accessibility of drinking-related words in a lexical decision task but they also were better in recalling drinking-related objects. Furthermore, studies conducted by Balcetis and Dunning (2006) demonstrated that accessibility of goal-related knowledge also influences what persons actually see in their environment. Their participants perceived ambiguous figures according to the type of knowledge that was made accessible before (see Bruner, 1957; Fazio & Williams, 1986; Fiske & Taylor, 1991). Finally, Förster and his colleagues (2005) provided evidence that the completion of goal pursuit leads to inhibition of goal-related knowledge. Altogether, the results indicate that during goal pursuit goal-related contents are highly accessible, whereas

this accessibility declines after goal attainment below the level of control participants (see also Goschke & Kuhl, 1993; Marsh, Hicks, & Bink, 1998; Marsh, Hicks, & Bryan, 1999).

Approach-Avoidance Motivation and Goal-Directed Behavior

In what follows, I will explore how active goal pursuit affects people's behavior and motivational tendencies towards goal-related stimuli, because in the present work both approach-avoidance motivation (in Study 5) and goal-directed behavior (Study 6) will be used as indicators for an activated goal. Even though the research presented above examined the effects of goals on knowledge activation, it ultimately was conducted to predict behavior. A large number of studies demonstrated that goals influence how people choose to react and behave (e.g., Bandura, 1986; Carver & Scheier, 1998; Deci & Ryan, 2000; Gollwitzer, 1990; Locke & Latham, 1990; Mischel, Cantor, & Feldman, 1996; Fiske, 1989; Norman & Shallice, 1986). For example, Hoyle and Sherill (2006) showed that goal-activation motivates goal relevant behavior; in their study they primed healthy college students with their (healthy) hoped-for and their (unhealthy) feared possible selves and assessed overt health-related behavior. Students in the feared possible self condition were more likely to choose to work with a personal trainer and to choose more health brochures, indicating that a health-related goal has been activated.

In addition to such overt goal-directed behaviors as in the study described above and in the section on goal priming (e.g., achievement, Bargh & Gollwitzer, 1994; impression formation, Chartrand & Bargh, 1996), goals also influence more subtle types of behavior. To illustrate, a study exemplifying the influence of goals on more subtle actions was reported by Fishbach and Shah (2006); in their experiments they showed that people have implicit behavioral dispositions (to approach, or to avoid) towards objects that they constantly desire (high priority goals) or refuse (low priority temptations). Previous research has demonstrated that pulling movements are faster in response to objects people desire,

whereas pushing movements are faster in response to undesirable objects. Using this paradigm, Fishbach and Shah (2006) measured subjects' implicit behavioral responses toward goal-related and temptation-related stimuli by asking participants to push or pull a joystick as response to the stimuli. The results revealed that in response to goal-related words, participants were faster to pull a joystick toward them compared to pushing it away from them, and vice versa for temptation-related words. Moreover, these implicit approach and avoidance responses predicted overt behavior. To anticipate, similarly in Study 5 approach motivation to goal-related words served as indicator for goal-activation.

Aarts and his colleagues (2005) employed other behavioral measures as indicators for goal activation, which were also adopted in the present work in Study 6. In their studies, participants worked harder on unrelated tasks that were instrumental in attaining their goals, when the end-states were implicitly linked with positive affect (e.g. Custers & Aarts, 2005). More specifically, subjects were told that they would have the opportunity to engage in a (goal-related) task if sufficient time was left at the end of the experiment. The speed on a filler task served as dependent variable, indicating participants' effort for attaining the desired goal. Thus, it provided indirect evidence for people's goal activation and motivation to pursue the goal-relevant task.

Goal-Relevant Evaluations and Affective States

In addition to its impact on accessibility, motivation and behavior, goal pursuit may also affect people's evaluation of goal-related stimuli (e.g., Ferguson & Bargh, 2004; Markman & Brendl, 2000); furthermore, goal-activation may influence more generalized affective states during goal pursuit and after goal attainment (e.g., Fishbach, Shah, & Kruglanski, 2004). I will not review this literature, however, as it does not apply to the present proposal. For a more detailed review, see Fishbach and Ferguson (2007).

To conclude, the research reviewed on goal striving yielded that the following consequences might emerge from goal operation, which will be considered in the present studies, too: (a) an increased accessibility of goal-related contents during goal striving (e.g., Aarts et al., 2001), which becomes inhibited after goal completion (e.g., Förster et al., 2005); (b) increased goal-related subtle approach or avoidance reactions (e.g., Fishbach & Shah, 2006); and (c) more overt goal-directed behavior and instrumental behavior towards goal attainment (e.g., Aarts et al, 2005; Custers & Aarts, 2005).

In this section the goal characteristics that are relevant to the present studies have been discussed, i.e., it may be concluded that (1) goals are organized hierarchically as posited by Goal Systems Theory (e.g., Kruglanski et al., 2002); (2) goals operate like other mental representations, that is, that they are characterized by increased chronic accessibility of end-states and their means, and may be activated by semantic priming as well as by thinking about goals (e.g., Bargh & Gollwitzer, 1994); (3) goals are unique, in a sense, that they consist of motivational aspects that make them different from other cognitive structures, resulting for example in higher persistence on tasks (e.g., Kruglanski et al., 2002); (4) goals have unique effects on higher accessibility of goal-related knowledge, which remains heightened during goal striving, and does not dissipate as fast as semantic activation of not goal-related contents (e.g., Förster et al., 2005) and (5) goal activation leads to goal-related behavior, and greater approach motivational tendencies (e.g., Fishbach & Shah, 2006).

I now turn to theoretical accounts and empirical findings that imply a new direction in goal research. Specifically, the next section addresses the issue of how the self might be involved in goals.

Goals and Self

As outlined in the respective discussions on the self and goals, these two concepts seem to operate in a similar way and to be somehow associated to one another. In this last section of the Theoretical Part I will focus on approaches that stress the notion of an elementary link between goals and self. More precisely, to further develop the predictions of the present studies I will address the characteristics of self-guides that influence goal pursuit, as well as conditions for behavior that is in line with one's reference values by including attitude-behavior consistency, Objective Self-awareness Theory, and diverse models of self-regulation. Finally, possible mechanisms that might underlie the suggested link between goals and self will be discussed.

Self-Guides

Possible Selves

As mentioned earlier, the self-concept is one's theory about oneself that provides an answer to the question "Who am I?". It consists of our autobiographical memories and organizes our experiences. The working self-concept refers to the part of the self-concept that is made salient in a given situation (Markus & Kunda, 1986). Specifically, it includes information about the person one was in the past, about the one one currently is, and about the one one can become in the future. Especially relevant for the understanding of goals are the conceptions one holds about oneself in future states. Markus and Nurius (1986) have characterized the future oriented aspects of the self-concept as "possible selves", which describe the selves a person believes to become in the near or more distal future. Thus, they are important for goal setting, goal striving, and motivation. Possible selves can be both *desired* images of the self one hopes to become and *feared* images of the self one hopes to avoid becoming. Regarding the content of possible selves they typically reflect

developmentally salient challenges. For example, the possible selves of younger adults seem to focus on occupational issues such as finding a job, as well as interpersonal issues such as being in a relationship. In contrast, in middle adulthood, they typically have a stronger focus on parenting (Cross & Markus, 1991; Strauss & Goldberg, 1999).

Clearly, given that possible selves include what an individual wants to become or avoid becoming, they may also have motivational consequences. According to Oyserman and James (2008) possible selves serve as self-regulators, when (a) they match with other important aspects of the self-concept; (b) a gap between the current situation and a future goal is salient; and (c) subjected experience is interpreted to mean that effort is needed and possible to attain the specific goal. In the study conducted by Hoyle and Sherill (2006), which was mentioned before, it was shown that there has to be an observable gap between current and possible future selves to motivate goal relevant behavior; to reiterate, in their study they primed healthy college students with hoped-for and feared possible selves by asking them about either their healthy or their unhealthy possible selves. The results yielded that only students in the 'feared possible self' condition (i.e., unhealthy) were more likely to choose to work with a personal trainer and to choose more health brochures. Thinking about a feared possible self, i.e., of being unhealthy, might have served as a cue for the gap between the current and the future self. Hoyle and Sherill (2006) suggest that in the hoped-for condition, healthy possible selves did not prime a gap, given the students' current healthy status. This does not mean that feared possible selves always have greater motivational power than positive ones; instead it indicates that a possible self that is more discrepant with one's current self may have a greater motivational force towards behavior serving to attain the goal. Even though the term "possible selves" is often interchangeably used with goals, the specific role of possible selves in goal attainment requires further

testing; however, it suggests that goals and the self are intimately linked to one another. In what follows, I focus on theories that address the role of discrepancy in goal pursuit.

Self-Discrepancy Theory

Possible selves may additionally be differentiated, referring to reference values that represent either the presence of positive outcomes or the absence of negative outcomes. In early articles on Self-discrepancy Theory, Higgins (1987) specified how children acquire such reference values. Specifically, certain forms of interaction between caretakers and children increase the likelihood that individuals' strong desired end-states represent either their own or significant others' hopes, wishes, and aspirations for them (strong ideals) or their own or significant others' beliefs about their duties, obligations, and responsibilities (strong oughts). In particular, pleasure and pain due to *positive outcomes* are experienced when caretakers, for example, hug the child for behaving in a desired way (presence of positive outcome) or stop playing with the child when he or she doesn't want to share toys (absence of positive outcome). On the other hand, children experience pleasure and pain depending on *negative outcomes*, when caretakers, for example, educate the child to be alert to potential dangers (absence of negative outcome) or yell at the child for making a mistake (presence of negative outcome). These different interactions with caretakers illustrate how children learn to regulate themselves in relation to strong ideals (promotion) or strong oughts (prevention).

Regulatory Focus Theory

Later, in Regulatory Focus Theory, Higgins (RFT; 1997) goes beyond a mere socialization of ideal/ ought desired end-states and suggests that self-regulation in relation to ideals versus oughts differs in regulatory focus; based on Self-discrepancy Theory, RFT identifies two separate motivational systems that satisfy diverse regulatory needs and are differentially related to approach and avoidance (Shah, Higgins, & Friedman 1998). The

promotion system focuses on "ideal goals" (e.g., aspirations, accomplishments) and is associated with approach motivation. In contrast, the prevention system focuses on "ought goals" (e.g., duties, safety) and is associated with avoidance motivation. Regarding goal-related behavior, which is particular relevant for the present work, studies have shown that a promotion focus predicts approach-related behaviors, whereas prevention focus predicts avoidance-related behaviors. Experiments that investigated the link between goals and peoples' regulatory focus suggest that regulatory focus and approach/ avoidance motivation jointly facilitate goal pursuit by identifying particular goals and guiding behavior in terms of the goal (Förster, Higgins, & Idson, 1998).

As mentioned above, goals can be activated by mere thinking about the goal or by priming, increasing the accessibility of goal-related knowledge by. People's regulatory focus may also influence chronic or manipulated accessibility of goal-relevant knowledge. For example, it was shown that people primed with a promotion focus recalled more life episodes that consisted of approaching targets that facilitated a desired end-state, whereas subjects primed with a prevention focus recalled more life episodes that involved avoiding a mismatch to a desired goal (Higgins, Roney, Crowe, & Hymes, 1994). Furthermore, peoples' chronic focus of promotion and prevention determined the use of approach- or avoidance behavioral strategies in goal pursuit (Förster et al., 1998; Shah et al., 1998).

To summarize, regulatory focus (RF) is of particular interest for the present proposal given that (a) an individual's chronic RF may influence the accessibility of goal-related knowledge; (b) the chronic focus determines the use of approach-avoidance strategies in goal-pursuit; and (c) goal-directed behavior is guided by the discrepancy between an actual state and a desired ideal or ought self, again implying an elemental link between goals and the self; please note that this is very similar to the idea of possible selves, as discussed before. Before I turn to the possible mechanisms that might underlie the interplay between

goals and the self, I will first address some accounts that emphasize the role of the self in *behavior* that is consistent with a person's attitudes, standards, and goals.

Behavior In Line With One's Reference Values

Attitude-Behavior Consistency

It would be reasonable to assume that any given behavior is associated with at least some self-relevant aspects. However, studies on attitude-behavior consistency often found low correlations between self-reported attitudes or traits and behaviors that would be predicted by those inner qualities (e.g., Wicker, 1969; Fishbein & Ajzen, 1975; Fazio, 1986). Even though some of the studies have been criticized on methodological and statistical grounds (e.g., Budd, 1987; Evans, 1991), some findings of this line of research may be relevant for the attempt to link goals and the self. When researchers tried to identify conditions for higher attitude-behavior consistency, they for instance specified self-monitoring (SM) as a moderator (Ajzen, et al., 1982). To reiterate, high self-monitors are sensitive to situational cues and adapt their behavior to the context, whereas low self-monitors are indifferent to situational cues and act on the basis of their attitudes. Ajzen and his colleagues (1982) found that regarding the theory of reasoned action, individuals' intentions are more predictive of behavior for low self-monitors, who apparently tend to act on their attitudes, regardless the context, whereas high self-monitors' intentions do not correlate with their behavior. Moreover, in the theory of reasoned action, self-consciousness (SC) was identified as a further moderator. To reiterate, private SC is the dispositional tendency to be aware of one's own internal thoughts and feelings, and presumably also more aware of one's own attitudes and goals. Miller and Grush (1986) found higher attitude-behavior consistency for individuals high in private SC.

Overall, these findings illustrate that individuals are less likely to adhere to their personal values when not focusing on the self; put differently, this suggests that a high dispositional self-focus facilitates behaviors that are in line with one's own attitudes and goals.

Self-Awareness Theory

Similar effects have been found for situational self-awareness. As mentioned earlier, numerous studies on objective self-awareness theory (OSA; Duval & Wicklund, 1972) revealed that increased OSA brings people in line with their standards and attitudes, resulting in more standard-consistent behavior. Specifically, the authors assume that environmental cues - such as video cameras, or self-reflection - can direct conscious attention to the self. Then, in a state of heightened OSA, an evaluative process takes place, in which self-aware individuals automatically compare their actual thoughts and behaviors with an ideal self. Particularly, self-aware people come to realize their personal inconsistencies on any dimension of the self that is salient in this state of self-awareness. In case of actual - ideal self discrepancy, this comparison process leads into a motivational process, driven by the negative affect the perceived inconsistency engenders. According to Duval and Wicklund (1972), this negative affect motivates behavior in order to reduce the discrepancy, and concurrently the experienced affect. This discrepancy reduction behavior can take a variety of forms, including trying to avoid the state of self-awareness or even change the standards. But, the most frequent consequence seems to be that persons behave more consistent with their standards, according to whatever aspect they are focused on.

A large number of studies have been conducted to test each step proposed by OSA theory. For example, in an early study on OSA theory Gibbons (1978) assessed subjects' moral standards towards pornography. One month later, people had to rate pornographic pictures and sexual literature, while their self-awareness was either increased (e.g., by

sitting in front of a mirror) or not. The results revealed that self-aware individuals were more likely to behave in line with the standards they had indicated one month earlier, whereas there was little correlation between the pretested attitudes and later behavior for non-self-aware participants. In a more recent study, Duval and Lalwani (1999) specified the conditions under which people, in order to reduce discrepancy, adapt their behavior to the standard (e.g., Gibbons, 1978) or simply change the standard. They assumed that causal attribution is the mechanism that determines whether self-behavior or standards will be changed. In their experiment, while working on a task, high- and low self-aware subjects were told that they were underperforming. The experimenter then directed their attention either to their performance or to the standard. As predicted, when working on the task a second time high self-aware individuals who were focused on their performance attributed failure to the self and tried to perform according to the standard. However, participants who were focused on the standard attributed failure to the standard, and actually changed it, without the attempt to meet the standard in the second trial.

To conclude, these findings suggest that not only a high dispositional self-focus brings behavior in line with one's attitudes and standards, but also a temporarily heightened state of self-awareness. Thereby, individuals may choose to either change their current behavior or their standard in order to match these two. Importantly, when people are self-focused, they become aware of a possible discrepancy between their current behavior and a salient standard, which in turn results in negative affect, motivating attempts to reduce the discrepancy. In this sense, focusing on the self might be important for goal pursuit, because it allows individuals to at least detect the discrepancy, which is the first necessary condition to engage in goal-related behavior. Furthermore, self-awareness seems to have important motivational power to reduce the discrepancy.

Self-Regulation Models

Moreover, self-regulation models (e.g., Carver & Scheier, 1981, 1998) are based on the assumption that the current status of the self is compared to a reference value (a standard or a goal) to determine the magnitude of the discrepancy between one's actual state and one's desired state. According to such models, self-regulation is the tendency of the self to change in regard to these reference values. Even though Carver and Scheier's Control Theory (1981, 1998) and Higgins' Self-discrepancy Theory (1987) make different predictions about the outcome of self-regulatory processes, both include self-guides as reference values for one's behavior and self-evaluation as integral part of self-regulation. Thereby, Carver and Scheier (1981) assume in their Control Theory that the *rate of discrepancy* reduction relative to some expected rate determines the valence of experienced outcome emotions. On the other hand, Higgins (1987) posits that negative emotions are experienced when a discrepancy between a current self-state and a desired end-state becomes accessible; hence, emotional outcomes depend on the *total magnitude of discrepancy* that becomes salient. Boldero and Francis (2002) disentangled the different self-regulatory emotional outcomes by demonstrating that reference values might have two distinct functions, the "standard function" and the "goal function". To them "the standard function occurs when a reference value represents a desired state for the self in the present whereas the goal function occurs when a reference value represents a desired state for the self in the future" (Boldero & Francis, 2002, p. 232). Particularly, they argue that with respect to a standard it is important how great the discrepancy between the actual and the desired state actually is (as is the case in Self-discrepancy Theory), whereas with respect to a goal the rate of discrepancy reduction is more important (as is the case in Control Theory) for motivational, behavioral, and emotional consequences. Of course, the same reference values may serve as both standards and goals at different points in time. Hence, the specification of the type of

reference value should be considered to fully understand its role in self-regulation and behavior. In many ongoing studies, participants are assigned to certain performance outcomes that should be achieved during the experiment. However, it should be considered that these "assigned goals" would serve as standards in the present situation. This means that many experiments described as studies on goal-pursuit actually assess outcomes due to a standard for performance in the experiment instead of a genuine goal.

In a different self-regulation account based on the working self-concept described earlier, Lord and Brown (2004; see also Lord, Brown, & Freiberg, 1999) proposed that the working self-concept contains three different types of components, i.e., *self-views* (current standing on desired attributes), *possible selves* (long-term objectives the person desires to attain), and *current goals* (comparative standards in the current context). Hence, possible selves and current goals serve as comparative standards to the current state. Specifically, it is assumed that different motivational consequences may result depending on which of these components are compared. For example, discrepancy due to comparing self-views and possible selves should lead to self-assessment motivation, whereas discrepancy between self-views and current goals should lead to self-enhancement motivation. In addition, when current goals and possible selves are compared, a perceived discrepancy should lead to distal motivational processes, including self-verification motivation. Lord and Brown's theory (2004) is grounded in the self-concept and offers an alternative framework for understanding the link between current goals and the self, as well as to further specify how self-motives influence self-regulation processes.

To conclude, self-regulation models emphasize the tight connection between goals and self by assigning desired future states of the *self* a key role in self-regulation. In particular, a central element of all above-mentioned models is the discrepancy reduction in respect to a desired self. This is particularly relevant for the present studies, because I conclude that it is

exactly this discrepancy in goal-pursuit that directs attention to the self and motivates behavior. Furthermore, these models accentuate the importance of the type of reference value (e.g., standard vs. goal). Based on this differentiation, I was particularly interested in individuals' goals, and therefore worked with people's personal goals within the next six months, instead of providing them with standards created in the experiment. Finally, Lord and Brown's (2004) innovative theory links current goals, possible selves, and individuals' self-views on pertinent attributes in a dynamic framework founded in the self-concept.

In sum, a variety of research on attitude-behavior consistency, self-awareness theory, and self-regulation models suggests that a focus on the self (dispositional or situational) might be indispensable for behavior that is consistent with one's reference values (e.g., standards, goals). Even though the reported models have not explicitly analyzed the role of the self, it again becomes clear that the self is a first important premise for behavior that is consistent with one's standards and beliefs. However, to the present day no study exists that empirically tests this relation directly. I will now address mechanisms that might underlie this connection between goals and self and then introduce the empirical studies.

Self and Goals in the Reflective Impulsive Model

Building on the assumption that the self and goals are inherently connected with one another, what would the underlying processes be when individuals are concerned with self and goal pursuit? In this section I will address the mental mechanisms that may underlie the interplay among goals and self. It may be recalled that the Reflective Impulsive Model (RIM; Strack & Deutsch, 2004) integrates behavioral, cognitive, and motivational processes into a two-system model of social behavior. It is assumed that the Reflective and the Impulsive System are concurrently active, interact at all stages of information processing, and compete for control over overt behavior. Consequently, from a two-systems

perspective, it could be assumed that the self and goals relate to one another via both systems of information processing (Strack & Deutsch, 2004); this being said, however, reflective processing seems to be indispensable for goal pursuit, especially when people decide to act on their evaluations and meet with an obstacle.

Self in the RIM. For starters, self-reflection is a deliberate process based on operations in the Reflective System (RS). However, accounting for the parallel operation of the two systems, self-reflection also comprises processes in the Impulsive System (IS). Contents of the RS are assumed to be retrieved from self-knowledge structures in the IS, and self-judgments and decisions in the RS at the same time activate self-related associations in the IS. Hence, on an impulsive level of processing, self-activation might be induced either by perception of self-related stimuli (IS) or by thinking about the self (RS), which both increases the accessibility of self-related contents. As discussed before, the link between activation of the self and behavior seems to be related to a specific type of information processing. Attention toward the self strengthens controlled influences on judgments and decisions, indicating that the self might be associated with deliberate thinking in the RS. Specifically, the self seems to come into play when people regulate themselves (e.g., Carver & Scheier, 1998; Duval & Wicklund, 1972). However, research suggests that besides explicit operation, the self might also work in an automatic way (e.g., Nuttin, 1985), referring to processes that occur exclusively in the IS without reflective control. Specifically, implicit self-processes are grounded on spreading activation within the associative network of the self-concept, directly activating the behavioral schemata. Individuals are only aware of the results of these operations. Studies yielded that implicitly measured self-aspects predict spontaneous behavior better than controlled behavior, whereas explicit self-aspects predict controlled behavior better (Asendorpf et al., 2002).

Goals in the RIM. In their Goal Systems Theory, Kruglanski and his colleagues (2002) posit that goal pursuit is resource-dependent and consumes people's limited mental resources. Therefore, currently active goals pull resources away from one another. Even though many studies have shown that even nonconscious priming may activate goals (e.g., Bargh et al., 2001; Shah & Kruglanski, 2003) it has not yet convincingly been shown that goals may also *operate* on implicit level; hence, it is assumed that goal operation involves reflective processing. More precisely, processing of supraliminal and suboptimal goal primes in the IS is characterized by an automatic spread of activation between associations of the goal memory construct and does not depend on capacity and intention. Thus, the idea that semantic priming can activate goals by associative processing is in line with the assumptions of the RIM. Furthermore, desired end-states that have been primed may automatically elicit motivational tendencies to approach stimuli that facilitate goal attainment and avoid stimuli that prevent one from goal attainment. However, it is assumed that goal setting and goal striving are related to deliberate processing in the RS. Specifically, only the RS can generate a time perspective, given its greater independence from immediate perceptual input compared to the IS and, hence, it is able to bridge a temporal gap (e.g., Deutsch & Strack, 2002). It is assumed that in the RS, a behavioral decision is linked to behavioral schemata by the process of intending, which is especially relevant when an action cannot be conducted at the time the decision is made. Hence, the RIM suggests a process of intending when there is a temporal gap between a decision and an action, like in the case of goals (see also Gollwitzer, 1999). Furthermore, intending is important in the following situations: when goal pursuit is blocked; when individuals confront obstacles; when they need to overcome temptations; when they need to choose other means; or change their strategy entirely, by starting a new operation of intending. To

conclude, reflective information processing seems to be required when people try to attain their goals (see also Bongers & Dijksterhuis, 2009).

Self and Goals in the RIM. So, how might goal-activation lead to self-activation, and vice versa? The relation between goals and self might be based on processes of structural, procedural, or motivational nature. First, as assumed by several theorists, the self-concept includes associative links to personal goals (e.g., Hannover, 1997; Lord & Brown, 2004; Markus & Nurius, 1986). Hence, self-activation (due to perceptual input in the IS or deliberate processes in the RS) may alter goal-related judgments and behavior via automatic activation spreading in the IS from accessible self-related contents to connected goal-structures and, due to bidirectional associations, also vice versa. This would lead to increased accessibility of goal-related associations and, in turn, lead either to a) *immediate* activation of behavioral schemata and corresponding approach-avoidance motivational tendencies towards goal-relevant objects or b) *deliberate* processes in the RS, retrieving the goal-related contents from the IS, resulting in deliberate judgments and decisions.

Moreover, on a reflective level of processing (e.g., decision making), it would be conceivable that the self constitutes the essential link between positive evaluations of objects and behavior to attain them. Specifically, goal setting may include the self via the above-mentioned process of intending, because goals consist of a discrepancy between a current state and a desired self in the future. As described above, only the RS may bridge this temporal gap to the desired self by connecting the behavioral decision with the behavioral schemata via the process of intending. As already discussed extensively, the self seems to be connected to reflective processing and, from a self-regulative perspective, it would be functional for individuals who decide to pursue a specific high-priority goal to automatically activate self-knowledge in temptation situations (e.g., activating the long-term priority of dieting and making conditions more accessible in which one has succeeded in

dieting). Moreover, it would be functional in tempting situations to not only change what one thinks but also *how* one thinks. In this sense, it would be helpful to engage in a more controlled thinking style, allowing to be more attentive to strategies and means facilitating goal attainment. Hence, from a self-regulatory perspective, goals and the self might be particularly linked due to a reflective processing style.

Finally, a motivational process might underlie the interplay between goals and the self. As already posited by Duval and Wicklund (1972) an experienced discrepancy between the current and a desired future state might induce negative affect, motivating behavior to reduce this discrepancy. It might therefore be conceivable that increased self-activation renders such a discrepancy salient, and hence, motivates behavior in order to reduce it, by activating behavioral schemata in the IS.

To summarize, the relation between goals and the self might be grounded in associative connections between these two constructs, as well as a reflective mode of processing, and motivational processes guiding discrepancy reduction. Nevertheless, the present work suggests that the impact of the self, and the operation of goals require reflective cognitive processes, and addresses the interplay between the self and goals via reflective operations on these two constructs. Of course, this does not preclude subliminal influences on the accessibility of the constructs that are involved. Following the discussion on the interplay among self and goals, the two-systems perspective completes the introduction of the central theoretical concepts on which the present research is founded. I will now briefly summarize the ideas and core assumptions of the present proposal and then provide an overview of the experimental studies.

Summary of Core Assumptions and Outlook on the Experiments

In the following, I will sum up those findings and conclusions of the self and goal literature, respectively, which are most relevant to the core assumptions of the present thesis. As outlined before, regarding the *self* it is assumed that: (a) the self-concept is a memory structure that contains the total sum of experiences an individual makes in life, including past, current, and future selves (e.g., Markus & Nurius, 1986); (b) the self is dynamic in nature and in a particular context only a subset of self-presentations are active determining the working self-concept (e.g., Hannover, 1997; Markus & Kunda, 1986); (c) the same cognitive principles apply to the self-construct as to knowledge structures in general (e.g., Linville & Carlston, 1994); hence, (d) situational manipulations of self-activation (e.g., camera, self-reflection) work as cognitive primes to temporarily increase the accessibility of self-related knowledge; (e.g., Duval & Wicklund, 1972) similarly, individual trait differences (e.g., self-consciousness, self-monitoring) involve diverse chronic activation levels of self-related contents; (e) in research the self is rarely examined as a dependent variable; thus, there are only few measures of self-activation that are not susceptible to self-presentation concerns and focus on implicit aspects pertaining to processes in the Impulsive System (e.g., Eichstaedt & Silvia, 2003); (f) the self might operate on the implicit level based on spreading activation between self-related associations, which can directly activate behavioral schemata (e.g., Asendorpf et al., 2002); (g) however, the self is often associated with reflective information processing and strengthens controlled thinking, leading to judgments and behaviors that are in line with personal attitudes, standards, and goals (e.g., Carver & Scheier, 1998); (h) different self-motives (e.g., self-enhancement, Kunda, 1987) may drive behavior in order to meet these motives.

Regarding *goals*, it is assumed that (a) goals are organized hierarchically (e.g., Kruglanski et al., 2002); (b) that goals operate like knowledge structures in general, that is,

that they are characterized by increased chronic accessibility of desired end-states and their means, and may be activated by semantic priming as well as by thinking about goals (e.g., Bargh & Gollwitzer, 1994); (c) they consist of motivational components that make them different from other cognitive structures (e.g., Kruglanski et al., 2002); (d) goals have unique effects on behavior, e.g., an activated goal leads to higher accessibility of goal-related knowledge, which remains heightened during goal striving, and does not dissipate as fast as semantic activation of not goal-related contents (e.g., Förster et al., 2005) and (e) goal activation leads to goal-related behavior, and even to more subtle approach motivational tendencies (e.g., Fishbach & Shah, 2006).

Finally, self and goals seem to be conceptually linked to one another. Specifically, the self-concept comprises representations of personal goals, consisting of possible selves, which constitute desired future selves (e.g., Markus & Nurius, 1986). Importantly, possible selves have motivational consequences, because they include what a person hopes to become and to avoid becoming. Furthermore, goal pursuit is guided by the type of discrepancy between the current self and an ideal or ought self (promotion vs. prevention focus; see RFT; Higgins, 1997). Importantly, self-guides seem to have greater motivational power the greater the gap between the current situation and a future goal is. That is, a possible self that is more discrepant with one's current self has greater motivational force towards behavior serving to attain the goal (e.g., Hoyle & Sherill, 2006). Furthermore, conscious attention to the self strengthens controlled thinking, leading to more behavior that is consistent with one's attitudes and goals; also, the self is involved when people regulate themselves in order to attain high-priority goals. Thus, the relation between goals and self might be based on structural, procedural, or motivational underlying processes.

The aim of the current work was to enhance the understanding of the relationship between goals and the self. More specifically, I wanted to achieve three things. First, I

developed an implicit measure of self-activation (SA) based on response latencies to avoid the above-mentioned problems (i.e., demand effects, self-presentation concerns) of classic SA methods. Therefore, two studies were conducted in which increased self-activation, induced by classic self-manipulations, was measured with a newly developed picture task. Thereby it was assumed that individuals would react faster to photographs of themselves when the self was activated than when it was not. Second, I aimed to demonstrate that there exists a close connection between personal goals and the self. Despite being inherent in several theories, this assumption has never been tested directly before. It was hypothesized that thinking about personal goals should activate the self, resulting in faster reactions in the newly developed measure of SA, i.e., quicker responses to the self-pictures. Third, it was investigated whether goals and the self are linked in a bidirectional fashion; according to the reported findings, it seems to be functional for individuals' self-regulation and goal pursuit to develop such a link. To provide evidence for the bidirectionality of the relationship, it was hypothesized that in conditions of high SA, it should be more likely personal evaluations to be construed as goals; this goal activation should result in higher accessibility of goal-related knowledge, stronger approach motivational tendencies towards goal-related targets, and more goal-directed behavior. The following paragraph provides an overview of the six studies, which were conducted to test the assumptions of this work.

Study 1: Implicit Measurement of Private and Public Self-Awareness with a Newly Developed Latency-Based Picture Task

The main objective of Study 1 was to develop a personalized implicit measure of self-activation (based on reaction times), because conventional methods like self-report scales very often induce self-activation and are prone to participants' response biases, self-presentation, or demand effects (Duval & Wicklund, 1972). In the first study public and private self-awareness was increased with methods that are well known from research.

Specifically, a self-novelty manipulation was adopted to induce a private self-focus (Snow et al., 2003) and a video camera provided the induction of public self-focus (Duval & Wicklund, 1972). Then, SA was measured with the new picture task. Specifically, it consisted of smiling and neutral face pictures of every participant as well as control pictures, which were taken before the experiment. Subjects were told to categorize the pictures depending on whether they saw a smiling or a neutral face. It was hypothesized that participants who were highly self-aware would be faster at categorizing self-pictures, whereas self-activation should not influence responses to control pictures.

Study 2: Implicit Measurement of Private Self-Awareness (Self-Characterization) with Two Versions of the Picture Task

Study 2 was designed to replicate Study 1 by using a different SA manipulation and enabling a more efficient application of the picture task. To examine the picture task under conditions of even subtler levels of self-activation, private self-awareness was induced by asking participants only one general question about themselves (Kuhn & McPartland, 1954). Furthermore, pictures were taken immediately before the experiment; also, a shorter version of the picture task was adopted. Again, it was predicted that participants high in self-awareness would categorize self-pictures faster than low self-aware participants.

Experiments 3 to 6 were designed to examine the bidirectional nature of the proposed link between the self and goals. Specifically, goal pursuit was first adopted as an independent variable, which was expected to activate the self as a dependent variable (Study 3 and 4). Then, self-activation served as independent variable and goal-activation as dependent variable, to analyze whether goals are more active when targets are evaluated positively under conditions of high self-activation (Study 5 and 6).

Study 3: The Self in Experimenter-Provided Goals: Greater Self-Activation as a Consequence of Thinking about Possible Goals

Study 3 addressed the question whether thinking about possible goals for oneself actually leads to higher self-activation than thinking about possible goals for another person, or personally evaluating the same targets. Specifically, in the personal-goal condition participants' task was to think about presented goals and decide whether or not they could be relevant for them in the next six months; subjects in the other-goal condition had make this decision for an acquaintance, and subjects in the personal evaluation condition personally evaluated the same targets without considering them as goals. It was hypothesized that SA should only increase as a consequence of activation of personal goals. The picture task was adopted to measure SA with the same procedure as in Study 1 and 2.

Study 4: The Self in Self-Generated Goals: Greater Self-Activation as a Consequence of Generating Personal Goals

Study 4 examined the predictions of Study 3 with participants' self-generated personal goals. Instead of providing subjects with hypothetical goals, they were instructed to generate goals that were personally important to them (personal goal condition; e.g., "In the next six months, I plan to ___."). In the control condition, participants were asked to generate positively evaluated goals for another person of a specific professional category (e.g., for a doctor) that was relevant to these target persons (personal evaluation condition; e.g., "I think that it is good, if a doctor ___."). Hence, control subjects also thought about goals and generated relevant evaluations about the work of another person. As in Study 3 it was expected that only participants who thought about personal goals should be faster categorizing self-pictures compared to participants who evaluated goals of others.

Study 5: Goal-Activation as Consequence of Self-Activation: Accessibility and Approach Avoidance Motivation

The aim of Study 5 was to test the bidirectional relation between goal setting and the self by assessing goal-activation as dependent variable. If goals and the self actually are tightly linked due to structural or motivational processes, it was hypothesized that activation of the self should increase the probability that a positively evaluated target will be construed as a personal goal. To test this assumption SA served as independent variable and was manipulated via self-novelty as in Study 1 (Snow et al., 2003). Then, participants evaluated different topics, including possible goal relevant aspects. Two dependent variables served to measure goal activation: a Lexical Decision Task was introduced to assess accessibility of goal-related knowledge (Fishbach & Shah, 2006), and a Manikin task served to measure approach-avoidance motivational tendencies (De Houwer, Crombez, Baeyens, & Hermans, 2001).

Study 6: Goal-Activation as a Consequence of Self-Activation: Instrumentally Goal-Related and Overt Goal-Directed Behavior

Finally, the purpose of Study 6 was to test the robustness of the findings of Study 5 by addressing possible alternative explanations. Thus, it aimed at replicating and extending the findings by assessing participants' goal-directed behavior as an additional indicator for goal-activation as a consequence of self-activation. It was predicted that highly self-aware participants would be more likely to construe positive evaluations as goals, resulting in more goal-directed behavior; i.e., overt goal-related behavior (e.g., choosing informational brochures with advice on effective learning strategies) and behaviors functional for goal attainment (e.g., speed with which participants worked on a task instrumental for the goal-relevant task).

EMPIRICAL PART

Experiment 1: Implicit Measurement of Public and Private Self-Awareness with a Newly Developed Latency-Based Picture Task

The main objective of Experiment 1 was to develop a personalized measure of self-activation. To test the assumed link between the self and goal pursuit, first a reliable measure of increased self-activation was required. I focused on procedures that assess implicit aspects of the self (pertaining to the Impulsive System), because, - as discussed earlier - conventional methods like self-report scales or open-ended responses are prone to participants' response biases, self-presentation concerns, or demand effects, and very often elicit self-directed attention (e.g., Duval & Wicklund, 1972; Silvia & Gendolla, 2001). Actually, some researchers manipulate self-activation by having participants complete self-report scales (e.g., Brown, 1988). Surprisingly, however, there is a notable paucity of implicit self-activation measures in published research. I came across only two measures of self-activation based on response latencies with which people react to self-related words. Specifically, I found the self-Stroop task (Higgins et al., 1988; Segal & Vella, 1990) and a measure using word recognition latencies (Eichstaedt & Silvia, 2003). As mentioned earlier, the evidence for the Stroop effect is mixed. Regarding self-focus, its validity and reliability requires further testing. Because the word recognition measure revealed the expected results in only one study, its effectiveness should be further examined in relation to other implicit methods. Due to this lack of reliable self-activation measures, Study 1 and 2 aimed at developing a new latency-based implicit measure of self-activation, by going beyond a mere semantic facilitation of processing of self-related contents and extending the findings obtained with word recognition latencies (Eichstaedt & Silvia, 2003) to visual stimuli.

Two methods that are well known from literature, and which have been described earlier in this thesis, were used to activate the self. First, self-reflection served to induce "private" self-awareness. Specifically, people were made feel different from others by asking them questions about what made them deviate from three different reference groups (Snow et al., 2003). According to several researchers, such a manipulation of self-novelty (also referred to as self-distinctiveness) should increase participants' private self-awareness (e.g., Eichstaedt & Silvia, 2003; Mayer et al., 1985). This method requires introspective access to private self-related memory structures via reflective processing. Hence, individuals who engage in self-reflection access the explicit self (pertaining to the RS), increasing the cognitive accessibility of knowledge-based self-related contents in the IS. Second, a conventional manipulation of "public" self-awareness (employing a video camera) was used to activate public aspects of the self (Duval, 1976). This method directs attention to public aspects of the self, leading individuals to see themselves as others see them; hence, they are more concerned with how they look and how they come across, resulting in reflective processing about these public aspects. According to Duval and Wicklund (1972), when people know that they are being videotaped they also *experience* a state of self-awareness. In the control condition, the camera was switched off and subjects had to write about a topic that was irrelevant to the self. Then, in all three conditions self-activation was assessed with a newly developed picture task, that consisted of neutral and smiling pictures of every participant as well as control pictures. More precisely, subjects were instructed to categorize the pictures depending on whether they saw a smiling or a neutral face, with participants' response latencies serving as indicator for self-activation. It was expected that participants in the two self-activation conditions would be faster at categorizing smiling vs. neutral pictures when self-pictures were presented. In contrast, reactions on control pictures should not be influenced by self-activation.

Hypotheses

It was assumed that both manipulations self-novelty (private SA) and being videotaped (public SA), would activate the self-concept and thereby increase the accessibility of self-relevant information, which includes a higher accessibility of one's own physical appearance. Consequently, it was expected that participants in both self-activation conditions should be faster at categorizing pictures of themselves than participants in the control condition. This reasoning leads to the following main hypothesis:

H1 Increased self-activation facilitates the recognition of oneself. Specifically, self-pictures should be categorized faster in the two self-activation conditions than in the control condition, whereas categorizing control pictures should not be influenced by self-activation.

Method

Participants and Design

A total of 50 psychology students (42 female; mean age: 21.84 years) at the University of Würzburg participated in the study in return for course credit ($N_{\text{private SA}} = 17$, $N_{\text{public SA}} = 17$, $N_{\text{control}} = 16$). The experiment was part of a larger battery of otherwise unrelated studies and lasted for about 20 minutes. The hypothesis was tested in a 3 (self-activation: private vs. public vs. control) X 2 (type of picture: self vs. control) factorial design. Participants were randomly assigned to one self-activation condition, whereas type of picture was varied within participants. Recognition latencies on self- and control pictures served as dependent variables (DVs).

Materials and Procedure

Recruiting. The experiment was conducted as a one-session study. However, participants were recruited some weeks before the main experiment, in order to take the

pictures for the SA measure. They were told that two pictures of each person were required for a study, which would take place approximately four weeks later. A date was fixed for the experiment and for each participant a personal eight-digit code was recorded.[1] Labeling the pictures with the respective codes ensured that participants would be presented with their own pictures in the later experiment; furthermore, due to the code the pictures could be treated as self pictures in the data analyses. Two pictures of each subject were taken with a digital camera: one picture with a smiling face and one with a neutral face.

Experiment. Prior to the main experiment, participants' pictures were formatted into a predefined format and size, using a special program (Easy Graphic Converter). Specifically, pictures were converted into a bitmap format, 525-pixel width and 700-pixel height, and were renamed in such a way that the computer program could present them in the self-activation measure during the experiment. For the 50 persons who participated in the study, this resulted in a pool of 100 pictures (two per person) to be used for the self-measure. Pictures of 10 persons had to be excluded from the task given that their smiling or neutral faces were considered to be ambiguous by the first author, resulting in a total of 40 participants. The self-pictures of the fellow participants served as control pictures. Thus, all participants were exposed to exactly the same pictures during the course of the experiment. They were tested in groups up to three people. Upon arrival at the laboratory, they were greeted and informed, that the study was a pre-test for a new picture task. Then, they were asked to sit down in front of a computer, where they first read general instructions and then completed a mood questionnaire.

[1] The code consisted of the first two letters of their mothers' first name, of their fathers' first name of their own first name, and double figures for their own birthday (e.g. for mother Rose, father Mark, participant Peter, birthday 09.12. the code was ROMAPE09). Then, the suffix "l" was added to the code for the smiling picture and "e" for the neutral picture.

Mood Assessment. Self-reports of mood were taken at the beginning and at the end of the experiment by asking subjects how strongly they agreed with a total of five statements, such as "I feel good right now", and "I feel nervous right now"; the scales were anchored with 1 (*totally disagree*) and 7 (*totally agree*). Next, subjects were told to call the experimenter who then initiated the SA manipulation.

Self-activation. In all conditions, a video camera was positioned to the left of each participant and participants were instructed to call the experimenter after the mood questionnaire. In the *public self* condition, the experimenter asked subjects whether they had any questions and then informed them that the session was going to be videotaped in order to assure standardized conditions. Next, the video camera was turned towards the participant and switched on such that subjects could see a red light, indicating that they were being videotaped. Subsequently, participants engaged in a computer-based writing task about a topic that was irrelevant to the self. More specifically, the task lasted for 4.5 minutes and participants were videotaped while answering the following questions: "What are the most important features that distinguish good from bad movies?/ television series?/ magazines?". In the *private self* and in the *control condition* the video camera was pointed away from the subject and the disconnected camera cord was placed over the camera. In these conditions, too, the experimenter was called after the mood questionnaire to ensure that all participants had equal experimenter contact. In the private self and in the control condition, the experimenter asked participants whether they had any questions, then turned the camera away from them, and told them that it had been left in the room from a previous experiment and would not be used; subsequently, participants engaged in the computer-based writing task. However, unlike in the public SA condition, participants in the private SA condition had to respond to three questions regarding the self: "What is it about you that makes you different from your family? / from your friends? / from people in general?"

(self-novelty; Snow et al., 2003). In the control condition participants were asked the same questions about movies as in the public SA condition. Immediately after the SA manipulation, participants completed the picture task to measure their self-activation.

Dependent Measure - Picture Task. Subjects were told that their task would be to categorize pictures depending on whether they saw a smiling or a neutral (not smiling) face. They were instructed to react as fast and accurately as possible. Then, the picture task started with a total of 240 experimental trials (40 subjects, each with a smiling and a neutral picture, plus three presentations of each picture), including 6 self-pictures for each participant (two pictures, each presented three times). The order of the trials was randomized for each subject. The pictures were displayed in the center of the screen and people could read the categories "person smiling" and "person not smiling" on the upper left and upper right side of the screen during the entire picture task. To assure standardized conditions, participants were asked to leave their index fingers on the designated keys throughout the task and to press the left key (letter y) or the right key (letter _) depending on the categorization "smiling" or "not smiling". If they committed an error, the picture was marked with a red "X" and remained on the screen until they had pressed the correct key. Following a correct response, a new trial started immediately. If response latencies were greater than 1500 ms, participants were asked to react faster. The DV was the latency from stimulus onset to subjects' correct response.

Questionnaires. Next, participants completed the mood questionnaire, the Self-consciousness Scale (Hoyer & Kunst, 2001) and the Self-monitoring Scale (Snyder & Gangestead, 1986) described earlier. Then, they were asked to indicate their major, their age, and what they believed was the objective of the study. None of the participants, however, were able to guess the true purpose of the study. Finally, people were thanked and debriefed.

Results

Treatment of Response Latencies

Data with response latencies usually requires a correction of outlier latencies and skewed distributions, because these can distort analyses and reduce the power of the analyses of variance. In the literature, there are different suggestions of how to trim the data, such as log- and inverse-transformations, and also different cut-off criteria. For well-known measures, like the Implicit Association Test (IAT; Greenwald, Nosek, & Banaji, 2003), specific conventions exist of how to trim the data in order to achieve good reliability and sensitivity of the measure. As the picture task developed in the present work is new, clearly, no such convention exists. However, given its similarity to the IAT, a categorization task focusing on speed and accuracy, the improved scoring algorithm to treat response latencies proposed by Greenwald et al. (2003) for the IAT was applied and adapted for the present purposes. All trials with response latencies greater than 10000 ms (0.03 %) were eliminated as well as subjects for whom more than 10% of trials had latency less than 300 ms (2.5 %). Additionally, each error latency was replaced with the block mean + 600 ms. With this trimming procedure and due to technical problems in the picture assignment, 6 participants had to be excluded, which resulted in a total of 34 subjects (29 female) for subsequent analyses ($N_{\text{private SA}} = 10$, $N_{\text{public SA}} = 8$, $N_{\text{control}} = 11$).

Mood. When controlling for mood effects, the analyses revealed that SA did not affect mood ratings; and it could be ruled out that mood ratings moderated the DVs. Hence, mood was not considered in further analyses. Finally, the categories smiling and not smiling served only for the cover story; because response latencies to smiling and neutral face pictures did not differ significantly they were pooled together.

Self-activation

If the newly developed picture task indeed measures self-activation, latencies in response to the self- but not to control pictures should be quicker in the experimental conditions. To test this, the data were submitted to a 3 (self-activation: private vs. public vs. control) X 2 (type of picture: self vs. control) *Analysis of Variance* (ANOVA) for repeated measures with the first factor varying between participants and type of picture as within-subject factor. All reported *F*s and *p*s refer to the log-transformed data; however, for the sake of ease of communication, the non-transformed means are reported. As can be seen in Figure 1, the analysis yielded an unforeseen significant main effect for type of picture, $F(1, 31) = 5.22$, $p = .029$, reflecting that subjects generally responded quicker to control compared to self-pictures. As predicted, the interaction of self-activation and type of picture was also significant, $F(2, 31) = 3.26$, $p = .052$, indicating that self-activation facilitated the categorization of self-pictures, whereas the recognition of control pictures was not influenced by self-activation condition. The main effect of condition was not significant, $F(2, 31) = 2.22$, $p = .126$.

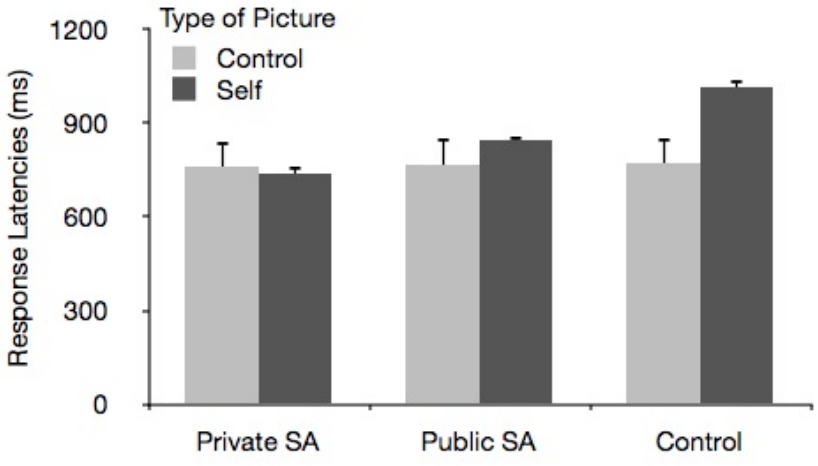

Figure 1: Response latencies (ms) as a function of self-activation, and type of picture. Error bars indicate standard errors of the means. (Study 1)

Simple contrast analyses revealed that participants in the control condition responded significantly more slowly to self-pictures ($M_{\text{self pictures}}$ = 1015 ms, *SD* = 456) compared to control pictures ($M_{\text{control pictures}}$ = 775 ms, *SD* = 113), p = .003. On the other hand, in the two self-activation conditions, the difference between latencies in response to self-pictures and control pictures was not significant (ps > .325). The contrasts further indicated that the private self condition differed significantly from the control condition ($M_{\text{private SA}}$ = 749 ms vs. M_{control} = 895 ms, p = .025), whereas there was only a slight tendency for response latencies in the public self condition to be quicker than in the control condition ($M_{\text{public SA}}$ = 805 ms vs. M_{control} = 895 ms, p = .176). All other contrasts were not significant, Fs < 1.

Self-Consciousness (SC) and Self-Monitoring (SM)

Given that chronic accessibility of self-related contents may have also affected latencies in response to self-pictures, participants' scores on the SC and SM measures were subjected to regression analyses, to see whether they could predict reaction times in response to self-pictures and control pictures. The regression analyses revealed no significant effect for SC or SM (ps > .29), indicating that they were not able to predict response latencies to self- or control pictures.

Discussion

Taken together, the results of Experiment 1 provided first encouraging support for the hypothesis. More precisely, the first study yielded the predicted interaction between self-activation and type of picture, suggesting that self-activation facilitates the categorization of self-pictures. This finding is in line with the notion that individuals with high accessibility of self-related knowledge (here: private and public self-awareness) respond faster to self-related targets (see also word recognition measure by Eichstaedt & Silvia, 2003). In this respect, the results of Study 1 are compatible with the evidence found by

Eichstaedt and Silvia (2003; Study 2) regarding *word* recognition latencies after self-activation and extend this evidence to the processing of *visual* stimuli.

In addition to the expected interaction, surprisingly, the analysis also yielded a significant main effect for type of picture, indicating that participants generally react slower to self-pictures compared to control pictures. However, when self-awareness is induced, this baseline difference disappears and reaction times in response to self-pictures are equivalent to those in response to control pictures, resulting in the expected interaction. Thus, even though these results are consistent with the assumption that self-activation facilitates the recognition of self-pictures, it would be more accurate to say that in the high self-awareness conditions subjects no longer responded slower to self-pictures.

This finding begs the question, why individuals generally respond more slowly to self-pictures in the present measure. This pattern cannot be attributed to a surprise effect, because task instructions inform participants that they might possibly see their own picture in the task. In a sense, the slower reactions in response to self-pictures are compatible with evidence suggesting that information relating to the self may be preferentially encoded (e.g., Craik & Tulving, 1975; Rogers, 1977). That is, early studies on depth of processing showed that information with reference to the self might be encoded more deeply than semantically encoded topics. Particularly, experiments showed that information is better remembered when encoded with reference to the self than after semantic processing or after encoding in relation to other persons (Rogers et al., 1977). Similarly, information has a comparative memory advantage when it is rated to be self-descriptive (Derry & Kuiper, 1981). This body of evidence suggests that the self as knowledge structure might have unique attributes. However, other researchers argue that the self differs only quantitatively from operations of other mental representations. But even if self-reference effects might be explained by the operation of ordinary memory processes of similarly elaborated

knowledge structures, for the present proposal it is more important to understand whether one would also expect *slower* response latencies to self-pictures due to self-referential encoding. Then, in case of a pre-activation of self-knowledge like in the experimental conditions, information processing should be facilitated and hence, faster, due to a higher accessibility of self-related contents. This might explain the assimilation of response latencies in response to self-pictures to latencies in response to control pictures in the high self-awareness conditions.

However, the above-mentioned line of research on self-referent encoding draws on the memory advantage of information processing in relation to the self. Examining the effects on response latencies more closely, the self-reference effect would predict that the more highly elaborated a schema in long-term memory is, the *faster* participants should respond in reaction time tasks. For example, studies conducted by Markus (1977) yielded that self-schemas *facilitate* the processing of information about the self, such that people can access information encoded in salient domains of the self-concept faster than information not encoded in such domains. A greater quantity and quality of knowledge may facilitate spreading activation through the semantic network (e.g., Bedard & Chi, 1992; Raufaste, Eyrolle, & Marine, 1998), which however contradicts the present findings.

Another, and perhaps better, explanation for the results obtained in Study 1 focuses on motivational aspects of the self that might affect the encoding of self-pictures. As mentioned before, there are different self-motives that guide people's judgments and behavior. To begin with, individuals need to seek confirmation of their self-concept (*self-verification theory*; Swann, 1983; White & Harkins, 1994), engaging in a variety of activities that are construed to obtain self-verifying information. Particularly, in order to provide stability of their self-concepts, individuals are motivated to maintain their self-concept through self-verification strivings, for both positive and negative self-views.

Drawing on our observed findings, the fact that participants look at themselves longer than at others may be attributed to the tendency of individuals to seek for self-verifying information, and thus spend more time on analyzing their own picture. Again, in case of a pre-activation of the self construct, information processing should be faster due to a higher accessibility of self-related contents, leading to a faster retrieval of already existing information about one's physical appearance; thus, the comparison with one's picture should be facilitated. Alternatively, individuals might behave in line with other self-motives, e.g., seeking positive evaluations, due to a motivation to think well about oneself (*self-enhancement theory;* Jones, 1973). Hence, they engage in behavior that causes them to view themselves favorably. Consequently, they might look longer at their own pictures seeking positive information to maintain a positive self-view. Even though the motivational accounts seem to offer plausible explanations for the observed effects in the picture task, they cannot be fully understood on the basis of the present results alone.

Hence, before drawing general conclusions about the effects obtained with the newly developed picture task, I needed to test whether this result pattern was rooted in a very general effect and could be further replicated. Taken together, the findings indicate that a heightened self-focus actually facilitates the recognition of self-pictures, and thus suggest that self-activation can be measured with this newly developed picture task. Noteworthy, the expected pattern emerged in spite of the small sample size (mean $N = 10$), suggesting that the new picture task is a very sensitive and promising measure of SA. The present version of the task seems to be capable of measuring self-activation; however, for all practical purposes a shorter version would be more efficient. Thus, Study 2 was designed to replicate the findings of Study 1, using a shorter version of the picture task and another private SA manipulation to further test the validity of the new measure.

Experiment 2: Implicit Measurement of Private Self-Awareness (Self-Characterization) with Two Versions of the Picture Task

In Study 1, it was found that the previous picture task could indeed be used to demonstrate that the classic manipulations of private and public self-awareness had engendered high levels of self-activation (SA). However, to test the link between self and goal pursuit, a reliable measure was needed sensitive enough to detect changes in SA induced by more subtle self-activation methods. Thus, the main purpose of Experiment 2 was to replicate the findings of Study 1 with a different self-manipulation; in addition, it aimed at testing a more efficient version of the picture task. Consequently, the procedure of Experiment 2 differed only slightly from the first study; all deviations are described in the next paragraph.

First, in the present study, I decided to drop the public SA condition and work with one experimental group only. Specifically, the rationale for dropping the public manipulation was based on the stronger effects for the private SA condition in Experiment 1; furthermore, thinking about goals, which I later asked participants to do in the studies on the link between goals and the self (Study 3 and 4), seems to be more similar to thinking about the self (private SA) than to being videotaped (public SA). In this sense, then, I opted for another private SA manipulation, by instructing subjects in the experimental condition to think about themselves and to write down "what makes them who they are" (e.g., Kuhn & McPartland, 1954). Similar to the self-novelty manipulation adopted in the first study, this method also requires conscious access to private self-related constructs via reflective processing. As a consequence, individuals hold a higher accessibility of self-constructs based on the activation of *knowledge-based* self-related contents in the Impulsive System. However, unlike in the self-novelty manipulation, individuals' attention is now directed

toward those self-aspects that are salient in consciousness at any one time and easily come to mind, instead of increasing salience for how people differ from others (which might require a deeper processing including more comparison processes); furthermore this SA manipulation lasts half as long as the self-novelty manipulation in Study 1. Participants in the control condition, again, had to complete a writing task about a topic that was irrelevant to the self. Second, the procedure deviated from Study 1 in that pictures were taken immediately before the experimental session, to avoid having subjects come twice. Third, in the present study two different versions of the picture task were used; specifically, in addition to the picture task from Experiment 1, a shorter version was adopted to enable a more efficient application of the SA measure and to further test its validity. The instructions and hypotheses regarding the picture task were the same as in Study 1.

To sum up, beyond conceptually replicating Experiment 1, this study was meant to test (a) whether the findings of Study 1 could be replicated using a different private SA manipulation, and (b) whether a shorter version of the picture task could measure self-activation equally well.

Hypotheses

First, the predictions pertaining to control participants were based on the results of Study 1. Specifically, it was expected that participants respond slower to self- than to control pictures due to self-motivated processing. Second, it was hypothesized that SA, induced by asking only one question about the self, should increase the accessibility of self-relevant information and thereby facilitate categorization of self-pictures. Third, a similar result pattern was predicted for the two versions of the task. This translates into the following hypotheses:

H2.1 Overall, self-pictures are recognized slower than control pictures.

H2.2 Self-pictures should be categorized faster in the self-activation condition than in the control condition, whereas reaction times in response to control pictures should not be influenced by self-activation.

H2.3 The effects should be independent of task version.

Method

Participants and Design

Fourty-one female and 38 male students (mean age: 23,58 years) of different majors at the University of Würzburg participated in the study and received a chocolate bar as compensation. The hypotheses were tested in a 2 (self-activation: high vs. low) X 2 (type of picture: self vs. control) X 2 (task version: short vs. long) factorial design. Participants were randomly assigned to an experimental condition, with both SA and task version serving as between-subjects factors, whereas type of picture varied within participants. Latencies in response to self- and control pictures served as dependent variables.

Materials and Procedure

Participants were tested individually. Upon arrival, they were welcomed and were told that two pictures (one with them smiling and one of them with a neutral face) were required for the experiment, which then were taken in front of a white door. Subsequently, subjects took a seat until the experimenter prepared the pictures. The digital camera was connected with a laptop and, by using the same program as in Study 1, the pictures were formatted in order to match them with the control pictures.[2] Subjects were informed that they might possibly see their own picture and that their pictures would be deleted immediately after

[2] Specifically, pictures were converted into bitmap format, 525-pixel width and 700-pixel height and were renamed into *vpe* (neutral) and *vpl* (smiling), such that the computer program could present them in the self-activation measure. The control pictures were taken from a pre-test with students of different majors from the University of Würzburg.

the session, being replaced by those of the next person. Then, they sat down in front of the laptop, where they first completed the mood questionnaire as in Study 1, which was followed by the writing task.

Self-activation Participants had to complete a two minute writing task, in which they were randomly assigned to one of the following two conditions: In the self-reflection condition, they had to write about "what made them who they are" (Kuhn & McPartland, 1954). Self-characterization is one method to increase self-focus, by directing attention to salient self-aspects, without inducing distinctiveness as in Study 1. In the control condition, subjects had to describe "the most important features of good movies" (Snow et al., 2003). Immediately after this manipulation of self-focus, participants completed either the long version or the short version of the self-activation measure.

Dependent Measure – Picture Task. Procedure and instructions of the picture task were exactly the same as in Study 1, except for the following: The computer program randomly assigned participants to either the long or the short version of the measure. Due to a lot of errors regarding the categorization in smiling vs. not smiling in Study 1 now the picture task started with 28 practice trials that consisted of the pictures of 14 people. Furthermore, a problem in the first study was the ambiguity of some of the smiling and neutral faces. Thus, in Experiment 2, the control pictures were taken from a pre-test with students of different majors from the University of Würzburg; pre-testing ensured that facial expressions were unambiguous. After the practice block, the experimental trials were presented. More precisely, the long version consisted of 214 trials and included 6 self-pictures of the participant (two pictures, each presented three times) and 208 control pictures (52 control people, each person with two pictures, and a repetition of each picture). The short version consisted of 32 control pictures (8 people, each person with two pictures, and one repetition of each picture) and 6 self-pictures (two pictures, each repeated three

times), which resulted in 38 experimental trials. In both versions, the order of the trials was randomized for each subject within both the practice and the experimental block.

Questionnaires. After the dependent measure, subjects had to specify whether they had recognized themselves or someone else in the picture task; participants who indicated having recognized at least one person from the control pictures were considered drop-outs and new participants were immediately recruited to replace them (see discussion below). Next, they completed the mood questionnaire and the same trait questionnaires as in Experiment 1 (self-consciousness, self-monitoring). Subsequently, they indicated their major, age, their motivation and any suspicion they might have had on the true nature of the study. In the end, participants were thanked, debriefed and given a chocolate bar.

Results

Treatment of Response Latencies

Exactly the same procedure as in Study 1 was used to trim the data, correcting for outlier latencies and skewed distributions. With the trimming procedure, a total of 5 subjects had to be excluded from further analyses.

Preliminary Analysis

In the present experiment, I came across a new problem concerning the control pictures. Data from 25 participants had to be excluded from analyses, because they knew at least one control person in the picture task.[3] As already discussed in the Theoretical Part, goal and self-activation can also be induced by significant others. Hence, when participants identify their friends in the control pictures, this might lead to increased accessibility of self-related contents, resulting in a confoundation of self and control pictures. For every

[3] The pattern of results was the same with all participants, but the interaction between self-activation and type of picture was not significant.

drop-out of this kind, a new participant was recruited, keeping the total number of subjects constant. In the end, 49 persons (24 female) were left for the subsequent testing of the hypothesis, with 24 participants in the self-activation condition and 25 participants in the control condition ($N_{\text{long experimental}}$ =14, $N_{\text{long control}}$ = 14, $N_{\text{short experimental}}$ = 10, $N_{\text{short control}}$ = 11). When controlling for mood effects, the analyses revealed that SA did not affect mood ratings; it could be ruled out that mood ratings moderated the DVs. Hence, mood was not considered in further analyses.

Self-activation

Reaction times over the course of the experimental trials. Given that the subjects in the long version are required to make many more categorizations than subjects who are assigned to the short version and, therefore, get more practice, it would be reasonable to assume that performance on the two different task version might differ. To test this, I first analyzed the potential change of response latencies in the course of the 214 (long version), respectively 38 (short version) experimental trials of the self-activation measure. Again, all reported results refer to the log-transformed data; however, for ease of communication, the non-transformed means are reported to illustrate the effects. In paired-samples *t*-tests mean latencies on self- and control pictures were compared in the first and the second part of the picture task, for each version separately. In the long version, there was a slight tendency for participants to react faster to self-pictures in the second half of the task, $t(26) = 1.59$, $p = .124$, whereas participants reacted significantly faster to control pictures in course of the 214 trials, $t(27) = 4.59$, $p = .000$. The analysis for the short version yielded a stronger decrease of reaction times in response to self-pictures, $t(20) = 3.55$, $p = .002$; latencies on control pictures also decreased in the course of the 38 experimental trials, $t(20) = 2.61$, $p = .017$. This decrease of latencies might be due to general practice effects, given that it also applies to the control pictures; alternatively, it might be attributable to an increase in self-

activation, especially because there is a greater difference in means between first and second half for self-pictures ($M_{\text{diff long}}$ = 49 ms, SD = 335.48; $M_{\text{diff short}}$ = 100 ms, SD = 151.50) than for control pictures ($M_{\text{diff long}}$ = 38 ms, SD = 44.13; $M_{\text{diff short}}$ = 45 ms, SD = 89.95), mainly in the short version. It should be considered that the results regarding self-pictures were based on a total of 6 pictures, whereas the means of control pictures were calculated on the basis of 208 and 36 trials, respectively. Because participants reacted faster in response to self-pictures in the second part of the picture task, it might be that seeing oneself in the picture task increases self-activation. Therefore, in the following analyses, latencies on the first self-picture vs. first control picture, and the mean latencies on self vs. control trials in the entire picture task were analyzed separately.

Entire task. To test whether self-activation can also be measured with the new versions of the picture task, the data were subjected to a 2 (self-activation: high vs. low) X 2 (type of picture: self vs. other) X 2 (version: short vs. long) ANOVA, with the first factor and the version varying between participants. I began by analyzing latencies on the entire task; as hypothesized, subjects responded significantly slower to self-pictures ($M_{\text{self pictures}}$ = 850 ms, $SD_{\text{self pictures}}$ = 303) than to control pictures vs. ($M_{\text{control pictures}}$ = 705 ms, $SD_{\text{control pictures}}$ = 88), resulting in a significant main effect for type of picture, $F(1, 45) = 10.29$, $p = .002$. Even though the interaction of self-activation and type of picture showed the expected pattern, it was not significant, $F(1, 45) = 1.52$, $p = .224$. For the entire task, the effects were stronger for the long version. Accordingly, the interaction of version and type of picture was marginally significant, $F(1, 45) = 2.87$, $p = .097$, such that there was a greater difference between self- and control pictures in the long version. The main effect of self-activation was marginally significant, $F(1, 45) = 3.08$, $p = .086$, indicating that participants who thought about themselves responded slower to the pictures. All other effects were not significant ($Fs < 1$).

First picture. The analogous analysis for the first self and first control picture of the experimental trials - to assure that a possible self-activation was due to our experimental manipulation and not to activation induced by the task itself, also revealed a significant main effect for type of picture, $F(1, 45) = 6.87$, $p = .012$, with participants responding slower to self-pictures. Moreover, self-activation facilitated the categorization of self-pictures ($M_{\text{self characterization}} = 898$ ms, $SD_{\text{self characterization}} = 294$ vs. $M_{\text{control}} = 954$ ms, $SD_{\text{control}} = 243$), whereas an opposite pattern was found for control pictures ($M_{\text{self characterization}} = 819$ ms, $SD_{\text{self characterization}} = 202$ vs. $M_{\text{control}} = 741$ ms, $SD_{\text{control}} = 336$). However, the predicted interaction of self-activation condition and type of picture was not significant, $F(1, 45) = 1.62$, $p = .210$. The expected pattern was more articulated in the short version. The main effects of self-activation and task version were not significant (Fs < 1).

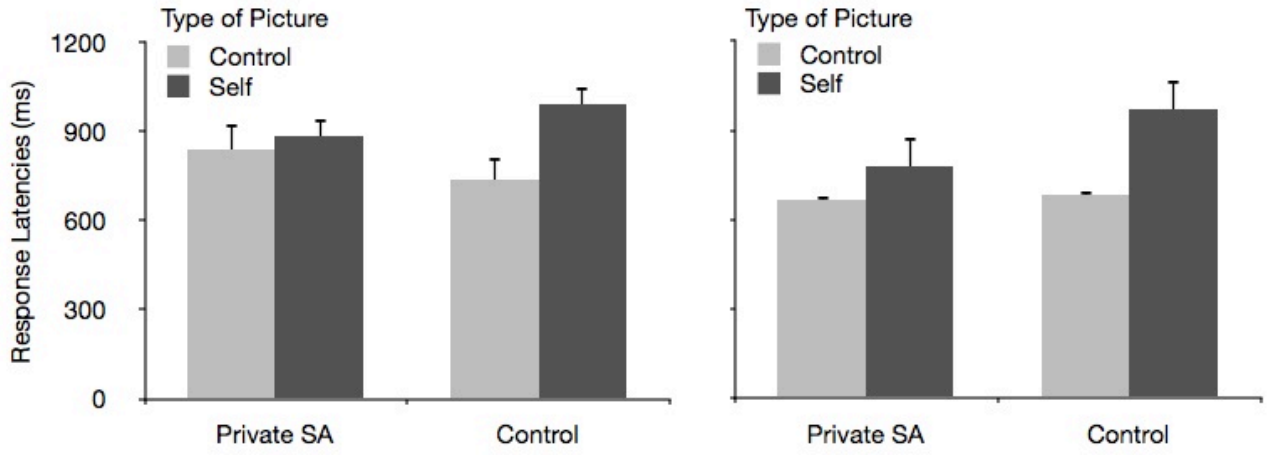

Figure 2: Response latencies (ms) as a function of self-activation, and type of picture for short version (left) and long version (right). Error bars indicate standard error of means (Study 2).

Short and long version. When short and long version, were examined separately (for both entire task and first pictures) with a 2 (self-activation: high vs. low) X 2 (type of

picture: self vs. other) ANOVA the pattern was confirmed (see Figure 2). In the long version, the interaction between SA and type of picture, was found for the entire task, $F(1, 26) = 1.58$, $p = .22$, but still did not reach significance. In the short version, a slight tendency of the same interaction emerged for the first pictures, $F(1, 19) = 1.99$, $p = .17$. As predicted, all main effects for type of picture were significant with subjects reacting slower to self-pictures (all ps $< .05$). Although the results partly support the hypotheses, the predicted interaction effects failed to reach significance.

As discussed before, the chronic accessibility of self-related knowledge may have also affected latencies in response to self-pictures; hence, participants' scores on the SC and SM measures were analyzed to see whether they could predict reaction times in response to self- and control pictures. When subjects' scores on the Self-consciousness and Self-monitoring Scale were subjected to regression analyses, the results revealed no significant effects for SC and SM (ps $> .2$), indicating that these traits were not able to predict responses to self- or control pictures.

Discussion

To sum up, the results clearly corroborate the first hypothesis that people are slower in recognizing pictures of themselves than of others (consistent with Study 1), which may be due to self-motives as previously discussed. The findings further suggest that self-activation facilitates the recognition of self-pictures. But neither the analysis of the first pictures nor the ANOVA with the entire task yielded a significant interaction. Thus, the second hypothesis, could not be confirmed which is discussed in the next paragraph. Over and above, the results show that latencies in the long and short version of the picture task do not differ significantly, and thus support the third hypothesis. Additionally, only a marginal interaction of task version and type of picture was found, which might explain the

different results for short and long version when analyzing first pictures and entire task separately. In the short version the predicted interaction is more pronounced when analyzing the first pictures, whereas in the long version the effect is stronger when examined over the entire task.

The findings only partially support the second hypothesis, namely that self-activation facilitates the recognition of self- but not of control pictures. I only found a slight tendency for the predicted interaction. One possible explanation for the lack of significance might be that, compared to the previous study, the induced level of self-activation was not sufficient. First of all, consider that, unlike in Study 1, I did not use the self-novelty manipulation, which focused more precisely on different aspects of the self and lasted twice as long as the self-characterization task. Second, the picture was taken immediately before the experiment (in Study 1: four weeks before), which might have enhanced self-activation in both conditions previous to the experimental self-manipulation; quite possibly, the private SA induction method was not strong enough to override this pre-activation and produce significant differences between experimental and control condition. Another possible explanation for the lack of significance focuses on the small sample size (mean $N = 12$) due to high dropout rates (problems with control pictures); the statistical power would be greater with a larger sample size, which may minimize the error variance in the response latencies data. The fact that the expected pattern again emerged in spite of the small sample size supports the notion that the picture task is a sensitive and promising measure of SA.

Overall, I obtained further encouraging support that the picture task is suitable for assessing self-activation. The fact that the expected pattern emerged in both studies in spite of the small sample size and different SA manipulations suggests that the picture task is a very sensitive and promising measure of SA. Moreover, it seems that both the long and the short task yielded similar results. Given the likelihood that the picture task itself may

induce self-attention, the interpretation of the results should be based on the first self-picture and the control picture that immediately precedes the first self-picture. When adopting the task to test whether goals enhance self-activation, it should be taken into account that these effects might be not as strong as conventional self-manipulations. Thus, wherever applicable, additional self-attention that may be elicited by being photographed immediately before the experimental manipulation should be avoided.

Thus, taken together Study 1 and to some extent also Study 2 demonstrated that the newly developed picture task is a suitable tool to assess self-activation. In Study 3 and 4 I used the picture task to measure SA as a consequence of thinking about goals.

Experiment 3: The Self in Experimenter-Provided Goals: Greater Self-Activation as a Consequence of Thinking about Possible Goals

It may be recalled that the Reflective Impulsive Model (RIM; Strack & Deutsch, 2004) posits that overt behavior always is a result of an interaction between the Impulsive and the Reflective System (IS and RS). Of particular interest for the present studies is the question where the self and goals might come into play in this model. In this proposal, I aim at offering a first direct demonstration of the assumed link between goals and the self; and I intend to do so by addressing them and their mutual activation via explicit processes in the Reflective System. In the RS, people transform knowledge and take decisions that might be factual or evaluative; it is assumed that the latter are represented in relation to the self. More specifically, this relation is not always necessary, but it is crucial when people decide to act on these evaluations.

As previously discussed, structural, procedural, or motivational processes might underlie the relation between goals and the self. First, goal-activation (e.g., due to deliberate processes in the RS) may alter self-related judgments and behavior via automatic activation spreading in the IS. This would lead to increased accessibility of goal- and self-related associations; applied to the picture task, this would result in faster reactions in response to self-pictures. Furthermore, on a reflective level of processing, it would be conceivable that the self forms the decisive link between positive evaluations of objects and goal-directed behavior to attain them. It is argued that this should be the case because only the RS may bridge the temporal gap from the current state to a future desired self by connecting behavioral decisions with behavioral schemata, via the process of intending. As already discussed, the self seems to be connected to reflective processing, and hence, from a self-regulative perspective, it would be functional in goal-directed behavior to switch to a

more reflective controlled thinking style by activating the self. Again, due to resulting higher accessibility of self-related contents in the IS and faster spreading activation, individuals should respond quicker to self-pictures in the implicit self-activation measure.

To date, it is difficult to pinpoint the underlying processes of this link. I will not offer the final word on the underlying mechanisms, but I will demonstrate that such a close connection between goals and the self does exist. Importantly, regardless of which process might underlie, in either case goal-activation should activate the self in such a way that self-activation can be captured with response latencies in the picture task. It will be recalled that although several theories at least implicitly imply this relationship between goals and self, it has never been tested directly before. To this end, in Study 3 through 6 I worked on demonstrating a bidirectional relation between the self and goals, by showing that the self is an important mediator between personal evaluations and goals. Specifically, it was expected that goals as independent variable, would activate the self as DV (Study 3 and 4). In reverse, positively evaluated targets should be more likely to be construed as goals when the self is activated, which may result in goal-activation (Study 5 and 6).

To test these assumptions, in the third study the picture task was employed to measure SA as a consequence of goal-activation; based on the idea that the self forms the decisive link between positive evaluations of objects and goal-directed behavior to attain them, it was expected, that personal goals and personal evaluations should differ in degree of self-involvement. Specifically, participants in the experimental condition were provided with possible target activities they had to think about and then decide whether they could constitute relevant goals for them in the coming six months (*personal-goal activation* condition). I assumed that thinking about the hypothetical goals should activate relevant self-aspects. On the other hand, subjects in the second condition had to think about the same target activities as possible goals for another person and decide whether they could

constitute relevant goals for an acquaintance in the next six months (*other-goal activation* condition), whereas participants in the third condition only had to evaluate the same target activities (*personal evaluation* condition). Specifically, the personal-goal and other-goal condition differed in the personal relevance of the goals, whereas personal-goal and personal-evaluation condition were both personally relevant but differed in the process of thinking about goals versus thinking about evaluations. It was assumed that in the experimental condition the self should be activated as a consequence of personal goal-activation, resulting in faster responses to self-pictures compared to the two control conditions. To sum up, design and procedure of Study 3 were similar to Study 1, but instead of private and public SA, goal-activation was used as experimental manipulation.

Hypotheses

It was predicted that personal goals would activate the self. Thus, participants thinking about possible goals for themselves in the experimental condition should categorize self-pictures faster than subjects in the second (other-goal activation) and third (personal evaluation) condition, whereas responses to control pictures should not be influenced by goal-activation. This reasoning translates into the following interaction hypothesis:

H3.1 Participants should respond faster to self-pictures in the personal-goal activation condition compared to the two control conditions, whereas reactions in response to control pictures should not be affected by goal condition.

Design and Overview

The above reasoning was tested using a 3 x 2 factorial design. The factors were goal condition (personal-goal activation vs. other-goal activation vs. personal evaluation) and type of picture (self vs. control). Subjects were randomly assigned to one of the three goal conditions. Again, latencies on self- and control pictures served as dependent variables.

Method

Participants

Forty-one female and 34 male non-psychology students of the University of Würzburg were recruited as participants. They were paid 6,- € (about US$ 8,- at the time) as compensation for their time.

Materials and Procedure

Recruiting. The experiment was conducted as a one-session study. Because the two pictures for the self-activation measure were required, subjects were recruited at the campus cafeteria two weeks before the actual experiment, in order to avoid additional self-activation at the beginning of the experimental session. After taking two pictures of each participant, a date was fixed for the actual experiment.[4] To promote higher return rates and reduce the risk of drop-outs, the appointed date and time as well as their individual code was noted on a piece of paper for each participant and served as a reminder for their experimental session two weeks later.

Experiment. Participants' pictures were prepared for the experiment by converting them into the same format and size as in the previous studies. In this experiment, a pool of 150 pictures (of 75 individuals) was used for the self-activation measure. As in Study 1, self-pictures of fellow participants served as control pictures for the others. Participants were tested in groups of up to three people. Upon arrival at the laboratory, they were greeted and sat in front of a computer screen where all instructions and tasks were presented. After reading the general instructions and completing the mood questionnaire, they had to work on a "writing task", which served to activate goals.

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[4] As in Study 1, the code consisted of the first two letters of their mothers' first name, their fathers' first name, their own first name, and double figures for their own birthday. Then, the suffix "l" was added to the code for the smiling picture and "e" for the neutral picture.

Goal-activation. Subjects were randomly assigned to one of three conditions. In the experimental *personal-goal activation* condition, they had to think about seven possible goals and indicate if the goal was something they could imagine striving for in the next six months. Goals pertained to different domains such as academics, social life, finances, or leisure time. To illustrate, participants were asked "Losing weight in the coming months. Would this be a goal of yours?" or "Saving up money in the coming months. Would this be a goal of yours?". After having half a minute to think about the first goal, participants had to answer the question "Would you try to attain this goal in the coming six months?" on a scale ranging from 1 (*not at all*) to 7 (*very much*). Then, they worked on the remaining 6 goals according to the same procedure. In the *other-goal activation* condition, subjects were asked to think about a specific person they knew. They were told that this person should neither be a very close friend, nor a family member, nor their partner, but more of a casual acquaintance. In order to assure that participants had a specific person in mind, they were asked to indicate the first name of the person they were thinking about. Then, subjects were presented the same seven goals used in the personal-goal activation condition. However, in this condition they were instructed to indicate the degree to which they thought that "this person would try to attain this goal in the next six months" on a scale ranging from 1 (*not at all*) to 7 (*very much*). They were given half a minute to think about each goal and then asked to indicate its relevance for their acquaintance. In the third condition (*personal evaluation* condition) the seven goals were framed as activities people might engage in. Participants were asked to merely evaluate them on a scale from 1 (*bad*) to 7 (*good*). After the goal manipulation, participants completed the picture task (see Appendix C for the detailed instructions pertaining to the goal manipulation).

Dependent Measure – Picture Task. Instructions and procedure regarding the self-activation measure were similar to the previous experiments. Again, the task started with

28 practice trials. Given that the self-pictures of fellow participants served as control pictures, with a total of 75 participants, this resulted in 300 experimental trials with 294 control trials (148 control pictures, each presented twice) and 6 self trials (each presented three times). Following the picture task, participants indicated whether they had recognized themselves or someone else in the picture task.

Questionnaires. Next, as in the previous experiments, mood, self-consciousness, and self-monitoring were assessed. Finally, participants had to indicate how important the seven presented goals were to them in their own life (see Appendix C). At the end, they were asked about their major, age and how motivated they had been to do the task. When probed about the cover story, none of the subjects voiced any suspicion nor could they guess the true nature of the study. Finally, they were thanked, debriefed and given 6,- euro as compensation for their time.

Results

Preliminary Analysis: Treatment of Response Latencies

The same data trimming procedure as in the previous studies was used, resulting in the exclusion of trials with latencies greater than 10000 ms (0.02 %) as well as subjects for whom more than 10% of trials had latency less than 300 ms (4 %). A total of 6 subjects had to be excluded from analyses due to this trimming procedure and because they indicated that they had not seen themselves in the picture task or that they knew at least one control person depicted in the task. A total of 69 subjects (39 female) were left for the subsequent testing of the hypothesis, with 23 participants in the personal-goal activation condition, 26 participants in the other-goal activation condition and 20 subjects in the personal evaluation condition. When controlling for mood effects, the analyses yielded no effects of goal-

activation on mood ratings; and it could be ruled out, too, that mood ratings moderated the DVs. Hence, mood was not considered in further analyses.

Self-activation

Reaction times over the course of the experimental trials. As in Study 2, paired-samples *t*-tests for the first and second part of the picture task yielded significant effects, indicating that latencies in response to control pictures were quicker in the second half, $t(64) = 3.36$, $p = .001$; similarly, latencies in response to self-pictures also decreased over the course of the 300 experimental trials, $t(52) = 1.71$, $p = .093$. However, reaction times for responses to self-pictures in the first and second half of the task differed to a much greater degree ($M_{\text{difference self}} = 69$ ms, $SD = 296$) compared to control pictures ($M_{\text{difference control}} = 22$ ms, $SD = 60$); this could be interpreted as an increase of self-awareness over the course of the self-activation measure. Therefore, latencies in response to the first self- and first control picture, and mean latencies for the entire task were analyzed separately; I would only attribute effects concerning the first pictures as having been caused by the experimental manipulation.

To test our hypothesis, the data were subjected to a 3 (goal condition: personal-goal activation vs. other-goal activation vs. personal evaluation) X 2 (type of picture: self vs. control) ANOVA, with goal condition varying between and type of picture within subjects. All reported *F*s and *p*s refer to the log-transformed data; however, for the sake of ease of communication, the non-transformed means are reported. The analysis for the first pictures yielded slower responses to self-pictures ($M_{\text{self}} = 916$ ms, $SD = 610$) than to control pictures ($M_{\text{control}} = 722$ ms, $SD = 357$), resulting in a significant main effect for type of picture, $F(1, 58) = 12.31$, $p = .001$. Furthermore, there was a slight tendency for the predicted interaction of goal condition and type of picture, $F(2, 58) = 2.03$, $p = .14$, indicating that personal goal activation facilitated the categorization of self-pictures, but not of control pictures.

Response latencies did not differ in the three goal conditions (no significant main effect, $F < 1$). The analogous analysis for the entire task revealed the same pattern.

Importance of goals

Because participants were asked to think about goals provided by the experimenter, it was controlled for the importance these goals actually had for them. To determine whether goal importance mediated the results, an ANOVA with goal condition (personal-goal activation vs. other-goal activation vs. personal evaluation) as between-factor was conducted, but no difference in importance was found for goal condition ($F < 1$). Since this would be one relationship that has to be demonstrated to establish a basis for testing mediation (Baron & Kenny, 1986), no mediational analysis was conducted. The second ANOVA using goal importance as between-subjects factor (based on median split) revealed a significant main effect of goal importance, $F(1, 59) = 5.03$, $p = .028$, such that participants indicating high goal importance reacted slower in the picture task, on both, self- and control pictures (no significant interaction, $F < 1$). These results are consistent with the tendency that subjects in the personal-goal condition responded somewhat slower to control pictures; one possible interpretation would be that it might take more mental capacity to consider goals for oneself than considering the goals for somebody else or merely evaluating activities.

To determine the interaction between condition and goal importance, a 3 (goal condition: personal-goal activation vs. other-goal activation vs. personal evaluation) X 2 (type of picture: self vs. control) X 2 (goal importance: low vs. high) ANOVA was conducted, with goal condition and importance as between-subjects factors. As expected, a significant main effect for type of picture, $F(1, 55) = 7.33$, $p = .009$ emerged; in addition, the ANOVA yielded the predicted significant interaction between goal condition and type of picture, $F(2, 55) = 3.00$, $p = .058$, such that personal goal-activation facilitated the

categorization of self-pictures ($M_{\text{personal goal}}$ = 871 ms, $SD_{\text{personal goal}}$ = 296; $M_{\text{other goal}}$ = 863 ms, $SD_{\text{other goal}}$ = 233; $M_{\text{personal evaluation}}$ = 1034 ms, $SD_{\text{personal evaluation}}$ = 1060), whereas the pattern was reversed for control pictures ($M_{\text{personal goal}}$ = 890 ms, $SD_{\text{personal goal}}$ = 554; $M_{\text{other goal}}$ = 674 ms, $SD_{\text{other goal}}$ = 222; $M_{\text{personal evaluation}}$ = 608 ms, $SD_{\text{personal evaluation}}$ = 98). The results also revealed a marginally significant three-way interaction of goal condition, type of picture and goal importance, $F(2, 55) = 2.49$, $p = .092$. As can be seen in Figure 3, an interaction of goal condition and type of picture emerged for the *high goal importance* group, while a main effect for type of picture emerged for the *low goal importance* group, suggesting that the predicted effects were stronger for participants who indicated that the goals were very important for them. This pattern was tested by carrying out separate ANOVAs for high and low goal importance subjects.

High goal importance. As can be seen in Figure 3, the ANOVA for participants who had indicated that the presented goals were very important to them yielded a significant main effect for type of picture, $F(1, 25) = 4.59$, $p = .04$, and also a tendency for the interaction between goal condition and type of picture, $F(2, 25) = 1.89$, $p = .17$, indicating that subjects whose goals were activated categorized self-pictures faster ($M_{\text{personal goal}}$ = 827 ms, $SD_{\text{personal goal}}$ = 264; $M_{\text{other goal}}$ = 976 ms, $SD_{\text{other goal}}$ = 258; $M_{\text{personal evaluation}}$ = 1526 ms, $SD_{\text{personal evaluation}}$ = 1790), whereas the pattern was reversed for the categorization of control pictures ($M_{\text{personal goal}}$ = 986 ms, $SD_{\text{personal goal}}$ = 729; $M_{\text{other goal}}$ = 765 ms, $SD_{\text{other goal}}$ = 279; $M_{\text{personal evaluation}}$ = 624 ms, $SD_{\text{personal evaluation}}$ = 51). Simple contrasts revealed that in the personal evaluation condition there was a significant difference between responses for self- and control pictures with slower latencies in response to self-pictures ($M_{\text{self pictures}}$ = 1526 ms, $M_{\text{control pictures}}$ = 624 ms, $p = .036$). However, reaction times in response to self-pictures assimilated to latencies for control pictures and did not differ anymore for participants who thought about the goals for acquaintances ($M_{\text{self pictures}}$ = 976 ms, $M_{\text{control pictures}}$ = 765 ms, p =

.137); and as predicted the effect completely disappeared when participants thought about goals for themselves ($M_{\text{self pictures}}$ = 827 ms, $M_{\text{control pictures}}$ = 986 ms, p = .803). Furthermore, the analyses yielded that the other-goal condition was neither significantly different from the evaluation condition nor from the personal-goal condition (p > .36).

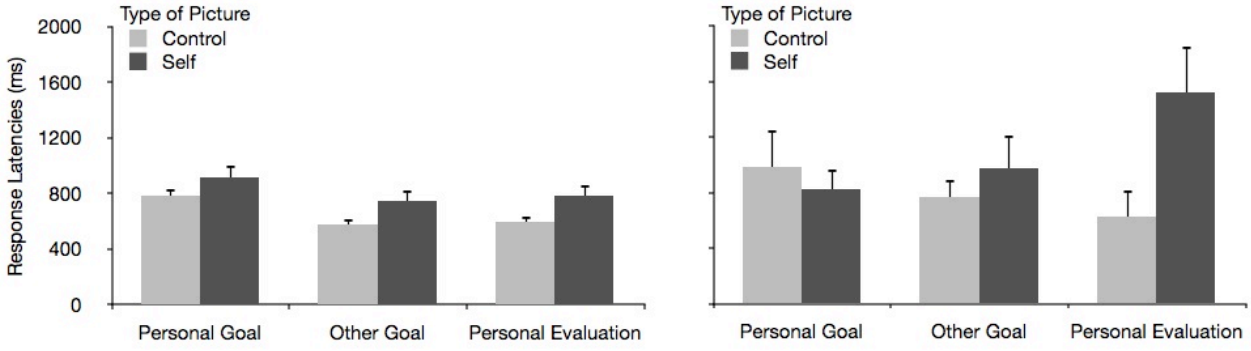

Figure 3: Response latencies (ms) as a function of goal-activation (experimenter-provided), and type of picture for low goal importance (left) and high goal importance (right). Error bars indicate standard error of means. (Study 3)

Low goal importance. Subjects indicating low importance of the possible goals did not categorize self-pictures faster when considering these goals for themselves than participants considering others' goals or evaluating activities. Thus, the interaction of goal condition and type of picture was not significant (F < 1). Again, there was a significant main effect for type of picture, F(1, 30) = 13.05, p = .001, such that subjects responded slower to self-pictures, regardless of goal-activation. Participants thinking about possible personal goals reacted slower compared to subjects in the two control conditions ($M_{\text{personal goal}}$ = 852 ms, $M_{\text{other goal}}$ = 667 ms, $M_{\text{personal evaluation}}$ = 694 ms), resulting in a marginal main effect for condition, F(2, 30) = 2.73, p = .08.

When participants' scores on the Self-consciousness and Self-monitoring Scale were subjected to regression analyses to predict reaction times in response to self-pictures and

control pictures, the results revealed no significant effects for SC and SM (*p*s > .2), indicating that these traits were not able to predict responses to self- or control pictures.

Discussion

To summarize, the purpose of Experiment 3 was to test the assumption that goals and the self are inherently connected, which should find expression in self-activation when reflecting about personal goals. In line with the core assumption of the present thesis, namely that the involvement of the self is a crucial factor that distinguishes personal goals from personal evaluations, the present study provided the first demonstration of self-activation as a consequence of activating personal goals, and at the same time no self-activation when people activate another person's goals or give a personal evaluation. It was assumed that in the *personal-goal activation* condition with subjects considering possible goals for themselves, relevant self-aspects should be activated, resulting in an increased accessibility of self-relevant knowledge. This effect should be less pronounced for the *other-goal activation* condition where the same goals were considered for an acquaintance. Here, the self might only come into play if a very close friend pursues the goals. As discussed in the Theoretical Section, significant others may also activate goals and the self (e.g., Shah, 2003). However, subjects were explicitly instructed not to choose a close person. Thinking about a more distant person's goals should be a goal-activation process, however, not personally relevant, and hence differing from the processes underlying personal goal pursuit; it should result in less self-activation than in the first condition. In the *personal evaluation* of activities subjects indicated their personal opinion on different topics, but did not consider them as goals. Therefore, even though participants indicate their personal opinion this should be a mere evaluation process differing from the processes underlying personal goal pursuit; and the self should be activated to a lesser degree.

Exactly this pattern emerged in the picture task; there was a decrease of latencies on self-pictures in the personal-goal condition compared to the two control conditions, but no decrease regarding the control pictures. However, the results were not significant. This seems to be due to the fact that participants did not generate their personal goals but were provided with possible goals by the experimenter; thus, if these goals were not personally relevant enough, the self might not have been activated at all. When personal goal importance is taken into account, however, the predicted interaction is significant. Specifically, participants indicating high goal importance categorized self-pictures faster in the personal-goal activation condition only, indicating that the self has been activated.

Importantly, I found similar patterns in both the personal-goal condition in Study 3 as we did for the private SA condition in Study 1, suggesting that goal-activation and private self manipulation seem to produce very similar effects in the self-activation measure. So far, the results provide first promising evidence for the assumption that the self plays a key role in goal pursuit. Still, further evidence is needed before drawing more general conclusions. Experiment 4 was conducted to replicate the findings from Study 3; also, I decided to take personal goal importance into account, by having subjects generate personal goals instead of presenting them with hypothetical, experimenter chosen goals.

Experiment 4: The Self in Self-Generated Goals: Greater Self-Activation as a Consequence of Generating Personal Goals

As already discussed in the Theoretical Part, I was particularly interested in goals people pursue in everyday life; the rationale for this is that I believe that self-involvement – and therefore self-activation following goal-activation - for these goals should be greater, compared with standards provided during the experiment that might only be relevant in the experimental situation (e.g., a temporary experimental standard of cooperation or achievement). To little surprise, then, in Study 3, only those participants showed heightened self-activation in the picture task who indicated that the hypothetical goals provided by the experimenter were, in fact, personally important to them. To account for this finding in the present study, the type of goal activation was changed. Instead of providing participants with possible goals, they had to generate goals that were personally important to them (*personal goal-activation condition*). In Study 4 I decided to use one control condition only; in this condition, participants were asked to generate goals for another person of a specific professional category (e.g., doctor, hairdresser, stage director); however, the personal evaluation character of the task was emphasized to assure that really personal evaluations (and not only the reflection about another person's goals) were assessed; thus, participants in the control condition, too, thought about goals and generated personally relevant evaluations about the work of this person by indicating "I think that it is good, if a doctor ___. Please describe in detail this possible goal a doctor should have, so that you would feel that s/he provides good consultations" (*personal evaluation condition*). For the sake of keeping personal relevance as constant as possible between the conditions, participants were instructed to come up with goals that they personally considered important when working with a member from this professional category (e.g., "What goals should a medical doctor pursue so that, you personally, would enjoy working with him or

her?"). However, I predict that the degree of participants' self-involvement will be considerably stronger when personal goals come into play compared to personally relevant evaluations.

Furthermore, people's "regulatory focus" served as an additional control variable. It may be recalled that RFT (Higgins, 1997) identifies two separate motivational systems (promotion and prevention), which are related to approach and avoidance, respectively, and consequently to goal pursuit. The promotion system focuses on "ideal goals" (e.g., aspirations) and is associated with approach motivation. In contrast, the prevention system focuses on "ought goals" (e.g., duties) and is associated with avoidance motivation. Experiments that investigated the link between goals and peoples' regulatory focus suggest that focus and approach-avoidance motivation jointly facilitate goal pursuit (e.g., for identifying particular goals), and function to drive behavior in terms of the goal (Förster et al., 1998). As previously discussed, I assume that when thinking about personal goals, the discrepancy between a current and a desired future state directs attention toward the self. To test this assumption, we included individuals' chronic focus discrepancy in the present study, and predicted that the extent of trait discrepancy between the actual self and a desired ideal self or ought self (chronic regulatory discrepancy) should influence the degree of SA.

To sum up, the main purpose of Study 4 was to replicate the findings of Study 3. The design was similar to that of the previous experiment; however, with the following three exceptions: (1) I hoped to amplify the effect of goal activation on self-activation, by assessing participants' *self-generated* goals; (2) participants in the control condition, too, thought about goals and generated personally relevant evaluations about goals of a different target person; (3) finally, the role of subjects' regulatory focus (i.e., actual - ideal/ought discrepancy) in goals, and hence in self-activation, was explored.

Hypotheses

Thus, the predictions were similar as for Study 3. Participants who were asked to generate the goals most important to them for the coming six months were expected to show more self-activation in the picture task than subjects evaluating goals they considered personally important for other individuals. Additionally, an interaction between focus discrepancy and type of picture was predicted.

H4.1 Self-pictures should be categorized faster in the personal goal-activation condition compared to the control condition, whereas the categorization of control pictures should be independent of goal condition.

H4.2 Participants with a high discrepancy between their actual and their ideal/ ought self should categorize self-pictures faster compared to subjects with low focus discrepancy, whereas categorizing control pictures should not be affected by regulatory focus.

Design and Overview

The above hypotheses were tested using a 2 (goal condition: personal goal activation vs. personal evaluation) X 2 (chronic discrepancy: low vs. high) X 2 (type of picture: self vs. control) factorial design with goal condition and regulatory focus as between factors. Again, latencies in response to self- and control pictures served as dependent variables.

Method

Participants

Fifty-one non-psychology students (30 female; mean age 23.22) participated in the study ($N_{\text{personal goal}} = 27$, $N_{\text{personal evaluation}} = 24$). Participants were recruited at the campus cafeteria for a 20-minute psychology study and received a chocolate bar as compensation.

Materials and Procedure

The procedure was very similar to that of Study 3, except for the following: First, in the experimental group, subjects generated personal goals instead of thinking about experimenter provided goals (*personal goal activation*). Second, only one control condition was used in which participants were asked to generate goals they regarded important for target persons, and evaluate his or her work (*personal evaluation*). Third, to simplify the procedural logistics, recruiting (incl. picture taking) took place immediately before the experiment (compared to Study 2, an additional two-minute delay was included in order to diminish self-focus that might have been induced).

Participants were tested in groups of three to five people. Because the pictures were taken directly at the beginning of the experiment, three experimenters jointly conducted each session of the study. After taking the two pictures in front of a white wall, participants had to wait for two minutes until the experimenter converted them, as was done in the previous studies. Also, we believed that this delay was important to diminish any self-focus that may have been induced by the picture taking. Again, all subjects were assured that their picture would be deleted immediately after the session. Mood and trait questionnaires were similar as in Study 3, except for the additional regulatory focus questionnaire. After reading the general instructions and indicating their mood, participants were instructed to generate goals and think about them.

Goal-activation

In the personal-goal condition participants were instructed to generate the three most important personal goals they would try to attain in the next six months (see Brunstein, 1993; Gore & Cross, 2006). Specifically, in the experimental condition they read the following instructions:

> Which 3 goals will you try to attain in the next six months? Think about the 3 goals most important to you. You will have 30 seconds to think about each goal; then we will ask you to indicate them.

In the personal evaluation condition participants were randomly assigned to one of three professional category groups to ensure that effects would not be attributable to the material used. They were asked to generate three goals they personally thought most important for a doctor, a hairdresser, or a stage director, so that they would do a good job in their respective profession. For example, the instruction for one of the groups in the control condition was:

> Which 3 goals do you personally think a doctor should try to attain, so that s/he does a good job? Think about the, in your opinion, most important 3 goals for a doctor to pursue, so that you would feel that s/he provides good consultations. You will have 30 seconds to think about each goal, and then we will ask you to indicate them.

To compare the evaluation process in the control condition with the process of generating goals in the personal-goal condition, I had to emphasize the personal evaluation character of the task to assure that we really assess a personal evaluation (and not only the reflection about another person's goals). Following general instructions, subjects were asked to describe the goals without time constraints in the personal-goal condition as follows:

> Please indicate your FIRST personal goal here: In the next six months, I plan to ___. Please describe your personal goal in detail.

To continue with the doctor as an example for the control condition, participants read:

> Please indicate your personal proposal for a FIRST goal here: I think that it is good, if a doctor ___. Please describe in detail this possible goal a doctor should have, so that you would feel that s/he provides good consultations.

The same procedure was used for the second and the third goal (see Appendix D for the detailed instructions). After the goal manipulation the picture task followed.

Dependent Measure - Picture Task

Instructions, as well as presentation of the pictures in the self-activation measure were exactly the same as in Study 3 with the only difference that participants' pictures were taken immediately before the experiment started. Therefore, the control pictures had to be taken from a pre-test with students from the University of Würzburg. Again, the self-activation measure began with 28 practice trials. 65 control students were used for the task, with two pictures of each person and each picture presented twice, resulting in 266 experimental trials consisted of 260 control trials and 6 self-trials for each subject.

Chronic regulatory focus

As already discussed in the Theoretical Section, in Higgins' Self-discrepancy Theory (Higgins, 1987) and Regulatory Focus Theory (Higgins, 1997) the self and goals seem to be inherently linked to one another. To reiterate, it is assumed that the discrepancy between the current state and a desired future state directs attention towards the self, when people engage in goal pursuit. To test this, in the present study, participants' chronic focus discrepancy was assessed as an additional variable. To this end, I adopted a computer measure that was similar to the Selves Questionnaire used by Higgins, Shah, and Friedman (1997). It assessed both the ideal and ought *strength* of participants' promotion/ prevention regulatory styles using a reaction time task, as well as the *discrepancy* between ideal/ought extent rating and actual-ideal extent rating, respectively, actual-ought extent rating, which will be described in detail below. Similar to the Selves Questionnaire, participants were asked to list attributes describing self-representations (see Higgins, 1997). Subjects were told that they would have to specify attributes that described their ideal selves (attributes to

which they aspire) and ought selves (e.g., duties). Unlike the Selves Questionnaire, they were asked to indicate each attribute only once, resulting in different attributes describing the ideal and those describing the ought self. Subjects were instructed to indicate all attributes as quickly and accurately as possible, and were given practice with the general procedure by answering some questions that were unrelated to either their ideal or ought selves; after naming each attribute, they were also asked to rate the extent to which they believed this attribute actually described the noun, on a 4-point scale, ranging from 1 (*slightl*y) to 4 (*extremely*). These answers were not used in subsequent analyses. Then subjects were asked to list ideal and ought attributes in a seemingly random order. They indicated one ideal attribute, followed by two ought attributes, another ideal, another ought, another two ideal and a final ought attribute. This sequence resulted in four ideal and four ought attributes. After quoting each ideal (ought) attribute, subjects rated the extent to which they ideally would like to (ought to) possess the attribute (ideal/ought extent), and the extent to which they actually possessed it (actual-ideal /actual-ought extent) using the same 4-point scale described above (served to calculate chronic discrepancy; see results). The computer measure also recorded the time a participant required to produce each attribute and to indicate the corresponding extents (served to calculate chronic strength).

Additional Questions

Next, subjects had to answer some control questions regarding the reported goals. All participants had to indicate for each goal how important it was to them for a time-frame of the coming six months. In the experimental condition they answered two additional questions about how close they were to goal achievement and the reasons for attaining it (e.g., personally important, fun, to satisfy others; for a detailed description see Appendix D). Finally, participants indicated their major, age and their motivation for the task, were thanked, and received a chocolate bar as compensation.

Results

The analyses yielded that goal-activation did not affect mood ratings; and it could be ruled out, too, that mood ratings moderated the DVs. Hence, mood was not considered in further analyses.

Preliminary Analysis: Professional Category (doctor/ hairdresser/ stage director)

In the control condition (24 subjects), the program randomly assigned participants to one of three professional categories. First of all, we controlled for the professional group (N_{doctor} = 9; $N_{hairdresser}$ = 9; $N_{stage\ director}$ = 6), and analyzed whether the used category influenced the dependent variables differentially. Latencies were subjected to a 3 (category: doctor vs. hairdresser vs. stage director) X 2 (type of picture: self vs. other) ANOVA, which revealed no difference for professional category, or for the type of picture by category interaction (Fs < 1). Hence, latencies of control participants of all professional categories were pooled together.

Treatment of Response Latencies

Like in all previous studies, the improved scoring algorithm to treat response latencies was used to trim the data (Greenwald et al., 2003). Due to the trimming procedure and technical problems regarding the picture assignment, a total of 9 subjects had to be excluded from further analyses, resulting in a sample of 42 participants ($N_{personal\ goal}$ = 21; $N_{personal\ evaluation}$ = 21).

Self-activation

When testing for possible changes of latencies in the course of the 266 trials, paired-samples t-tests indicated a significant decrease in latencies on self-pictures, $t(40) = 2.45$, $p = .019$, whereas latencies on control pictures did not change during the course of the task, $t(40) = .28$, $p = .78$. Therefore, the reported results are again based on analyses with

latencies on the first self and the first control picture to assure that a heightened self focus would be due to the experimental manipulation and not to activation induced by the task itself. To test the core assumption, whether goal activation leads to self-activation, the data was subjected to a 2 (goal condition: personal goal-activation vs. personal evaluation) x 2 (type of picture: self vs. other) ANOVA, with goal condition as between factor and type of picture varying within subjects. Again, the analysis revealed a significant main effect for type of picture, $F(1, 40) = 19.09$, $p < .001$, indicating that participants react slower in response to self-pictures. Furthermore, as expected, goal activation facilitated the categorization of self-pictures ($M_{\text{personal goal}} = 964$ ms, $SD_{\text{personal goal}} = 424$, $M_{\text{personal evaluation}} = 1248$ ms, $SD_{\text{personal evaluation}} = 480$) but not the recognition of control pictures ($M_{\text{personal goal}} = 799$ ms, $S_{\text{personal goal}} = 308$, $M_{\text{personal evaluation}} = 690$ ms, $SD_{\text{personal evaluation}} = 205$), resulting in a significant interaction of goal condition and type of picture, $F(1, 40) = 5.63$, $p = .02$ (see Figure 4). Thus, the results strongly support the hypothesis.

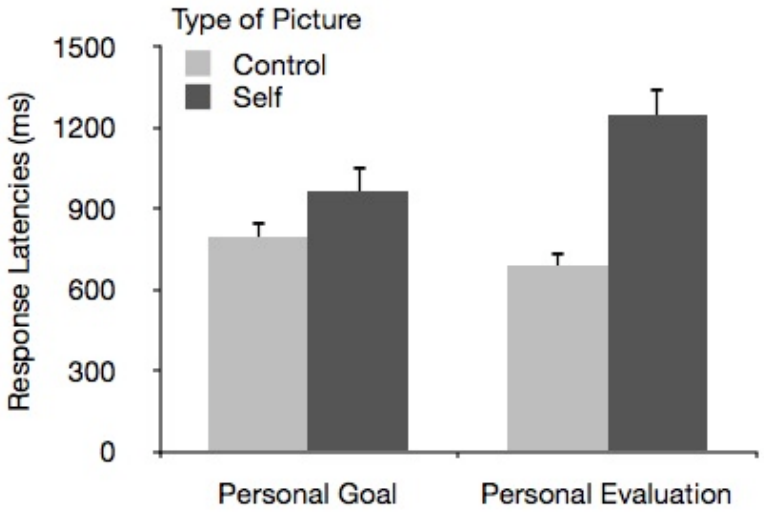

Figure 4: Response latencies (ms) as a function of goal-activation (self-generated), and type of picture. Error bars indicate standard error of means. (Study 4)

Importance of goals

Even though subjects were explicitly instructed to describe the three most important goals, I still controlled for goal importance. First, it was analyzed whether importance was systematically related to response latencies on self- and control pictures. While importance did not correlate with latencies on control pictures, ($p > .7$), there was a significant correlation with responses to self-pictures, such that participants indicating higher importance reacted faster, $r = -.34$, $p = .029$.

Because no difference in importance was found for goal activation condition ($F < 1$), no mediational analysis was conducted. A second ANOVA revealed that participants with low and high goal importance did not differ in response latencies (no significant main effect of goal importance, $F < 1$). However, participants who had indicated less important goals reacted faster to control pictures ($M_{\text{low importance}} = 686$ ms, $SD_{\text{low importance}} = 140$, $M_{\text{high importance}} = 799$ ms, $SD_{\text{high importance}} = 335$); in contrast, those who had indicated that the goals were important to them responded faster to self-pictures ($M_{\text{low importance}} = 1213$ ms, $SD_{\text{low importance}} = 483$, $M_{\text{high importance}} = 1010$ ms, $SD_{\text{high importance}} = 447$), resulting in a marginally significant interaction between goal importance and type of picture, $F(1, 40) = 3.46$, $p = .07$ (consistent with the findings of Study 3).

Finally, latencies on self-pictures were regressed in a common regression analysis onto goal importance and goal condition, as well as their interaction. When regressed onto both, goal condition remained significant in the equation, ß = -.38, $p = .01$, but also importance was a significant predictor of latencies in response to self-pictures, ß = -.37, $p = .014$; the interaction was not significant ($p < .5$), indicating that the effect of goal condition on responses to self-pictures is independent of goal importance; notably, the latter also significantly predicts self-picture latencies, supporting the results of Study 3.

Chronic focus (CF)

Self-guide strength and discrepancies were calculated using only three rather than all four attributes, because output primacy is one indicator of chronic accessibility (Higgins, 1996). There were no differences in attributes listed as ideals and oughts.

Total ideal / ought strength assessment. The computer recorded the time required to produce each attribute and to indicate the corresponding extent rating. Since latency distributions were positively skewed, they were log-transformed. Then, attribute and extent rating latencies (e.g., ought extent and actual-ought extent ratings) were summed across the first three ideal attributes and across the first three ought attributes, separately, resulting in one total ideal and one total ought strength assessment.

Self-discrepancy. Self-discrepancy scores were calculated by simply summing the differences between self-guide extent ratings and their corresponding actual state extent ratings for the first three attributes. For example, to calculate participants' ideal discrepancy score, I subtracted, for each attribute, the actual-ideal extent rating from its corresponding ideal extent rating. The differences on the first three attributes were then summed to form a single ideal discrepancy score. Using the same procedure, a single ought discrepancy score for each subject was calculated.

Regressions on strength and discrepancy. First, when regression analyses for latencies were performed onto self-guide *strength*, neither "ideal" nor "ought" strength predicted latencies on self-pictures or on control pictures (all *p*s > .25). Second, regression analyses for latencies onto ideal and ought *discrepancy* revealed that discrepancy was significantly predictive of latencies in response to self-pictures, but not to control pictures (*p*s > .26). As expected, ideal discrepancy predicted responses to self-pictures, ß = -.40, $p = .009$, as well

as ought discrepancy did, ß = -.30, p = .05, such that participants with high ideal/ought discrepancy were faster in reaction to self-pictures.

In testing whether chronic focus differed in experimental and control condition, the conducted ANOVA revealed no significant main effect for goal condition (Fs < 1), suggesting that subjects did not differ in ideal or ought discrepancy in the personal goal and the personal evaluation condition. However, the above results indicate that discrepancy predicted reactions to self-pictures and might moderate the results. All data were subjected to two regression analyses, where goal-activation as well as ideal/ ought discrepancy and the interaction of both were entered jointly to predict response latencies to self-pictures. For *ideal discrepancy* and goal-activation as predictors, I still found a significant effect for goal condition, ß = -.29, p = .04; the independent effect of ideal discrepancy was also significant, ß = -.32, p = .03; and there was a tendency for the interaction of goal condition and ideal discrepancy, ß = .24, p = .104. The pattern for *ought discrepancy* was very similar: the two main effects were marginally significant (goal condition, ß = -.26, p = .08; ought discrepancy, ß = -.26, p = .08), but the interaction effect was not significant (p > .50).

To conclude, *ideal discrepancy* predicted responses to self-pictures independently of goal condition; both were significant predictors of self-picture latencies. When response latencies to self-pictures were regressed on goal condition and *ought discrepancy*, the effects were only marginally significant. Responses to control pictures were unaffected by chronic focus.

Self-consciousness

Then, I checked for the effect of self-consciousness (SC). Subjects in the experimental and control condition did not significantly differ in their level of SC, F < 1. Following Baron and Kenny (1986), no mediational analysis was conducted because the independent

variable did not predict both the dependent and the mediator variable. However, an ANOVA with SC as between-subjects factor (SC: low vs. high, after median split) and picture latencies as DVs revealed that participants with high SC ratings categorized self-pictures faster than persons with low SC, $F(1, 40) = 4.79$, $p = .035$. There was only a non significant tendency for control pictures, with participants with high SC being slower, $F(1, 40) = 2.61$, $p = .11$. When the data were subjected to a 2 (SC: high vs. low) X 2 (type of picture: self vs. other) ANOVA, the analysis revealed a significant interaction of SC and type of picture, $F(1, 40) = 7.12$, $p = .01$, such that reactions to control pictures were independent of level of SC, whereas responses to self-pictures were faster for participants with high SC. Then, all data were subjected to a regression analysis, where goal condition and SC as well as their interaction were entered jointly to predict latencies in response to self-pictures. The analysis revealed a significant effect for goal condition, ß = -.34, $p = .023$, such that participants in the personal goal condition reacted significantly faster to self-pictures than participants in the evaluation condition. Additionally, SC was a marginally significant predictor of self-picture latencies, ß = -.26, $p = .075$, and there was a tendency for an interaction of goal condition and SC, ß = .25, $p = .088$.

To conclude, even though there was a tendency for an interaction between SC and goal activation, goal condition and partly SC predicted responses to self-pictures independently of one another, too. Given that goal condition still predicted self-picture latencies when accounting for the effect of SC in a conjoint regression analysis, it can be concluded that there is a significant effect of goal-condition on self-picture latencies independent of SC.

Discussion

Study 4 provides further support for the assumed link between goal pursuit and the self. Taken together, the present results greatly corroborate the hypothesis that personal-

goal activation leads to self-activation. It reveals that participants who generated personal goals (personal-goal activation) respond significantly faster to self-pictures than participants who evaluated another person's work by thinking about his or her goals, too (personal evaluation), whereas control pictures were not influenced by goal-activation. These results clearly suggest that personal goals activate the self.

To conclude, Experiment 4 extended the findings from the previous study in four important aspects. First, because in Study 3 response latencies were influenced by the subjective importance of the provided goals, in the current experiment participants were instructed to think about the three goals most important to them in the coming six months, which resulted in significant effects, yielding the same pattern as for the important goals in Study 3. Hence, for self-activation to take place, it seems important to let people generate their personal goals instead of providing them in the experiment (see Brunstein, 1993; Gore & Cross, 2006).

Second, ideal and ought discrepancy predicted response latencies for self-pictures, indicating that chronic regulatory focus should be assessed when examining goals and self-activation, to control for a possible mediation. Furthermore, this finding supports the notion that it may be the discrepancy between the current and a desired future state that directs attention to the self in goal pursuit. This assumption is in line with the findings that the greater the discrepancy is, the faster responses are to self-pictures (indicating higher self-activation for great discrepancy).

Third, the assumption that increased SA in the picture task was measured as a consequence of thinking about personal goals is additionally fostered by the results regarding self-consciousness: Particularly, the pattern that emerged for trait SC was very similar to the effects found for goal activation (Study 3 and 4), as well as for manipulated private self (Study 1 and 2), suggesting that similar processes might be involved when a)

thinking about personal goals, b) temporarily reflecting on the self, or c) having a high chronic level of SA. As delineated earlier, I interpret these findings as a result of an increased accessibility of self-related knowledge, facilitating the processing of pictures of oneself, which results in faster response latencies for self-pictures. Finally, further evidence was found for the assumption that the picture task induces self-activation itself. Latencies in response to self-pictures decreased in course of the picture task, whereas responses to control pictures did not change significantly, allowing the conclusion that only response latencies on the first pictures should be included in the analyses.

So far, SA has been considered as a DV; it was either induced directly by using different methods of self-reflection or it was induced indirectly by triggering personal goals as a medium to activate the self. Overall, the results of Study 1 to 4 converge to demonstrate that self-reflection and personal goal-activation both seem to activate the self, suggesting that the self actually plays a key role in goal pursuit. So far, in Study 3 and 4, goal-activation served as independent variable in analyzing the link between goals and the self. Experiment 5 and 6 were designed to test the bidirectional nature of the goal-self link by examining goal-activation as dependent variable.

Experiment 5: Goal-Activation as Consequence of Self-Activation: Accessibility and Approach Avoidance Motivation

It will be recalled that the third main goal of the present work was to demonstrate the *bidirectional* relation between personal goals and the self. Accordingly, regarding goal-activation in Experiment 5 dependent and independent variables were reversed (compared to Study 3 and 4). So far, the self has been manipulated by either inducing private and public self-awareness (Studies 1 and 2), or by activating goals (Studies 3 and 4) as a means to indirectly activate the self. Subsequently, in all experiments, SA was assessed with the picture task as implicit measure of SA. The results of Study 1 to 4 reveal that self-awareness and personal goal-activation both seem to activate the self, presumably by increasing the accessibility of self-related knowledge (including one's own physical appearance), which facilitates processing of self-related information and results in faster responses to self-pictures. To reiterate, the same pattern of reaction times was found in response to self- and control pictures for participants in the self-reflection conditions (Experiment 1 and 2) as for participants in the goal-activation conditions (Experiment 3 and 4). This implies that the self, in fact, is involved in personal goals. To reiterate, I assume that when activating personal goals, people simultaneously direct attention to the differences between their actual and their ideal or ought self. In this sense, then, the greater the discrepancy is, the more self-aspects should be activated, resulting in faster reactions to self-pictures. This reasoning is supported by results regarding chronic focus, indicating that subjects with a greater chronic actual-ideal/ought discrepancy exhibit a greater self-activation in the picture task (see results of Study 4).

By this logic, on the other hand, activation of the self-concept should increase the probability that a positively evaluated target will be construed as a goal. Specifically, if the

self is activated, current and future selves (pertaining to the positively evaluated stimuli) as well as their momentary discrepancy should become salient, which might motivate behavior to reduce the discrepancy, and activate goal-related structures to increase the likelihood of their attainment. To test this, in Study 5, goal-activation was assessed as DV; SA served as independent variable and was manipulated either by the use of 'self-novelty' (see Study 1, Snow et al., 2003) or by taking a picture (as between factor). The latter condition served to verify the assumption that, in Study 2, effects were not as strong as in the other experiments due to additional self-activation by taking the pictures immediately before the experiment started (in Study 4 after the picture taking an additional delay was introduced in order to diminish SA that might have been induced by being photographed). Study 5 was conducted as a two-session study; in session 1, the pictures for the SA measure were taken; in session 2, a picture was taken of only one third of the participants, which served to activate the self. Then, subjects had to evaluate several targets in four domains that could possibly be goal-relevant for the present participant sample (i.e., studies/ profession, friendship/ relationship, vacation/ traveling, and sport/ fitness) as well as control targets (e.g. flowers) by merely indicating their judgment on a scale ranging from 1 (*negative*) to 7 (*positive*). The degree of goal-activation was measured by using two DVs: First, a lexical decision task (LDT) served to investigate whether the accessibility of goal related words differed between the SA and control condition (see Fishbach & Shah, 2006); in particular, the LDT was designed to measure accessibility of the mental representation of activated goals, and their means for attainment. Second, a behavioral measure of approach-avoidance was used to capture motivational aspects of goals (see De Houwer et al., 2001). To sum up, the present experiment consisted of 3 main parts: (1) SA manipulation, via self-novelty task, (2) activation of four content domains, via evaluation task, and (3) assessment of goal-activation, via measuring goal-accessibility and approach-avoidance motivation.

Hypotheses

It was predicted that participants with increased levels of self-activation would activate goals for domains they evaluate positively. Or, put differently, positively evaluated targets should transform into goals only in the two self-activation conditions. Two measures served to assess goals, translating into the following hypotheses.

H5.1 In the LDT, participants high in self-awareness (self-novelty and picture condition) should react faster to goal related words compared to participants in the control condition, whereas responses to control words should not be affected by self-activation.

H5.2 In the approach-avoidance task (Manikin task), participants high in self-awareness should show a greater approach motivation to goal related words than control participants, whereas responses to control words should not be affected by self-activation.

Design and Overview

The hypotheses were tested using a 3 (self-activation: picture vs. self-novelty vs. control) X 2 (type of word: goal-related vs. control) factorial design. Participants were randomly assigned to one of the three self-activation conditions; type of word was varied as within factor. Response latencies to goal and control words (LDT), as well as an approach score for goal related words and control words (Manikin) served as dependent variables.

Method

Participants

Fourty-four female and 24 male students of different majors (excluding psychology) of the University of Würzburg ($N_{\text{picture}} = 22$, $N_{\text{self-novelty}} = 23$, $N_{\text{control}} = 23$) participated in the present study. Subjects were recruited for a two-session study; the first session lasted about

30 minutes and the second session about 45 minutes. Participants received 8,- € ($10 at that time) as compensation for their time.

Materials and Procedure

Overview. The aim of Session 1 was to assess personal goals and traits without affecting the relevant DVs; in a similar vein, I wanted to prevent answers about personal goals to be affected by self-activation or the goal-activation measures used in Session 2. Furthermore, at the end of the first session, the pictures for Session 2 were taken to avoid additional SA in all conditions during the experiment. In the second session, SA was manipulated either via the self-novelty task or by taking a picture (in each case for one third of the subjects), followed by the evaluation task and the assessment of goal-activation, using the two dependent measures. In both sessions, participants were tested in groups of up to three people. In both sessions, upon arrival, participants were told that all instructions would be presented on their respective computer screens and that the experimenter would be in another room. They were also informed that at some points during the experiment, they would be told to go to the other room to ask the experimenter for further testing.

Session 1. In Session 1, after indicating their mood, participants were asked to answer questions about goals they wanted to attain during the coming six months in the following four domains: studies/ profession, friendships/ relationships, vacation/ traveling, and sports/ fitness. Previous studies have shown that when asked to generate the three most important goals for the coming six months, people spontaneously mention goals in at least one of these four domains (e.g., Brunstein, 1993; Gore & Cross, 2006). More specifically, in Session 1 subjects were asked for 16 possible goals (4 target words for each domain), which were later used as possible goal-related words in the LDT, and the Manikin task in Session 2. The relevant trait concepts assessed were nearly the same as in Experiment 4

(SC, regulatory focus)[5]. At the end of Session 1, two pictures were taken of each person and an appointment was made for Session 2, which took place approximately 10 days later.

Session 2. To begin with, before addressing in more detail the dependent and independent variables that were used in Session 2, I would like to give a brief overview of the design of this session: The self-novelty manipulation was subdivided into two sections, in order to activate the self previous to each DV. After participants had answered some questions about their mood, the first block started with the *first self-activation* task (picture vs. self-novelty vs. control). Immediately after the first SA manipulation, participants had to complete an evaluation task (see section below) to activate the four domains mentioned above. After the evaluation task, the first dependent measure (LDT) was presented. Finally, the picture task was used as SA manipulation check. In the second block, after a *second self-activation* and a repetition of the evaluation task, approach-avoidance motivation was assessed as a second DV (Manikin), again followed by a SA manipulation check. Finally, subjects had to answer questions concerning any suspicions they might have had regarding the true nature of the study, their motivation for the tasks and biographical information. In the following, I will address the above-mentioned tasks and DVs in more detail.

Self-activation. Participants were randomly assigned to one of the three self-activation conditions. Specifically, in the first condition, a picture was taken as self-activation manipulation immediately before each evaluation task and the following DV (*picture condition*). To this end, after completing the mood questionnaire, participants were instructed to go for further testing to the experimenter in the other room; there, two pictures were taken in order to activate the self (ostensibly required for the picture task). For the brief interval until the picture was on the computer screen, subjects had to wait outside the

[5] As no effects emerged for self-monitoring (SM; Snyder & Gangestead, 1986) in Study 1 to 4, it was not considered as control variable in Study 5 and 6.

testing room. For subjects in the SA via picture-taking condition, this procedure was repeated two times, previous to the LDT, and previous to the Manikin task, respectively.

Please note that – for the sake of keeping experimental procedures as parallel as possible in all the three conditions - subjects were required to seek out the experimenter in all three conditions; the only difference for participants in the *self-novelty condition* and in the *control condition* was that no picture was taken. Instead, in these two conditions subjects had to wait for the same brief interval outside the testing room, ostensibly to give the experimenter time to prepare the computer for further testing. Then, they were requested to complete a "writing task" that served to manipulate SA in the self-novelty condition. Again, in the self-novelty condition participants had to answer the two questions: "What is it about you that makes you different from your family? / from your friends?". In the control condition, subjects completed a writing task about a topic irrelevant to the self, by responding to the questions: "What are the most important features that distinguish good from bad movies?/ television series?" (Snow et al., 2003). In order to assure a refreshment of self-activation before each DV, participants had to answer one of the above-mentioned questions preceding each DV.

Evaluation task. As mentioned before, after each SA manipulation, subjects had to complete an evaluation task consisting of 44 trials (4 practice trials, 8 control trials and 32 goal-relevant trials for the four domains, each with 8 evaluations). Specifically, they were asked to rate the valence of 44 words on a scale ranging from 1 (*negative*) to 7 (*positive*). During task construction, it was ensured that generally negatively evaluated as well as generally positively evaluated targets were both included to activate the domains of studies/ profession, friendship/ relationship, vacation/ traveling, and sport/ fitness. Please note, this pool of words did not include the goal-targets generated by the participants for each domain in session 1 and employed in the LDT and the Manikin task.

Dependent Measures (DVs)

Assessment of Accessibility - Lexical Decision Task. After the first self-activation and the subsequent evaluation task, subjects completed a lexical decision task (LDT) to assess the accessibility of goal-related words as indicator of goal activation. Participants were presented with a series of letter strings and were told to decide whether or not each letter string constituted a word. They were instructed to react as fast and accurately as possible, and to leave their index fingers on the marked keys during the entire LDT; they were asked to press the left key (letter y) or the right key (letter _) depending on the categorization "word" or "nonword", respectively. As a visual reminder, the category labels appeared on the upper left and upper right side of the screen during the entire task. Furthermore, participants were instructed to focus their attention on a fixation point (plus sign) that appeared at the center of the screen for 200 ms at the beginning of each trial. The fixation point was then replaced by a target word, a control word or a nonword (pronounceable letter string that did not constitute an actual German word), which remained on the screen until participants pressed one of the designated keys. Each response was followed by a 500 ms pause, followed by the next trial. Every time participants committed a categorization error, a red "x" appeared in the center of the screen for 50 ms, followed by a 500 ms pause, followed by the next word/ nonword. The LDT started with 24 practice trials, consisting of 12 words and 12 nonwords. After this practice block, each word and nonword appeared twice. The same category groups (studies/ profession, friendship/ relationship, vacation/ traveling, sport/ fitness) with the four goal-related words generated by the respective participant in Session 1 were used, resulting in 16 goal-related words, embedded in 16 correspondent nonwords (matched for length and frequency). To control for an activational versus a motivational interpretation of findings, a set of 16 neutral words (e.g., chair) semantically unrelated to the critical goal-related words (e.g., exam) were introduced

(serving as within-subject controls), as well as 16 correspondent nonwords (e.g., susk). This resulted in 128 experimental trials, with an equal number of words and nonwords. The order of the trials was randomized within each block for each subject (see Appendix E).

Approach-Avoidance Motivation - Manikin Task. The Manikin task introduced by De Houwer et al. (2001) was used as a behavioral measure of approach-avoidance tendencies (second DV) in order to assess the approach motivation to goal-related words and control words as further indicator of goal activation. I selected the Manikin task as it seems to be the most sensitive measure among the different behavioral measures of approach-avoidance motivation, given its good representation of distance regulation. Subjects were asked to complete it after the second repetition of the self-activation and the evaluation task. At the beginning of the task, participants were instructed to imagine being a figure presented on the computer screen and to move the figure towards or away from a stimulus, thereby being as fast and as accurate as possible. More specifically, subjects were informed that words and nonwords would be presented one by one on the computer screen; they were told that there would also be a person-like figure, either below or above the stimulus, which they should move by pressing designated key, always using the same finger (either middle or index finger). Before each onset of the stimulus, a fixation cross was presented in the center of the screen, then subjects had to press the "5" key and keep it pressed in order to make the manikin (person-like figure) appear. The figure appeared either above or below the center of the screen, where the stimulus would be presented 750 ms later; importantly, the position of the manikin was determined randomly for each trial and, therefore, was not tied to the type of target. When the stimulus appeared, subjects could make the manikin move upwards or downwards by pressing one of two keys (the "8" key for upwards and the "2" key for downwards). Each pressing of the key corresponded to a move of 38 pixels, which made the manikin appear to be walking. Participants were either instructed to move the

manikin towards words and away from nonwords in the first block, or vice versa, by pressing the respective key three times. Respectively, in the second block they were told to move the manikin toward nonwords and away from words, or vice versa. The order of the blocks was counterbalanced between subjects. All stimuli remained on the screen until the manikin had reached the center or the edge, and were then removed after 500 ms, with the next trial following after another 500 ms. If participants committed an error, the word "error" appeared and a new trial started after 500 ms. Importantly, the time that elapsed between the presentation of the stimulus (onset of word/nonword) and the first key press served as DV. Each stimulus was presented twice (8 goal-relevant words, 8 control words, 16 nonwords), resulting in 64 experimental trials for each block, preceded by 8 practice trials (4 control, 4 nonwords). Within each block all trials were presented in random order.

Picture Task

Instructions, as well as presentation of the pictures in the SA measure were exactly the same as in Study 4 with the only differences that pictures were taken 10 days before the actual experiment and the self-pictures of fellow participants served as control pictures.

Results

First, I will report the full preliminary analyses pertaining to mood, manipulation checks, evaluation task, LDT and Manikin task. Second, I will address the results pertaining to the two dependent measures - LDT and Manikin task.

Preliminary Analyses

Mood. Regarding mood effects, the analyses yielded that SA did not affect mood ratings; and it could be ruled out, too, that mood ratings moderated the DVs. Hence, mood was not considered in further analyses.

Manipulation checks. The picture task that was applied after each DV served to check whether the manipulation of SA had worked; response latencies were trimmed as in the previous studies. For the two SA measures, latencies were subjected to a 3 (self-activation: picture vs. self-novelty vs. control) X 2 (type of picture: self vs. control) ANOVA for repeated measures. The results suggest that the manipulation only worked for the Manikin task (second DV), with a significant main effect for type of picture, such that participants responded slower to self-pictures ($M_{\text{self pictures}}$ = 701 ms, $SD_{\text{self pictures}}$ = 173; $M_{\text{control pictures}}$ = 627 ms, $SD_{\text{control pictures}}$ = 170), $F(1, 53) = 5.54$, $p = .02$, and a marginally significant interaction between self-activation condition and type of picture emerged, $F(2, 53) = 2.51$, $p = .09$, indicating that participants high in self-awareness (picture, self-novelty) categorized self-pictures faster ($M_{\text{picture taking}}$ = 647 ms, $SD_{\text{picture taking}}$ = 158; $M_{\text{self-novelty}}$ = 696 ms, $SD_{\text{self-novelty}}$ = 175; $M_{\text{control cond.}}$ = 755 ms, $SD_{\text{control cond.}}$ = 176). Even though in the first picture task after the LDT the predicted pattern emerged, it failed to reach significance ($F < 1$). Hence, for the LDT the experimental SA might not have worked; or the manipulation check yielded no significant effects due to a decay of SA during the LDT.

Evaluation task. According to the hypotheses, for participants with high SA, positively evaluated targets should transform into goals. Hence, subjects' valence ratings in the evaluation tasks were considered (32 goal-relevant trials). An overall mean score and a domain specific mean score for each of the four domains were calculated for the valence ratings before each DV. Based on a median split, participants were then classified as having either a positive or a negative evaluation towards the rated topics.

LDT - Treatment of Response Latencies. First, the data set was trimmed to reduce effects of outliers and errors (procedure by Fishbach & Shah, 2006). The trimming procedure resulted in the elimination of (a) all incorrect responses (3.6%), because errors would have been difficult to interpret in terms of accessibility (Bargh, Chaiken, Govender,

& Pratto, 1992); (b) latencies below 100 ms and above 3000 ms, and latencies that were 2.5 standard deviations greater than the mean for each individual's mean score (2.6%); and (c) responses for nonwords. Then, latency distributions were log-transformed to adjust for the skewness of the original data. However, for the sake of ease of communication, the non-transformed means are presented.

Manikin Task - Treatment of Response Latencies. First of all, the data set was trimmed in order to reduce the effect of outlier latencies; to this end, a 1500 ms cut-off criterion was used as correction method (see Krieglmeyer & Deutsch, 2009). In the following, the expression "compatible" is used for trials in which participants were instructed to react to words with approach (and nonwords with avoidance), and "incompatible" is used for trials in which subjects had to respond to nonwords with approach (and words with avoidance).

Manikin Task - Block Order and Type of Response. First, I analyzed the effect of "block order" that was counterbalanced between subjects and response latencies and errors for compatible (words-approach) and incompatible (words-avoidance) trials. An ANOVA for repeated measures with block order (compatible vs. incompatible first) as between factor and participants' type of correct responses (compatible vs. incompatible) as within factor yielded a significant main effect for type of response; participants overall showed faster responses to compatible trials (M = 653, SD = 93), compared to incompatible trials (M = 750, SD = 108), $F(1, 63) = 135.44$, $p < .001$. There was neither a significant main effect for block order, nor an interaction of block order and type of response (Fs < 1), indicating that response latencies did not differ depending on whether the compatible block or the incompatible block was presented first.

Correspondingly, an ANOVA with number of errors was conducted, and revealed similar results; participants committed less errors in compatible trials (M = 1.3, SD = 1.4), compared to incompatible trials (M = 2.5, SD = 2.3), $F(1, 63) = 22.52$, $p < .001$; however,

there was no significant interaction of block order and type of response (*F*s < 1). Consequently, neither response latencies nor number of errors differed for compatible and incompatible trials depending on their order of presentation, allowing the data to be pooled over block order.

Manikin Task - Approach Score. Importantly, as critical dependent measure for subsequent analyses, a manikin approach-score was computed for goal and control words respectively, by computing the following: [(latencies in incompatible trials) - (latencies in compatible trials)]; thus, a higher score indicated a higher motivation to approach the respective word (see Krieglmeyer & Deutsch, submitted for publication). Latencies in response to nonwords were excluded from further testing. The purpose of using words vs. nonwords was only to provide a clear category for participants to react to. Previous studies have shown that effects in the Manikin task are stronger when subjects have to react to a relevant category (e.g., valence; see De Houwer et al., 2001). Because such a procedure was not possible for goal-related words, the word/ nonword categorization paradigm was chosen (For the full preliminary analyses see Appendix E).

Dependent Measures - Testing Hypotheses

Lexical decision task. For further testing, only participants with a positive attitude in the valence ratings (after median split) were selected ($N = 31$). Data were subjected to a 3 (self-activation: picture vs. self-novelty vs. control) X 2 (word type: goal-related vs. control) ANOVA for repeated measures. The analyses revealed no significant effects of self-activation on goal-related words; specifically, self-aware and control participants did not differ in their responses to goal-related words and control words: neither main effects for word type ($F(1, 28) = 1.41$, $p = .24$) and self-activation condition ($F(2, 28) = 1.39$, $p = .267$), nor the interaction between self-activation and word type were significant ($F < 1$), indicating that self-activation did not lead to higher accessibility of goal-related words.

When taking the assessed trait concepts into account a significant effect of chronic regulatory discrepancy (RF) emerged, such that subjects with high discrepancy between their actual and their ideal self responded faster to goal-related words ($M_{\text{high discrepancy}}$ = 567 ms, $SD_{\text{high discrepancy}}$ = 96; $M_{\text{low discrepancy}}$ = 585 ms, $SD_{\text{low discrepancy}}$ = 57), but not to control words ($M_{\text{high discrepancy}}$ = 585 ms, $SD_{\text{high discrepancy}}$ = 92; $M_{\text{low discrepancy}}$ = 576 ms, $SD_{\text{low discrepancy}}$ = 57), resulting in a highly significant interaction, $F(1, 29) = 12.28$, $p < .01$ (consistent with Study 4). Self-consciousness did not affect latencies in the LDT.

Manikin Task. The Manikin task was used as a second measure to demonstrate goal activation. I hypothesized a stronger approach-motivation to goal-related words for participants in the self-activation conditions (picture and self-novelty) compared to the control condition, whereas latencies on control words should be unaffected by self-activation. Like in the LDT, only participants with a positive attitude in the previous valence ratings were selected (after median split; N = 31). A 3 X 2 ANOVA for repeated measures was conducted to compare approach-scores in the three self-activation conditions (picture vs. self-novelty vs. control) and for type of word (goal-related vs. control).

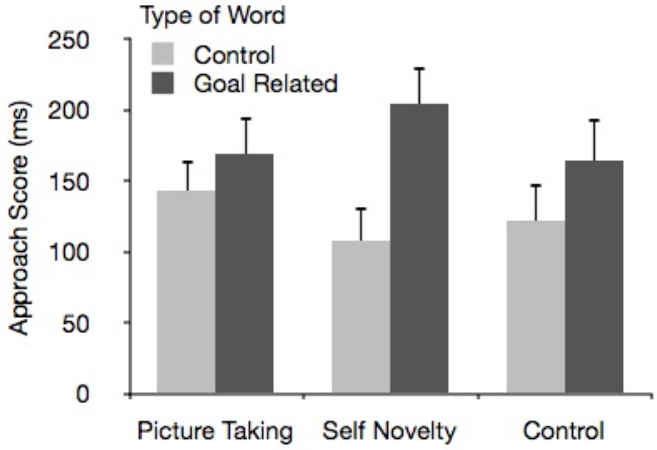

Figure. Manikin approach scores (ms) with higher scores indicating higher approach, as a function of self-activation, and type of word. Error bars indicate standard error of means.

(Study 5)

The analysis revealed that participants showed more approach to goal-related words (M = 180 ms, SD = 88) than to control words (M = 124 ms, SD = 78), resulting in a significant main effect for type of word $F(1, 28) = 16.35$, $p = .000$. As predicted, the results revealed a marginally significant interaction of condition and type of word, $F(2, 28) = 2.52$, $p = .09$. To further specify the nature of the interaction, subsequent contrasts examined the approach-scores to goal and control words in the three self-activation conditions separately. As can be seen in Figure 5, the contrasts revealed that in the picture taking condition, participants did not show a stronger approach motivation to goal-related words (M = 169 ms, SD = 26) compared to control words (M = 142 ms, SD = 23), $F < 1$. However, when participants reflected about themselves (self-novelty condition), as predicted, a significant effect emerged, indicating a stronger tendency to approach goal words (M = 203 ms, SD = 26) compared to control words (M = 108 ms, SD = 24), $F(1, 28) = 1.78$, $p = .000$. Reaction times did not significant differ in the control condition ($F < 1$). To sum up, as predicted, an interaction was found between self-activation and type of word, which was qualified by a significant difference between approach motivation to goal-related words and control words in the self-novelty condition, the interaction reached marginal significance. The effect failed to reach significance in the picture taking condition.

The analyses including self-consciousness and chronic focus discrepancy yielded no significant effects on the approach score in the Manikin task. Hence, SC and RF did not moderate goal-activation.

Discussion

To summarize, contrary to my expectations, in the LDT, participants high in self-awareness (self-novelty, picture) did not respond faster to goal related words. Given that the SA manipulation check with the picture task revealed no significant effect it might be

that the manipulation didn't work; hence, evaluations might not have been construed as personal goals, resulting in no increased accessibility of goal-related words in the LDT. Another explanation focuses on semantic priming effects caused by the evaluation task that preceded the LDT; given that the LDT followed immediately after the evaluations it might be possible that all subjects had an increased semantic accessibility of the goal-related topics (even those subjects whose goals were not actually activated), and consequently, responded to goal-related words in line with the activated contents. Accounting for this explanation, in Study 6 two DVs were employed that were not semantically associated with the goals as well as delayed DVs at the end of the experiment (semantic activation should be diminished).

Importantly, a significant interaction emerged between type of word and chronic focus, specifically ideal discrepancy, indicating that subjects with a high discrepancy between their actual and their ideal self responded faster to goal-related words. These findings are consistent with the results of Study 4, and support the assumption that when goals are active the discrepancy between a current and a future state of the self is particularly salient.

The manipulation check for the Manikin task revealed that participants categorized self-pictures faster when they thought about themselves (self-novelty) or when they had been photographed, indicating increased SA. As predicted, in the Manikin task an interaction of self-activation and word-type emerged, which was qualified by a significant effect in the self-novelty condition, indicating that participants who reflect about themselves show more approach-motivation towards goal related words, but not towards control words, suggesting that goals have been activated. In other words, participants who rate the valence of different topics after engaging in self-reflection are more likely to construe positively evaluated targets as goals. The effect showed a similar pattern, but failed to reach significance for subjects being photographed. Thus, it seems that taking a

picture of participants might increase SA; however, the effect was not as strong as in the self-reflection condition.

In sum, Study 3 and 4 converge to demonstrate that goal-activation leads to increased SA, validating the assumption that the self is crucial when distinguishing personal goals from personal evaluations. The present study aimed at demonstrating that reciprocally, positively evaluated targets are construed as a goal when the self is activated. Regarding the findings of Study 5, the hypothesis for the LDT could not be confirmed; manipulated SA did not result in faster responses to goal-related words. The lack of significant effects might be due to either a lack of SA as revealed by the manipulation check with the picture task or semantic effects induced by the evaluation task that preceded the LDT. Regarding the LDT, only effects of chronic focus discrepancy reached significance.

However, the results of the Manikin task partially support the hypotheses, indicating that goals are more activated when participants reflect about themselves compared to participants who reflect about topics irrelevant to the self. A general problem in the experiment might have been that even though the long SA manipulation from Study 1 (self-novelty) was used, it was divided in two parts, serving as only two-minute writing tasks about the self before each DV. This manipulation might not have been strong enough to produce significant differences between experimental and control condition. In fact, the manipulation check corroborates the presumption that the manipulation might not have worked for the LDT.

Hence, one could argue that the conclusion, of positively evaluated targets being construed as goals when the self is activated, is premature. Although the design of Study 5 was plausible as starting point of investigation of enhanced goal activation due to increased self-activation, it still allows for alternative explanations of the findings. First, the results regarding the accessibility of goal related words did not reach significance and should be

tested with a stronger manipulation of SA and a filler task after the evaluation task in order to reduce the effects of semantic activation. Second, it is still in question if behavioral measures of approach-avoidance motivation (as the Manikin task) actually capture a goal, or only assess an enhanced approach to positively evaluated words in general. Thus, to demonstrate goal activation, more evidence should be offered by directly measuring the unique features of goals as discussed in the Theoretical Part; specifically, *motivation* to attain a desired end-state should be demonstrated with a further method in order to corroborate the findings in the Manikin task, and goal-related *behavior* should also be included to foster the assumption that goals are actually active.

Nevertheless, the findings of Study 5 represent initial evidence that heightened activation of goals and their means might occur upon positive evaluations under increased self-activation. This idea was addressed in more detail in Study 6, by including goal-related behavior as a more direct indicator for goal-activation.

Experiment 6: Goal-Activation as a Consequence of Self-Activation: Instrumentally Goal-Related and Overt Goal-Directed Behavior

So far, the results demonstrate that activating personal goals via deliberate thinking about them yields increased self-activation, in the sense that it can be measured with implicit methods (Study 3 and 4). Furthermore, there is some evidence that also the reverse might be true, i.e., that increased self-activation may increase the probability that positive evaluations would be construed as personal goals (Study 5). However, the results did not reach significance for all DVs and a more direct test is needed to shed light on this issue.

As discussed extensively in the Theoretical Part of this thesis, in their Goal Systems Theory, Kruglanski and his colleagues (2002) posit that in many respects goals operate like mental representations in general, which is supported by several studies. This being said, they assume that what makes goals unique are their motivational characteristics; active goals enhance people's motivation to engage in those activities that direct them towards goal attainment. Accordingly, the purpose of Study 6 was to extend the findings of Study 5 by assessing participants' actual goal-directed *behavior* as primary indicator for goal-activation, induced via self-activation. Again, it was predicted that participants high in self-awareness would be more likely to construe positive evaluations as goals.

As outlined earlier, goals are *desired* end-states that one aims to attain; specifically, goal representations not only include the goal itself and its respective means and strategies for goal attainment, but also affective components. Positive affect increases motivation, in the sense that it enhances the desire to perform activities that lead to goal attainment, which, in turn, acts as an incentive. Based on this reasoning, in Study 6 I wanted to assess effects of goal-activation on behavioral measures, demonstrating effort to accomplish goal-related activities. Typically, in most experimental studies on goals, subjects are explicitly

instructed to perform a specific behavior, which then, is interpreted as goal-directed behavior (e.g., Custers & Aarts, 2003; Locke & Latham, 1990). However, in the present proposal it is assumed that such behavior should not always be interpreted as goal-directed behavior. As I was particularly interested in participants' personal goals, I adopted a different route: As in Study 5 I analyzed participants' goals in the four domains friendship/ relationship, sport/ fitness, studies/ profession, and vacation/ traveling; at the end of the experiment, participants were asked to rank the four domains according to personal importance. Hence, I could identify participants who might have personal goals regarding one or more of the respective domains, without instructing them to perform a specific behavior in the experiment. To ensure that the domains were associated with at least some positive affect, for the latter analyses of each domain, I only included participants who had ranked the respective domain first or second.

In more detail, as in Study 5, participants' goals were analyzed in the four domains described above. Self-activation again served as independent variable and was manipulated by the use of self-characterization. Similar to Study 2, participants were instructed to write down "what makes them who they are" (see Kuhn & McPartland, 1954). However, the manipulation was slightly modified to assure increased SA: the task lasted for 3 minutes, and participants had to answer two questions instead of one: "What is it about you what you dislike? / what you like?". In the control condition, subjects answered two questions about a topic irrelevant to the self. Next, participants had to evaluate several positive and negative topics, in order to semantically activate the four domains (as in Study 5). Finally, in this study a *goal behavior index* was used as main DV, which was calculated from the dependent measures in the four domains. In particular, the degree of goal-activation was measured by using DVs consisting of goal-directed behaviors as well as behaviors that are instrumentally functional for goal attainment. Specifically, three of the used DVs were

directly (semantically) associated with the goal-relevant domain (e.g., explicit judgment on friendship, picking up informational brochures with advice on how to learn effectively, choosing healthy snacks), whereas two DVs were unrelated tasks, not semantically associated with the goal (e.g., connect-the-dots drawing task; concentration test d2); importantly, however, in our experimental set-up, the completion of these unrelated tasks was nevertheless instrumental for goal attainment, as finishing them quickly would give participants some extra time at the end of the experiment to engage in goal-directed behavior (e.g., Aarts et al., 2005). Details on the goal behavior index are described in the section on results.

To conclude, the design of Study 6 was similar to Study 5; however, I adopted DVs that focus on the unique characteristics of goals. Measuring goal-directed behavior and effort expended to engage in attaining goal-related behavior provide direct evidence for people's motivation and, hence, goal activation. In this vein, by including behavioral measures, Study 6 allowed a straightforward test of the hypothesis that positive evaluations are construed as goals, if ratings are made under circumstances of increased self-activation.

Hypotheses

As in Study 5, it was predicted that participants high in self-awareness would be more likely to construe positive evaluations as goals. That is, positively evaluated targets should transform into goals in the increased SA condition, resulting in more goal-related behavior. In particular, five measures were used to assess behavior and were summarized to an index for goal-directed behavior. This leads to the following main hypothesis:

H6 Participants with increased self-activation should show more goal-directed behavior (smaller goal index) compared to participants in the control condition.

In detail, in the four domains this leads to the following sub-hypotheses:

H6.1 *Friendship/ relationship:* Participants with increased self-activation should indicate a higher percentage of time they ideally wished to spend with their friends in the coming month (DV1, explicit judgment) compared to participants in the control condition.

H6.2 *Sport/ Fitness:* Participants with increased self-activation should more often prefer the healthy snack over the chocolate bar (DV2, overt choice behavior), whereas control subjects should not differ in the frequency of picking fruit vs. chocolate.

H6.3 *Studies/ profession*: (1) Participants with increased SA should be faster (DV3, instrumental behavior) at completing the connect-the-dots task compared to subjects in the control condition (as this provides them with extra time for goal related behavior); (2) Participants with increased SA should be more likely to select informational brochures with advice on how to learn effectively (DV4, overt behavior), whereas subjects in the control condition should be equally likely to select the brochures as to not select them.

H6.4 *Vacation/ traveling*: Participants in the increased SA condition should be faster on the concentration test d2 (DV5, instrumental behavior) compared to participants in the control condition (again, as this provides them with extra time for goal related behavior).

Method

Participants and Design

Fifty-nine non-psychology students (21 female, 38 male) of the University of Würzburg were randomly assigned to one of the two self-activation conditions ($N_{\text{self-characterization}} = 30$, $N_{\text{control}} = 29$). The experiment lasted for about 20 minutes and participants received a chocolate bar or a fruit snack as compensation.

Materials and Procedure

The experiment was conducted as a one-session study and participants were tested in groups of up to three people. Upon arrival, subjects were greeted and informed that they would be taking part in several unrelated experiments. Then, they were asked to sit down in front of a computer screen, where they read introductory instructions and completed a mood questionnaire. Again, the experiment consisted of the three parts: (1) self-activation manipulation, (2) activation of the four domains via evaluation task, and (3) measurement of goal-activation via the DVs described later.

Self-activation. Participants were randomly assigned to one of the two SA groups. A self-characterization task was adopted to increase self-activation. Specifically, subjects were asked to reflect about themselves and write down "what makes them who they are" (see Kuhn & McPartland, 1954). As the effects in Study 2 were not as strong as I had hoped for, I changed the manipulation in two respects: first, the task now lasted for 3 minutes (1.5 minutes per question); second, the questions for the participants were more detailed in nature (similar to self-novelty manipulation in Studies 1 and 5) namely, "What is it about yourself that you like (dislike?) Please indicate as many positive (negative) things that you like (dislike) about yourself as you can". In the control condition, subjects completed a writing task about a topic irrelevant to the self, answering the questions: "What are the features you like (dislike) in a movie? Please indicate as many positive (negative) things that you like (dislike) in a movie as you can". Immediately after the SA manipulation, participants had to rate the valence of different topics.

Evaluation task. Following self-activation, subjects completed the same evaluation task as in Study 5; they were asked to rate the valence of 44 words on a scale ranging from 1 (*negative*) to 7 (*positive*). The aim was to activate the four domains and possible goal-relevant topics. Directly after the evaluation task, the DVs served to assess goal-activation.

Dependent Measures (DVs)

As mentioned above, the used indicators for goal activation included both overt goal-directed behavior as well as instrumental behavioral measures. Specifically, I adopted (1) DVs that were (semantically) associated with the goal-relevant domain (e.g., an explicit judgment on friendship), and (2) DVs that were not semantically associated with the goal (e.g., diverse reaction time tasks). In particular five different dependent variables were established in the four domains friendship/ relationship, sport/ fitness, studies/ profession, and vacation/ traveling. The order of the DVs was kept constant, because I was particularly interested in the decay function of goal-activation; as self-activation might decrease over the course of the DVs, I wanted to maintain a similar level of self-activation for each domain, given that in the statistical analyses I compared subjects high in self-awareness and control subjects for each domain separately. In the following, I will describe the DVs in the four domains in more detail, in the order they were presented to the participants.

Friendship/ relationship. First, participants were asked to indicate the percentage of time they ideally would like to spend with their friends within the coming month, on a 12-point scale; the endpoints of the scale were anchored at 0% and 100%; each point of the scale corresponded to an increment of 10% (e.g., 10 – 19%; 20 – 29%, etc.). Clearly, this first DV was semantically related to the goals participants might have in the domain of interpersonal relations.

Sport/ fitness. The second DV dealt with the domain fitness, including a healthy balanced diet. Participants were told that they might want to take a break and go to the experimenter in order to already get their compensation for the experiment. There, they had the opportunity to choose from different types of chocolate and diverse fruit, decoratively arranged on a little skewer. Then, they returned to the computer to continue the experiment.

This DV consisted of overt goal-directed behavior regarding the fitness goal, and hence was directly related to the goal.

Studies/ profession. The third DV referred to the academic domain. To reiterate, goals are linked with positive affect and cause individuals to work towards their attainment. According to Custers and Aarts (2005) "this effort-enhancing effect becomes especially manifest when a person has to deal with time constraints that require an acceleration in performance to reach the goal" (p. 136). Specifically, they let participants work on unrelated tasks that were instrumental in attaining their goals (e.g., Aarts et al., 2005; Custers & Aarts, 2005). Similarly, for the last two domains (studies and vacation) subjects were told that they would have the opportunity to engage in a (goal-related) task, if sufficient time was left after a reaction time task. The speed on the filler task served as critical DV, indicating participants' motivation for attaining the desired goal; this would be interpreted as goal activation including motivation to pursue a goal-relevant behavior.

The first instrumental task consisted of a classic connect-the-dots type task, taken from a children's drawing book. When correctly completed, the picture depicted an elephant standing under a palm tree. Participants were asked to draw the picture by connecting the numbered dots as fast as possible. They were told that they would have the opportunity to receive some advice on how to learn effectively, but only if there was still enough time left prior to the onset of the next task. Participants completed the drawing as a paper-pencil task, the starting and end point were of the connect-the-dots task were highlighted; moreover, they were asked to press the space bar when starting the task and to do so again immediately after task completion. The speed of task completion served as third DV. After completing the task, all participants were informed that there was enough time left to read the advice on effective learning strategies.

Furthermore, I included an additional dependent variable (fourth DV) in the domain studies/ profession, consisting of observable behavior. As activated goals and their related means produce a decay function that is slower than that of semantic priming (e.g., Goschke & Kuhl, 1993; Bargh et al., 2001; Förster et al., 2005), it was examined whether the academic goal was still active at the end of the experiment. When participants were thanked at the end of the study they had the opportunity to select informational brochures with advice on further effective learning strategies; the number of participants who selected brochures was recorded inconspicuously by the experimenter and served as fourth DV. In this vein, I could distinguish between activation due to a functional relation of the words used in the evaluation task for the academic domain and subsequent goal-directed behavior (known to last longer), and accessibility that is due to a semantic relation of the words and those used in the behavioral dependent measures (known to decay faster).

Vacation/ traveling. Similar to the third DV, the fifth DV was assessed as the speed of task completion of a task that would be instrumental for goal attainment as quick completion would permit the participant to spend more time on goal directed behaviors. Specifically, participants had to work on a task similar to the concentration test d2 (see Brickenkamp, 1981). Again, it was framed as reaction time task; it was presented on the computer screen and participants were instructed to categorize as fast as possible d's with two dashes (which could be above or below the letter, or both) versus d's with more or less than two dashes. Importantly, subjects were informed that subsequently they would see a two minute film clip about traveling, but only if there was still enough time left after the reaction time task. The computer recorded the speed with which subjects performed the task. After completing the task, all participants were informed that there was enough time left to watch the film on traveling.

Additional questions. Finally, self-consciousness and chronic focus were assessed as relevant trait concepts. In the end, participants were asked for a personal ranking for the four domains, according to the relative importance each domain had for them a) in their life in general, and b) in the coming six months. Only participants who attached great importance to the specific domain in the personal ranking of either life in general or in the coming six months (defined as being ranked 1st or 2nd place, or for some domains 3rd place, depending on the median split) were included in subsequent analyses, in order to assure that the end-states were associated with at least some positive affect. In the end, participants were asked to indicate their major, their age, and what they believed the objective of the study was. Finally, people were thanked and debriefed.

Results

Preliminary Analyses. First, when controlling for mood effects, the analyses yielded that SA did not affect mood ratings; and it could be ruled out that mood ratings moderated the DVs. Hence, mood was not considered in further analyses. Second, according to the hypotheses, positively evaluated targets should transform into goals, if the self is activated. Hence, analogously to Study 5, only participants who rated the topics in the evaluation task positively were included in the further analyses (based on a median split). Moreover, as outlined before, only subjects who had ranked a specific domain as personally important, either for life in general or in the coming six months, were included for further analyses (see Custers & Aarts, 2005); thus, the sample size might differ according to domain.

Goal Activation

As mentioned above, in this study a *goal behavior index* was used as main DV. To summarize the results from the four domains, the first step was to transform the DVs in each domain in such a way that smaller values indicate goal-directed behavior. The second

step was to calculate *z*-values for the explicit friendship judgment, the choice behavior regarding the healthy snack, the speed on the connect-the-dots task and the test d2, and choosing informational brochures, based on the distribution of each measure. Finally, a goal behavior index was computed consisted of the mean *z*-value of the five DVs. The results of the ANOVA yielded a tendency that subjects who reflected about themselves previous to the evaluation task were more likely to show goal-related behavior; however, the effect did not reach significance, $F(1, 27) = 2.50$, $p = .125$. Noteworthy, in this overall analysis it was not possible to include only subjects who had ranked a specific domain as personally important. To further examine the nature of this effect, separate analyses were carried out for each measure; to ensure that the domains were associated with at least some positive affect only participants who had ranked the respective domain first or second were included in the separate analyses, which will be described in the following paragraphs.

Friendship/ relationship. The main DV in this domain was the percentage of time participants indicated they ideally would like to spend with their friends within the coming month (on a 12-point scale). An ANOVA revealed no difference in percentage rating for subjects who reflected about themselves previous to the evaluations compared to control participants; thus, there was no effect of SA, $F(1, 53) = .61$, $p = .437$. Hence, in the explicit judgment I could not provide evidence for goal-activation in the friendship domain.

Sport/ fitness. The main DV in this domain was people's choice of their compensation, specifically, whether they selected chocolate versus the fruit snack. Comparisons between participants with increased self-activation and control participants failed to support the predictions. Subjects who reflected about themselves were not more likely to choose the healthy balanced food than the chocolate, $\chi^2 (1, 42) = .03$, $p = .574$.

Studies/ profession. The main DV in the domain studies/ profession was the time it took subjects to complete the connect-the-dots task. An ANOVA yielded a marginally

significant effect of self-activation, $F(1, 21) = 3.62$, $p = .071$ (see Figure 6), such that participants who reflected about themselves previous to the valence rating, were faster in the reaction time task ($M_{control} = 111.86$ sec., $SD_{control} = 30.76$; $M_{self\text{-}activation} = 88.63$ sec.; $SD_{self\text{-}activation} = 26.55$), meaning that they would have more time left for goal-related behavior. As outlined before, the quicker task completion of the connect-the-dots task was interpreted as goal activation in the domain studies/ profession for subjects with increased SA.

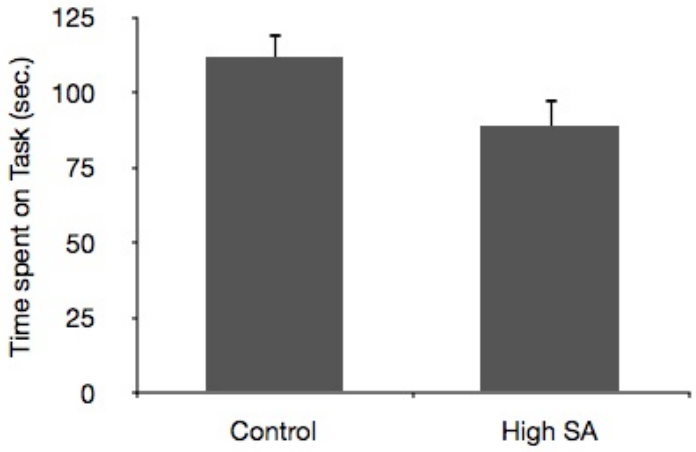

Figure 6: Time spent on the connect-the-dots task (sec.) as a function of self-activation. Error bars indicate standard error of means. (Study 6)

To account for the decay function of activated goals and their means, as additional DV participants' overt behavior at the end of the experiment was recorded; specifically, the experimenter noted which participants took along an informational brochure with advice on effective learning strategies. Comparisons between subjects with increased SA and control subjects provided strong support for our hypothesis. As seen in Figure 7, subjects who reflected about themselves were more likely to take along brochures with "advice on effective learning strategies and dealing with academic studies" at the end of the experiment, whereas control participants did not differ in their tendency to take the brochure with them, $\chi^2 (1, 26) = 4.88$, $p = .037$.

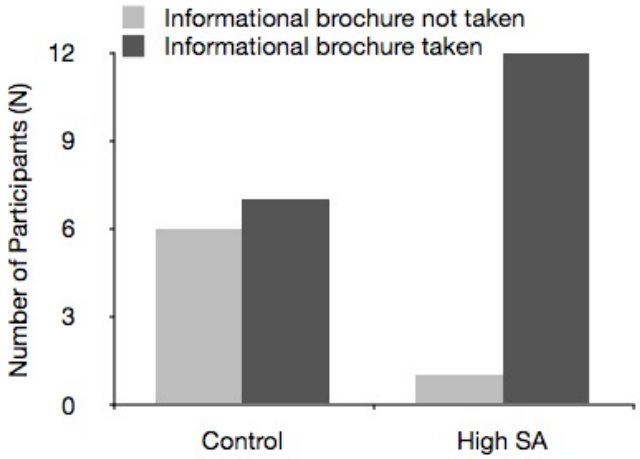

Figure 7: Number of participants (N) selecting informational brochures on how to learn effectively as a function of self-activation (Study 6).

Vacation/ traveling. The DV in this domain was the time it took subjects to complete a variation of the concentration test d2. An ANOVA revealed that participants who thought about themselves previous to the evaluation task, were faster in the reaction time task ($M_{control}$ = 111.86 sec., $SD_{control}$ = 30.76; $M_{self\text{-}activation}$ = 88.63 sec.; $SD_{self\text{-}activation}$ = 26.55), resulting in a significant effect of self-activation, $F(1, 16) = 7.73$, $p = .013$ (see Figure 8).

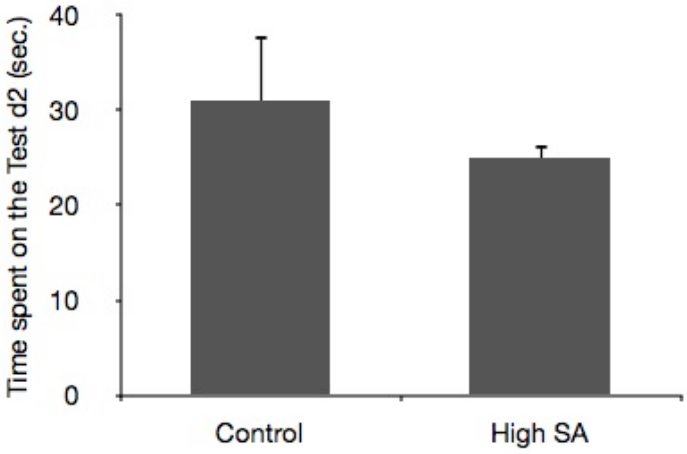

Figure 8: Time spent on the test d2 (sec.) as a function of self-activation. Error bars indicate standard error of means (Study 6).

These finding indicates that subjects high in SA were quicker on the test d2 that became instrumentally related to the goal in this domain, because this way they could save time in order to watch a film clip about traveling. As outlined before, this increased task speed implies that for subjects with increased self-activation a goal was activated in the domain vacation/ traveling.

Self-Consciousness (SC) and Regulatory Focus (RF)

When participants' scores on the Self-consciousness Scale were subjected to regression analyses to predict the DVs, the results revealed no significant effects for SC (*p*s > .2), indicating that trait SC did not moderate the results. The results of the analyses of regulatory focus (RF) only partially support the effects of Study 4 and 5; specifically, a significant effect of chronic discrepancy emerged for the domain studies/ profession; in particular, subjects with a high discrepancy between their actual and their ideal self were more likely to take brochures with advice on effective learning strategies, ß = -.32, p = .039. Furthermore, a tendency of chronic focus discrepancy emerged for the fitness domain; in particular, subjects with a high discrepancy between their actual and their ideal self showed a slight tendency to prefer the fruit over the chocolate, ß = .23, p = .16. Even though these effects are in line with those of the previous studies, they don't emerge in all DVs. To conclude, RF seems to influence only overt behavior, but not the speed tasks, that became instrumentally related to the goals. All other effects of RF did not reach significance (all *F*s < 1).

Discussion

Overall, in the present study, participants who reflected about themselves previous to the evaluation task were more likely to show goal-related behavior; however, the effect did not reach significance; this might be due to the fact that in this overall analysis I could not

include only subjects who had ranked the domains as personally important. When separate analyses were carried out for each measure, in some domains participants were more likely to engage in goal-directed behavior, when their self-concept had been activated previous to evaluating different topics, indicating that goals may become activated as a consequence of self-activation. As expected, participants who reflected about themselves were faster on a speed task (d2), in order to gain time for watching a two minute film clip about traveling, indicating that a goal has been activated in this domain. Similarly, subjects whose self was activated were faster on a classic connect-the-dots type task than control subjects, when both had the opportunity to read advice on effective learning strategies in the time that was left. Importantly, with these two findings Study 6 could demonstrate an increased motivation even for behavior that is primarily not related to the goal but becomes instrumentally associated with it, indicating that it is not only a more positive evaluation or increased accessibility of the specific domain but actually goal activation. Moreover, on the later tasks I could distinguish between a functional and a mere semantic relation between priming in the evaluation task and later displayed behavior. As mentioned before, activated goals and their related means produce a decay function that is slower than that of semantic priming (e.g., Bargh et al., 2001; Förster et al., 2005). Importantly, at the end of the experiment participants in the increased SA condition selected the brochures on effective learning strategies more frequently than control participants - which greatly corroborates the hypothesis that goals were actually activated.

However, effects failed to reach significance for the friendship domain (first DV); high self-aware participants did not indicate a higher percentage of time they wanted to spend with their friends in the coming month; hence, it could not be demonstrated that in the friendship domain a goal was activated as a consequence of SA. Likewise, in the fitness

domain (second DV) the effects failed to reach significance; participants did not choose the healthy snack more frequently than the chocolate.

To conclude, the analyses yielded the predicted effects for the instrumental behavioral measures (speed DVs), and for the delayed overt behavior (choosing brochures) as indicator for goal activation. For the explicit judgment and the overt behavior referring to the fitness domain the results failed to reach significance. One could argue that the assessed percentage of time is not the best indicator for goal activation in the friendship domain, and maybe the decision to take the chocolate or the fruit is influenced by additional factors (e.g., hygienic reasons; necessity of immediate consumption). Noteworthy, the expected pattern did not emerge exactly for the *first* two dependent variables. It might be possible that in the two DVs that followed immediately after the evaluation task all participants had an increased semantic accessibility of the goal-related topics (even those participants whose goals were not actually activated), and consequently, behaved more in line with the activated contents (consistent with findings in the LDT in Study 5).

In sum, Study 5 and 6 converge to demonstrate that participants high in self-awareness are more likely to construe positive evaluations as goals, resulting in more goal-directed behavior.

GENERAL DISCUSSION

The aim of the current work was to enhance the understanding of the relationship between personal goals and the self. More specifically, I wanted to achieve three things. First, an implicit measure of self-activation based on response latencies was developed to avoid problems of classic SA methods that are prone to participants' response biases, or demand effects, and very often elicit self-directed attention (e.g., Duval & Wicklund, 1972; Silvia & Gendolla, 2001). As mentioned initially, a thorough literature review revealed only two measures of SA based on response latencies: the self-Stroop task (Higgins, et al., 1988; Segal & Vella, 1990) and a measure using word recognition latencies (Eichstaedt & Silvia, 2003). As discussed earlier in this thesis, the evidence for the self-Stroop task is mixed and its validity and reliability requires further testing. The latency-based word recognition measure revealed the expected results for both dispositional and situational self-awareness; albeit only tested in one study so far, it seems to be a promising implicit self-activation measure and merits further testing.

Thus, purpose one of the present proposal was to build on and expand this line of work by developing and testing a new implicit measure of self-activation that operates with visual stimuli and can be highly personalized. To reiterate the rationale of measures based on response latencies, with others I assume that for individuals with increased self-activation, self-related knowledge is highly accessible; this, in turn, should facilitate the processing of contents that are associated with the self, resulting in faster responses to self-related targets. The word recognition measure (Eichstaedt & Silvia, 2003) already corroborated this assumption regarding the processing of self-related *words;* I aimed at extending this evidence to the processing of *visual* stimuli, which allows going beyond a mere semantic facilitation of processing of self-related contents and, thus, would offer even more

convincing support that it actually is the self-concept as a whole that becomes activated under increased SA, supporting the idea that the self-concept is organized hierarchically and may become activated through any single associated information (i.e., multiple and flexible self; Hannover, 1997). Furthermore, because participants' own pictures are used as target stimuli, this method constitutes a very personalized measure of SA. To this end, two studies were conducted in which increased SA, induced by classic SA manipulations, was measured with a picture task constructed by the present author (Study 1 and 2). Thereby it was assumed that individuals would react faster in response to self-pictures when the self is activated than when it is not. Overall, the results of Studies 1 and 2 offer first promising support that the newly developed picture task can, indeed, measure self-activation.

Second, the next two studies aimed at demonstrating that a link between personal goals and the self actually does exist. As mentioned initially, common sense implies that we are most committed to attain those goals that are closest to our hearts, and it appears self-evident that we feel good about ourselves when we attain our goals. In addition to this more intuitive notion, several empirical studies suggest that a focus on the self might be indispensable for behavior that is consistent with one's goals and standards. As outlined earlier in this thesis, a variety of research on attitude-behavior consistency (e.g., Ajzen et al., 1982; Miller & Grush, 1986), self-regulation models (e.g., Carver & Scheier, 1981, 1998; Lord & Brown, 2004), self-awareness theory (for an overview see Silvia & Duval, 2001), regulatory focus theory (Higgins, 1997), and the working self-concept with possible selves (e.g., Cross & Markus, 1991; Hannover, 1997; Hoyle & Sherill, 2006; Markus & Nurius, 1986; Oyserman & James, 2008) implies that the self might be a first important premise for self-regulation and goal pursuit and that it would be functional for individuals to develop a bidirectional link between goals and the self. Albeit the fact that this notion is inherent in several theories, this assumption has never been tested directly before.

Specifically, to test this relation empirically as a first step, personal goals were adopted as independent variable (Study 3 and 4) to provide initial evidence that this link actually does exist; it was hypothesized that thinking about personal goals should lead to greater SA than yielding personal evaluations or thinking about another person's goals, resulting in quicker responses to self-pictures in the newly developed measure of SA.

Third, it was assumed that goals and the self are linked in a bidirectional fashion; hence, as a next step, goal-activation was now adopted as *dependent* variable to provide evidence for the bidirectionality of the relationship. It was hypothesized that in conditions of high SA, it should be more probable that personal evaluations are construed as goals, resulting in greater goal activation (Study 5 and 6). Given that the present thesis is the first endeavour to empirically test the proposed bi-directional link between personal goals and the self, the exact underlying mechanisms have yet to be determined. Thus, Studies 5 and 6 were exploratory in nature and a variety of DVs was employed, for example measures of accessibility of goal-related knowledge (e.g., LDT; Fishbach & Shah, 2006), measures of immediate approach-avoidance behavior to goal-related words (e.g., Manikin; De Houwer et al., 2001), explicit goal-related judgments, behavior that becomes instrumentally related to goal attainment (e.g., test d2, connecting-the-dots; Custers & Aarts, 2005), and overt goal-directed behavior (e.g., picking up informational brochures; Hoyle & Sherill, 2006).

Summary of Results and Implications of the Findings

In the following, the central results of the present work as well as their implications for the adoption of the new implicit measure of self-activation (SA), and for the understanding of the relationship between goals and the self will be re-considered in more detail, in three sections referring to the three main goals of the present work. To anticipate, the obtained results greatly endorse the applicability of the picture task as implicit method to measure

increased SA and also corroborate the core hypothesis, namely that personal goals and the self are inherently connected and that they are linked in a bidirectional fashion.

Implicit Measurement of Self-Activation: Development of a New Measure Based on Response Latencies and Using Visual Stimuli (Study 1 and 2)

The main objective of Study 1 and 2 was to develop a personalized measure of self-activation based on response latencies. To this end, in Study 1, public SA (camera; Duval & Wicklund, 1972) and private SA (self-novelty; Snow et al., 2003) were increased with methods that are well known from research on self-awareness theory. In Study 2, private SA was induced by a shorter self-characterization task (Kuhn & McPartland, 1954), in order to test the new measure with even subtler levels of self-activation. After the SA manipulation, in both studies, self-activation was measured with the picture task constructed by the present author, which consisted of facial pictures in which participants or control target persons were either smiling or sporting a neutral expression. In Study 2, two versions of the picture task were adopted to further test its validity. Overall, the results corroborate our hypotheses and offer encouraging support for the applicability of the new implicit measure; however, the predicted effects were less pronounced in Study 2.

Significance of the Findings

To begin with, as hypothesized, persons high in self-awareness react faster in response to self-pictures, indicating that SA facilitates the categorization of self-pictures, whereas responses to control pictures are not influenced by SA. In Study 1, this resulted in the predicted significant interaction between SA and type of picture. Even though a similar data pattern was found in Study 2, the expected interaction of SA and type of picture failed to reach significance. One possible explanation for this less pronounced data pattern could be that the self-characterization manipulation employed in Study 2 was less intense compared

with the self-novelty manipulation used in Study 1: in Study 2, the self manipulation task took half as much time and included only those aspects of the self that are most salient and easily come to mind; in contrast, the self-novelty task in Study 1 lasted for 4.5 minutes and included a greater variety of self aspects and might, therefore, have required deeper processing. Another plausible explanation for the lack of significant effects in Study 2 might be that participants were photographed immediately before the experiment (in Study 1 this happened four weeks prior to the actual experiment), which might have induced additional SA in all conditions; quite possibly, the self-characterization as induction method of private SA was not strong enough to override this pre-activation and produce significant differences between experimental and control conditions. Another possible explanation for the lack of significant results in Study 2 could simply be the small sample size; the statistical power would be greater with a larger sample, which may minimize the error variance in the response latencies data. The fact that the expected pattern emerges in spite of the small sample size (in Study 1 and 2) suggests that the new picture task is a very sensitive and promising measure of SA. Moreover, even though initially not expected, in both studies, type of picture also affected responses; in particular, overall, participants responded slower to self-pictures than to control pictures. In the following, possible underlying mechanisms are discussed in greater detail.

Underlying Mechanisms

Importantly, the fact that participants responded slower to self-pictures than to control pictures turned out to be a very robust finding that emerged similarly in Study 3 and 4, and in the SA manipulation checks in Study 5. At first glance, it seems compatible with findings indicating that information relating to the self may be preferentially encoded (e.g., Craik & Tulving, 1975). That is, self-referent information might be encoded more deeply than semantically encoded topics, resulting in a memory advantage for self-referent information

(e.g., Rogers et al., 1977), suggesting that the self-construct might have unique attributes. In contrast, other researchers argue that the self differs only quantitatively from operations of other mental representations; they demonstrate that the self-reference effect is no longer obtained when certain features of the semantic tasks are changed (e.g., Rudolph, 1993). However, even if ordinary memory processes on similarly elaborated knowledge structures may explain self-reference effects, one would expect that information processing should be faster the more elaborated a mental representation in memory is, due to the high accessibility of many and strong associative connections of, in this case, self-related contents. Hence, one would also expect *faster* reactions in response to self-pictures (e.g., see Gurin & Markus, 1988; Markus, 1977). For example, studies conducted by Markus (1977) yielded that self-schemas facilitate the processing of self-related information, such that people can access information encoded in salient domains of the self-concept faster than information not encoded in such domains. A greater quantity of knowledge may facilitate spreading activation through the semantic network (e.g., Raufaste et al., 1998); however, the present findings contradict this line of research.

As self-motives guide people's judgments and behavior, motivational processes pertaining to the self could affect the slower encoding of self-pictures and might offer a better explanation for this robust finding. For example, individuals engage in a variety of activities that are construed to obtain self-verifying information, because they need to seek confirmation of their self-concept (*self-verification theory*; Swann, 1983, 1985). That is, individuals are motivated to maintain their self-concept through self-verification strivings, for both positive and negative self-views. Based on this rationale, participants might look at themselves longer than at other people, because they seek self-verifying information. However, for those participants whose self-construct was activated by thinking about themselves, information processing should be faster due to a higher accessibility of self-

related contents, leading to a faster retrieval of information about one's physical appearance in order to compare it with the picture. Another possible explanation focuses on the motive to think well about oneself, resulting in the search for positive evaluations (*self-enhancement theory;* Jones, 1973). Consequently, people might look longer at their own pictures, because they seek positive information to maintain a positive self-view. This notion is supported by research conducted by Epley and Whitchurch (2008) yielding that individuals identified their own pictures quicker when their faces were computer enhanced to be 20 percent more attractive. Translating to the picture task, subjects might respond quicker to self-pictures when they are happy with how they look, indicating that in this case the search for positive information is faster. However, these possible explanations for the observed effects in the picture task cannot be answered on the basis of the present results alone and should be tested in detail in future research.

To conclude, encouraging support was obtained that the picture task is a viable method to measure SA based on response latencies. Given that participants' pictures serve as stimuli, it provides a very individual measure of SA and extends the findings of the word recognition latencies (Eichstaedt & Silvia, 2003) to the processing of *visual* stimuli. Hence, the picture task goes beyond the assessment of a mere semantic facilitation when processing self-related contents. The finding that participants show better processing of visual stimuli provides even more convincing support that the self-concept as a whole becomes activated under increased SA. As described in the Theoretical Part, in the idea of a dynamic self (Hannover, 1997) it is assumed that the self-concept is organized hierarchically and becomes activated through any single associated information by activation that spreads first within the same contexts and then to other associated clusters, explaining the activation of attributes pertaining to one's physical appearance due to a general reflection about oneself.

Methodological Implications - Picture Task

Finally, the findings have some methodological implications for further research with SA measures. First, even though in the picture task - given its implicit nature - people's self-presentation concerns or demand effects do not bias responses, not all problems of conventional methods to assess SA (e.g., self-report scales) can be avoided. To illustrate, the analysis of response latencies over the course of the experimental trials revealed that the task itself might have induced self-attention, too, because participants see six pictures of themselves. Given the likelihood that the picture task itself may increase SA, the interpretation of the results should be based on the first self-picture and the control picture that immediately precedes the first self-picture.

Second, future studies should try to increase the sensitivity of the picture task by impeding the recognition of the pictures and thereby magnifying top-down effects of self-activation (e.g., Besner & Smith, 1992; Eichstaedt, 2003; Stolz & Neely, 1995). In a similar vein, it has been shown that impeding recognition fosters the semantic effects on word recognition (e.g., masking the words; Stolz & Neely, 1995); thus, the relationship between increased activation of the self-construct and recognition latencies might also become stronger for picture recognition. Also, whenever possible, additional SA induced by taking the picture immediately before the experimental session should be avoided in order to capture even more subtle levels of SA.

Self-Activation as a Consequence of Thinking about Personal Goals –

Response Latencies in the Picture Task (Study 3 and 4)

This section addressed the second goal of the present work, i.e., Study 3 and 4 took the first step towards demonstrating that a close connection between personal goals and the self does exist. Specifically, these two experiments addressed the question whether generating

personal goals actually leads to greater self-activation than generating personal evaluations (either of activities in Exp. 3, or of another person's goals that are personally relevant in Exp. 4). It was hypothesized that SA should increase as a consequence of personal-goal activation. To anticipate, the results greatly corroborate this assumption.

Significance of the Findings

Most importantly, taken together, Study 3 and 4 converge to demonstrate that generating personal goals does actually lead to greater SA than generating personal evaluations, indicating that the new picture task may capture even such slight variations in levels of SA between goals and evaluations that are both personally relevant. Particularly, participants who think about experimenter-provided (Study 3) and self-generated (Study 4) personal goals show faster reactions in response to self-pictures than participants who think about activities or another person's goals (that are personally relevant) in order to evaluate them. However, as described before, in Study 3 the predicted interaction failed to reach significance, which will be discussed in the following paragraph in greater detail.

In Study 3 three conditions were adopted, namely the (experimental) *personal-goal activation* condition, the *other-goal activation* condition and the *personal evaluation* condition; specifically, the personal-goal and other-goal condition differed in the personal relevance of the goals, whereas personal-goal and personal-evaluation condition were both personally relevant but differed in the process of thinking about goals versus thinking about evaluations. One possible explanation for the non-significant results of Study 3 concerns the other-goal activation condition, in which subjects had to consider the same goals as in the personal-goal condition for an acquaintance. As already discussed in the Theoretical Section, it seems that priming of significant others can increase personal goal accessibility and commitment, too, moderated by the closeness of the relationship (e.g., Shah, 2003). Even though subjects were explicitly instructed not to choose a person they felt particularly

close to, it cannot be ruled out that personal goals became activated nevertheless. In fact, the effects are more pronounced when only comparing the personal-goal condition with the personal-evaluation condition; in the latter, subjects were asked for their personal view on different topics, but were not instructed to include other individuals in their judgments or consider the topics as personal goals.

Taking these results into account when designing Study 4, participants in the control condition were asked to generate goals for another person of a specific professional category; moreover, for the sake of keeping personal relevance of the generated goals as constant as possible between the conditions, participants were instructed to generate goals that they personally considered important when working with a member from this professional category (*personal evaluation*); in the experimental condition, participants were asked to generate their three most important personal goals for the coming six months (*personal-goal* activation). The results reveal that generating personal goals does actually lead to greater SA than generating personal evaluations about the work of a target person. In this sense, then, the lack of significance in Study 3 seems to be due to the fact that participants did not generate their personal goals, but were provided with possible goals by the experimenter. In fact, when personal goal importance was taken into account, the predicted interaction was significant. Specifically, subjects indicating high goal importance categorized self-pictures faster in the goal activation condition only, indicating that the self has been activated. This finding is in line with the results of Study 4, indicating that participants who generate their most important personal goals respond faster to self-pictures.

Furthermore, the analyses regarding trait self-consciousness yielded that subjects high in SC responded faster to self-pictures, whereas responses to control pictures were independent of level of SC. Particularly, the pattern that emerged for trait SC is very similar

to the effects found for goal activation in Study 3 and 4, as well as for manipulated private SA in Study 1 and 2. As argued before, these findings might be a result of increased accessibility of self-related knowledge or motivational processes, which will be discussed in more detail in the next section on the underlying mechanisms. Over and above, ideal and ought discrepancy predicted responses to self-pictures, indicating that in future studies chronic regulatory focus should be assessed when examining goals and SA, to control for a possible mediation. Furthermore, this finding supports the idea that it may be the discrepancy between the current and a desired future state that directs attention to the self in goal pursuit; this idea is in line with findings that the greater the discrepancy is, the faster responses are to self-pictures (indicating higher self-activation for greater discrepancy).

To summarize, the assumption that goal activation alters self-activation was tested and confirmed empirically for the first time. Hence, these two studies provide the first demonstration of increased self-activation as a consequence of goal activation, suggesting that a link between goals and the self actually does exist.

Underlying Mechanisms

Clearly, the idea that the self might be involved in dealing with personal goals has intuitive appeal; however, common sense also implies that the self might be involved when individuals evaluate personally relevant topics. In the present proposal, this idea was addressed empirically; regarding the underlying mechanisms it was assumed that in the Reflective System (RS) decisions may be factual (e.g., “This is a red car”) or evaluative (e.g., “I love red cars”); in many cases, the latter are construed in relation to the self. Such evaluative decisions were assessed in the control conditions: in Study 3 subjects evaluated personally relevant activities; in Study 4 the personal relevance was emphasized even more by using specific professional categories (e.g., doctor) important to the participants; in order to keep personal relevance as constant as possible between the conditions, participants were

instructed to list goals that they personally considered important when working with a member from this professional category (e.g., “I think that it is good, if a doctor ___”).

Beyond evaluations, the term goal is used when I talk about decisions to act on these evaluations, specifically, when people decide to act toward this desirable end-state (e.g., “I want this red car.”). In this sense, then, the experimental conditions focused on participants’ personal goals: subjects thought about possible goals for themselves in Study 3 and generated personal goals in Study 4. One could argue, that this manipulation is very similar to self-reflection processes, as adopted in Study 1 and 2; in fact, the pattern that emerged for goal activation in Study 3 and 4, is very similar to the effects found for manipulated private SA in Study 1 and 2, as well as for trait SC. Of course, I assume that self-reflection was involved in this manipulation, however, that it was induced indirectly, via the process of goal activation. Instead of directing people’s attention directly to the self, for example, by asking them which attributes make them different from their friends (self-novelty; Study 1), in the personal-goal activation condition, subjects were only asked to describe the three most important goals they would try to attain in the coming six months; hence, attention was not specifically directed to the self and no further SA manipulation was adopted in Study 3 and 4. Consequently, the similar pattern suggests that similar processes might be involved when thinking about goals, temporarily reflecting on the self, or having a high chronic level of SA, which could be due to an increased accessibility of self-related contents.

As described above, in both the experimental and the control condition, the personal relevance was kept as constant as possible; hence, in both conditions the self should be activated to a certain degree due to the personal relevance and the task instructions; however, the critical difference should come about by the fact that subjects in the experimental condition think about personal goals - thereby increasing SA via goal

activation. In fact, the findings demonstrate that generating personal goals does actually lead to greater SA than generating personal evaluations, resulting in faster responses to self-pictures. As discussed earlier, according to the RIM (Strack & Deutsch, 2004) goal-activation (in the present studies due to deliberate processes in the RS) may alter self-related judgments and behavior via automatic activation spreading in the IS from accessible goal-related contents to connected self-structures. Furthermore, goals and the self seem to be particularly linked via a reflective processing style; because goals consist of a discrepancy between a current state and a desired self in the future, the RS is required to bridge this temporal gap to the desired self by connecting the behavioral decision with the behavioral schemata; hence, goals may include the self via the process of intending and motivational processes. However, the ideas on the underlying mechanisms are still speculative at this point and cannot fully be understood on the basis of the present studies alone, which were mainly designed to demonstrate that goals and the self do relate to each other.

Implications for Future Research

The assumption that goal activation leads to increased self-activation might be fostered by future studies using goal priming instead of having participants deliberately reflecting on goals. As outlined in the Theoretical Part, several findings connected to goal activation suggest that goals not only become activated when people think about them, but they can also be primed, i.e., conscious or nonconscious perception of a goal-related stimulus can suffice for goal activation (e.g., Bargh & Gollwitzer, 1994; Chartrand & Bargh, 1996; Shah & Kruglanski, 2003). In future studies, for example, participants' personal goals might be assessed in advance and later in the experiment, they may be primed with their most important goal (supraliminal and suboptimal). A demonstration of increased SA as a consequence of goal priming would strongly support the idea that personal goals and the self are inherently linked to one another. Furthermore, such findings might tell us more

about the underlying mechanisms of this relationship. Goal-activation may alter self-related judgments via deliberate processes in the RS, resulting in activation spreading in the IS from goal-related contents that are active to associated self-structures; similarly, spreading activation might occur due to perceptual input in the IS. For example, studies demonstrated that priming refusal-goals automatically activates an independent self-construal in men but an interdependent self-construal in women (Özelsel, 2006), supporting the notion that goals may also automatically activate the self.

Methodological Implications - Picture Task

Notably, in the picture task in Studies 3 and 4, subjects again reacted slower in response to self-pictures than to control pictures, which is consistent with the findings of Study 1 and 2. It appears that they generally spend more time on encoding self-pictures, which might be due to self-motivated processing, which has been discussed in greater detail earlier. Again, the effect disappears for participants high in SA (in these studies as a consequence of personal goals). Moreover, in Study 3 and 4, further evidence was found for the assumption that the picture task induces SA itself. Response latencies to self-pictures decreased during the course of the task, whereas responses to control pictures did not change significantly; these findings support the conclusion that in future research only latencies for the first pictures should be included in the analyses, to assure that increased SA would be due to the experimental manipulation.

Goal-Activation as a Consequence of Self-Activation - Accessibility, Approach Motivation, Explicit Judgments, Instrumental and Overt Behavior (Study 5 and 6)

It will be recalled that the third objective of the present thesis was to examine the *bi-directional* relation between personal goals and the self. Accordingly, in Studies 5 and 6, dependent and independent variables were reversed; while in Study 3 and 4 goal-activation

was experimentally manipulated and self-activation was assessed as dependent variable, in the final two studies goals served as dependent variables and were measured as a consequence of manipulated self-activation. Specifically, in both studies it was argued that activation of the self should increase the probability that a positively evaluated target will be construed as a goal. To this end, in Study 5, self-activation was manipulated by the use of self-novelty (see Study 1; Snow et al., 2003) and by taking a picture; in Study 6 a variation of the self-characterization task - with questions that were more detailed in nature - was used as SA manipulation (see Study 2; Kuhn & McPartland, 1954). After evaluating several positive and negative targets in four domains that could possibly be goal-relevant for the participant sample, in Study 5 goal-activation was measured by using two DVs: a Lexical Decision Task to assess accessibility of goal-related words (Fishbach & Shah, 2006) and a Manikin task to measure approach-avoidance behavioral tendencies to goal-relevant words (De Houwer et al., 2001). Study 6 extended these findings by using goal-directed behaviors as DVs (e.g., choosing informational brochures), as well as behaviors that are instrumentally functional for goal attainment (e.g., connect-the-dots task).

Significance of the Findings

To begin with, the results of Study 5 partially support the hypotheses. As predicted, in the Manikin task participants who reflected about themselves (self-novelty) showed more approach-motivation towards goal-related words, suggesting that goals had been activated; a similar pattern emerged for participants who were photographed, but failed to reach significance. Hence, it seems that taking a picture might increase SA; however, the effect was not as strong as in the self-reflection condition. To conclude, participants who rated the valence of different topics after having engaged in self-reflection were more likely to construe positively evaluated targets as goals and exhibit more approach motivation towards goal-related words than participants low in self-activation.

However, contrary to the expectations, in the LDT, participants with increased SA did not respond faster to goal-related words. Hence, there is no evidence that positively evaluated targets were construed as personal goals, as no increased accessibility for goal-related words was found in the LDT. Given that neither the SA manipulation check (assessed with the picture task) revealed increased SA, it might be that the manipulation simply did not work; a general problem might have been that even though the long SA manipulation from Study 1 was used (self-novelty; Snow et al., 2003), it was divided into two parts, serving as an only two minutes writing task about the self before each DV; this manipulation might have not been strong enough to increase self-activation significantly. Of course, one could also argue that the manipulation check did not yield significant effects due to a decay of SA during the LDT. Another explanation would be that semantic priming effects caused by the evaluation task that preceded the LDT could have confounded the data; given that the LDT followed immediately after the evaluation task, it might be possible that all participants had an increased semantic accessibility of the goal-related topics (even those participants whose goals were not actually activated), and consequently, responded faster to goal-related words as accessible activated contents. The latter assumption is supported by the fact that overall participants responded significantly faster to goal-related words compared to control words.

Over and above, in the LDT a significant effect of ideal focus discrepancy (Higgins, 1997) emerged, indicating that subjects with a greater actual-ideal discrepancy exhibited greater goal-activation in the LDT, demonstrated by them responding faster to goal-related words. These findings are in line with the results of Study 4 regarding chronic discrepancy and *self-activation*: individuals with high discrepancy exhibit a greater self-activation in the picture task. Hence, great chronic discrepancy resulted in both increased self-activation and goal-activation. As argued before, I believe that when activating goals, people

simultaneously direct attention to the differences between their actual and their ideal or ought self. In this sense, then, the greater the discrepancy is the more self-aspects should be activated, resulting in faster reactions to self-pictures. By this logic, on the other hand, if the self is activated, current and future selves pertaining to the primed stimuli in the evaluation task, as well as their momentary discrepancy should become salient, which might motivate behavior to reduce it and activate goal-related structures to increase the likelihood of goal attainment. This reasoning is supported by the conjoined results of Studies 4 and 5, supporting (1) the assumption that the discrepancy between an actual and a desired future state directs attention to the self, when thinking about goals, and (2) the notion that goals and the self are linked to one another via reflective and motivational processes. In a sense, these findings are in line with past research on possible selves, which has been discussed earlier in this thesis; specifically, studies demonstrate that possible selves guide goal pursuit when a gap is salient between the current state and a future goal; thereby, possible selves with a greater discrepancy have greater motivational power towards behavior to attain the goal (e.g., Oyserman & James, 2008; Hoyle & Sherill, 2006).

Overall, the findings of Study 5 represent initial evidence that heightened activation of goals might occur upon positive evaluations under increased self-activation (Manikin task). Nevertheless, one could argue that the results still allow for alternative explanations. Even though the results pertaining to the Manikin task corroborate the hypothesis, behavioral measures of approach-avoidance motivation meet with criticism, because it is still unclear whether they are able to distinguish between evaluative and motivational aspects (e.g., Eder & Rothermund, 2008; Fazio & Olson, 2003). I selected the Manikin task, as it outperforms joystick tasks regarding sensitivity, reliability, and validity, and it seems to be the most sensitive measure among the different behavioral measures of approach-avoidance motivation, given its good representation of distance regulation (for a review see

Krieglmeyer & Deutsch, 2009). In Study 5, I only found more approach motivation to goal-related words for self-aware individuals (due to self-reflection); consequently, it appears plausible to conclude that Study 5 yields initial support for the assumption that heightened activation of goals occurs upon positive evaluations under increased SA.

In order to foster this assumption, in Study 6 the findings were extended by including goal-related *behavior* as a more direct indicator for goal-activation. Specifically, three of the DVs were directly (semantically) associated with the goal-relevant domain (e.g., explicit judgment about friendship), whereas two DVs were unrelated tasks, not semantically associated with the goal (e.g., connect-the-dots task); importantly, in the experimental set-up used, the completion of these unrelated tasks was nevertheless instrumental for goal attainment, as finishing them quickly would give participants some extra time at the end of the experiment to engage in goal-directed behavior (e.g., Aarts et al., 2005). A goal behavior index was calculated over the four domains and served as main DV.

The findings of Study 6 greatly corroborate the assumption that goals actually were activated; specifically, subjects who evaluated topics in increased states of SA were more likely to engage in goal-directed behavior; in the ANOVA for the goal index emerged a tendency in the predicted way. The analyses in the four domains revealed that, participants who reflected about themselves were faster on a speed task (d2), in order to gain time for watching a two minute film clip about traveling, indicating that a goal was activated in this domain. Similarly, participants whose self was activated were faster on a connecting-the-dots task than control subjects, when both had the opportunity to read advice on effective learning strategies in the time that was left. Noteworthy, with these findings, Study 6 could demonstrate an increased motivation even for behavior that is primarily not related to the goal but becomes instrumentally associated with it, indicating that it is not only a more positive evaluation or increased accessibility of the specific domain but actually goal

activation. Importantly, at the end of the experiment subjects in the increased SA condition selected the brochures on effective learning strategies more frequently than control subjects; this goal-directed behavior was demonstrated after a 15-minute delay (following the evaluation task) and, therefore, greatly corroborates the hypothesis that goals were actually activated. In this way, it could be distinguished between a functional and a mere semantic relation between priming in the evaluation task and later displayed behavior. As mentioned before, activated goals and their related means produce a decay function that is slower than that of semantic priming (e.g., Bargh et al., 2001; Förster et al., 2005). Hence, the results on these three DVs yield that when participants' self-concept has been activated previous to evaluating different topics, goals may become activated as a consequence of SA. However, effects failed to reach significance for the friendship domain (first DV) and the fitness domain (second DV). Highly self-aware participants did neither indicate a higher percentage of time they wanted to spend with their friends in the coming month nor did participants choose the healthy snack more frequently than the chocolate. Thus, it could not be demonstrated that in these two domains a goal was activated as a consequence of SA. This lack of significance might be due to the used material; maybe 'spending time' with friends is not the best indicator for goal-activation in this domain; and maybe the decision to take the chocolate or the fruit is influenced by other factors (e.g., hygienic reasons; necessity of immediate consumption). Noteworthy, however, the expected pattern did not emerge exactly for the *first* two DVs. As discussed before, regarding the results of the LDT in Study 5, it might be possible that in the DVs that followed immediately after the evaluation task, all participants had an increased semantic accessibility of the goal-related topics, and consequently, judged and behaved more in line with the activated contents even when goals were not activated. In sum, Study 5 and 6 converge to demonstrate that it is actually activated goals that alter approach motivation (Manikin task), instrumentally goal-

related behavior (speed DVs) and overt behavior (choosing brochures). The results are consistent with prior research on goal striving showing that goal operation is characterized by more goal-related approach avoidance tendencies (e.g., Fishbach & Shah, 2006) as well as more overt goal-directed behavior (e.g., Aarts et al, 2005).

Underlying Mechanisms

As mentioned earlier, it is assumed that the self-concept includes associative links to personal goals (e.g., Hannover, 1997; Lord & Brown, 2004). Hence, when self-activation is increased – in Study 5 and 6 due to deliberate processes in the RS – self-related contents become accessible and activation spreads to associated self- and goal-structures in the IS; this should increase the accessibility of goal-related associations, which may alter goal-related judgments and behavior. As outlined in the Theoretical Part, activation spreading in the IS may influence behavior either via a) *immediate* activation of behavioral schemata and corresponding approach-avoidance motivational tendencies towards goal-relevant objects, or b) *deliberate* processes in the RS, retrieving the accessible goal-related contents from the IS, resulting in deliberate judgments and decisions (Strack & Deutsch, 2004). The increased accessibility of goal-related words was not found in Study 5; however, it is assumed that this might be due to either a lack of SA or most likely due to increased semantic accessibility in experimental *and* control conditions. Yet the results in Study 5 yielded a greater approach motivation to goal-related words as demonstrated in the Manikin task, supporting the idea that spreading activation in the IS immediately activates behavioral schemata by altering motivational tendencies. Furthermore, the findings of Study 6 support the assumption that the RS, too, is involved, specifically in goal-related decisions; this becomes apparent as effects are found on delayed behavior and instrumental tasks, which according to the RIM implies that subjects take a deliberate decision, for example, to work quicker on a task in order to gain some extra time at the end of the experiment to engage in

goal-directed behavior. As discussed extensively earlier in this thesis, in the RS, behavior is the consequence of a decision that is guided by the evaluation of a future state in terms of its value and the probability of attaining it through this behavior; in the IS, a behavior is elicited through the spread of activation to behavioral schemata. Because it is more independent from immediate perceptual input, only the RS can explicitly generate a time perspective; given that goals consist of a discrepancy between a current state and a desired self in the future, only the RS may bridge this temporal gap to the desired self by connecting the decision with the behavioral schemata via the process of intending.

Finally, a motivational process might underlie the interplay between goals and the self. An experienced discrepancy between the current and a desired future state might induce negative affect, motivating behavior to reduce this discrepancy (Duval & Wicklund, 1972). It might be conceivable that increased SA renders such a discrepancy salient, and hence, motivates behavior in order to reduce it, by activating behavioral schemata. This assumption is supported by the findings regarding chronic focus discrepancy; great discrepancy seems to be associated with both increased SA and greater goal-activation, as discussed before. The findings of Study 5 and 6 seem to suggest that the impact of the self, and perhaps the setting of goals and their attainment, require reflective cognitive processes.

Implications for Future Research

As outlined in the Theoretical Part several studies revealed that goal striving is also characterized by an increased accessibility of goal-related contents during goal striving (e.g., Aarts et al., 2001), which becomes inhibited only after goal completion (e.g., Förster et al., 2005), and a more positive evaluation of those stimuli that can facilitate the goal (e.g., Brendl & Higgins, 1996; Markman & Brendl, 2000). However, in Study 5, no increased accessibility emerged in the LDT; as mentioned above, a problem might have been the short SA manipulation that was used before each DV; hence, in future research, the results

regarding the accessibility of goal-related words in the LDT should be tested with a stronger manipulation of self-activation. As discussed before, another possible explanation focuses on the fact that subjects completed the LDT immediately after the evaluation task, which might have led to increased semantic accessibility of goal-related topics even for those participants whose goals were not actually activated. Thus, future studies should introduce a time delay (i.e., filler tasks) after the evaluation task in order to reduce the effects of mere semantic activation. This assumption is supported by the findings of Study 6, which also did not find effects in the first two DVs.

Summary

In sum, throughout the six studies convincing evidence was obtained that the picture task offers a good alternative to measuring SA with an implicit method based on response latencies, extending the assessment of a semantic facilitation of self-related processing to visual stimuli; the findings suggest that in the picture task manipulated SA produces the same effects as trait self-consciousness; similarly, great chronic focus discrepancy and goal-activation lead to increased SA as assessed with the picture task. As a next step, the effectiveness of the picture task might be further examined in relation to other implicit measures of SA, like the described measure based on word recognition latencies (Eichstaedt & Silvia, 2003), which revealed promising results, too, as well as in relation to explicit measures of self-activation.

Over and above, the findings of Study 3 through 6 conjointly demonstrate that goals and the self are actually connected to one another; the fact that mutual activation is found in both directions implies that bidirectional associations exist. Thereby, high goal importance and great chronic discrepancy lead to greater goal-activation, which in turn results in greater SA in the picture task. Moreover, positively evaluated targets are more likely to be

construed as goals if the self has been activated before; goal-activation manifests in greater approach motivation and more goal-directed behavior.

Of course, the question on the underlying mechanisms requires further testing in future studies. The fact that goals and the self seem to be connected in a bidirectional way implies that besides reflective processing the self operates on implicit level, too, when activating goals. Nevertheless, the view of the self as it was adopted in the present studies primarily does not include automatic processes. The present work suggests that the impact of the self and the operation of goals require reflective cognitive processes. Of course, this does not preclude subliminal influences on the accessibility of the constructs that are involved and should be tested in greater detail in future research.

Final Conclusions

I began this proposal by addressing current challenges of today's society, which call for strong honorable leaders. But what is it that makes up such powerful leaders? According to the advices of training consultants, managers who want to achieve their goals should try to attain those goals 'that your mother would approve', or 'upon goal achievement, you are still comfortable with seeing yourself in the mirror the next morning' (Cole, 2008). For the most part, training consultants are less concerned with the scientific underpinnings of their advices, and their views have intuitive appeal; however, they go with what appears to work best. In respect of the above-mentioned and many more advices their common denominator seems to be that they are somehow related to the self. Even though in the psychological literature, too, several theories at least implicitly assume that there is a link between goals and the self (e.g., Higgins, 1997; Lee & Oyserman, in press), this hypothesis has never been articulated and tested explicitly. The studies of the present thesis have been designed to explore this bidirectional link by directly testing this relation empirically.

So, what can I say now about the relation between goals and the self? Are goals and the self linked to one another? The present data suggest that they are. Overall, the findings of the present work greatly confirmed the core assumptions. The results obtained in the six studies demonstrate that the picture task is suitable for measuring SA in an implicit way; that a direct link actually does exist between goals and the self; and that this relation seems to be bidirectional in nature with accessibility and motivation as possible underlying mechanisms.

In order to gain more insights into the underlying mechanisms of the relation between goals and the self, a variety of studies may follow, to name only a few: in future research self-activation might be assessed on different stages of goal pursuit (e.g., when initiating goal striving, during goal operation, after goal completion; see Förster et al., 2005); furthermore, when people meet a problem during goal striving variations in SA may provide evidence for diverse underlying processes (see also Bongers & Dijksterhuis, 2009); future studies also could examine the role of motivational processes in greater detail, i.e., the present studies suggest, that it might be the discrepancy between a current and a future desired self that activates the self, and in turn, SA renders such a discrepancy salient, motivating behavior in order to reduce it; hence, by considering hoped-for and feared end-states the role of the perceived gap on self-activation might be examined (e.g., Hoyle & Sherill, 2006); in this respect, it could be investigated whether prevention and promotion goals have diverse effects on SA (Higgins, 1997). Another interesting issue for future research pertains to different construal levels of goals (i.e., long-term and short-term objectives) and their association with the self in a cognitive or affective state of mind.

To be sure, on the basis of the insight that a bidirectional link between goals and the self does exist, an exciting line of work arises for future research.

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APPENDIX

Experiment 1

Instructions

General Instruction

Sehr geehrte Versuchsteilnehmerin, sehr geehrter Versuchteilnehmer,

vielen Dank, dass Sie sich bereit erklärt haben an dieser Studie teilzunehmen. Sie erhalten alle Instruktionen am Bildschirm. Lesen Sie sich diese bitte aufmerksam durch.

Bei Fragen wenden Sie sich an die Versuchsleitung.

Self-activation

In den folgenden drei Fragen ist es Ihre Aufgabe, über mehrere Eigenschaften nachzudenken und diese in das vorgegebene Feld einzutragen.

Nach 2 Minuten wechselt der Bildschirm jeweils automatisch zur nächsten Frage.

Wir bitten Sie darum, ehrlich zu antworten.

Private SA: Self-novelty

Bitte nennen Sie möglichst viele Eigenschaften, die Sie von Ihrer FAMILIE unterscheiden.

Bitte nennen Sie möglichst viele Eigenschaften, die Sie von Ihren FREUNDEN unterscheiden.

Bitte nennen Sie möglichst viele Eigenschaften, die Sie im ALLGEMEINEN von anderen Personen unterscheiden.

Public SA and Control Condition

Bitte nennen Sie möglichst viele Eigenschaften, die gute von schlechten KINOFILMEN unterscheiden.

Bitte nennen Sie möglichst viele Eigenschaften, die gute von schlechten FERNSEHSERIEN unterscheiden.

Bitte nennen Sie möglichst viele Eigenschaften, die gute von schlechten ZEITSCHRIFTEN unterscheiden.

Picture Task

Im Folgenden ist es Ihre Aufgabe auf Bilder von Personen mit der entsprechenden rot markierten Taste zu reagieren, je nachdem, ob die Person auf dem Bild lächelt oder nicht lächelt (Zuordnung steht am oberen Bildschirmrand).

Da es sich um Bilder von Psychologie-Studenten handelt, ist es möglich, dass Sie auch ein Bild von sich selbst dargeboten bekommen, dies muss aber nicht der Fall sein.

Versuchen Sie in jedem Fall nur **möglichst schnell** mit den rot markierten Tasten zu reagieren, je nachdem, ob die Person lächelt oder nicht lächelt.

Los geht's mit der Leertaste

Reagieren Sie nun möglichst schnell mit den entsprechenden Tasten, je nachdem, ob die Person lächelt oder nicht lächelt. Die Zuordnung sehen Sie am oberen Bildschirmrand. Legen Sie nun Ihre Zeigefinger auf die rot markierten Tasten

Control Question Picture Task

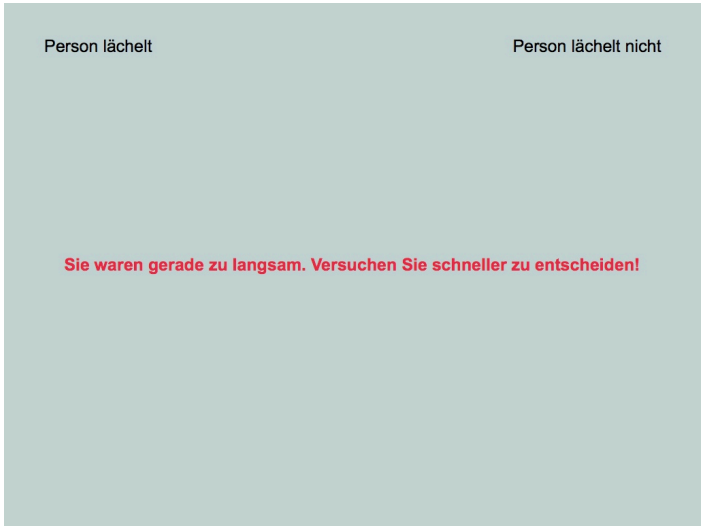
War ein Bild von Ihnen selbst dabei?

□ ja

□ nein

Example for Stimulus Presentation in the Picture Task

Instruction for Too Slow Responses in the Picture Task



Experiment 2

Instructions

General Instruction

Sehr geehrte Versuchsteilnehmerin, sehr geehrter Versuchteilnehmer,

vielen Dank, dass Sie sich bereit erklärt haben an dieser Studie teilzunehmen.

Sie erhalten alle Instruktionen am Bildschirm. Lesen Sie sich diese bitte aufmerksam durch.

Bei Fragen wenden Sie sich an die Versuchsleitung.

Self-activation

Bei der folgenden Frage ist es Ihre Aufgabe, bestimmte Eigenschaften in das vorgegebene Feld einzutragen. Die Aufgabe wird gleich näher erläutert.

Nach 2 Minuten wechselt der Bildschirm automatisch zur nächsten Frage.

Private SA: Self-characterization

Im Folgenden sollen Sie sich selbst beschreiben.

Nennen Sie dazu einige Eigenschaften, die Sie als Person ausmachen.

Control Condition

Im Folgenden sollen Sie für sich selbst gute Kinofilme beschreiben.

Nennen Sie dazu einige Eigenschaften, die Ihrer Meinung nach gute Kinofilme ausmachen.

Control Questions Picture Task

War ein Bild von Ihnen selbst dabei?

□ ja

□ nein

Kannten Sie sonst eine der gezeigten Personen?

□ ja

□ nein

Code

Bitte geben Sie in den nächsten Feldern Folgendes ein:
zuerst die ersten zwei Buchstaben des Vornamens Ihrer MUTTER;
dann die ersten zwei Buchstaben des Vornamens Ihres VATERS;
dann die ersten zwei Buchstaben Ihres EIGENEN Vornamens;
dann die zwei Ziffern Ihres GeburtsTAGes (Tag zweistellig, ohne Monat).

Experiment 3

Instructions

General Instructions

Sehr geehrte Versuchsteilnehmerin, sehr geehrter Versuchteilnehmer,

vielen Dank, dass Sie sich bereit erklärt haben an dieser Studie teilzunehmen, die sich aus verschiedenen Teilen zusammensetzt.

Sie erhalten alle Instruktionen am Bildschirm. Lesen Sie sich bitte diese aufmerksam durch. Bei Fragen wenden Sie sich bitte an die Versuchsleitung.

Weiter geht’s immer mit der Leertaste.

Personal-Goal Condition

Im Folgenden werden Ihnen mögliche Ziele, Pläne oder Projekte vorgestellt, die Menschen haben können, und zwar in den Bereichen Ernährung, Reisen, Fitness, Freundschaften, Finanzen und Studium.

Nehmen Sie sich bitte Zeit und denken Sie darüber nach, ob das genannte **Ziel** etwas wäre, das Sie in den kommenden sechs Monaten anstreben würden.

Sie haben pro Ziel eine halbe Minute Zeit, erst dann können Sie die Antwort eingeben.

Weiter mit der Leertaste

ZIEL:

"In den nächsten Monaten abzunehmen." Würden Sie dies anstreben?

Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten abzunehmen." Würden Sie dies anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten regelmäßig ins Fitness-Studio zu gehen." Würden Sie dies anstreben?

Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten regelmäßig ins Fitness-Studio zu gehen." Würden Sie dies anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten Geld zu sparen." Würden Sie dies anstreben?

Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten Geld zu sparen." Würden Sie dies anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten Freundschaften mehr zu pflegen." Würden Sie dies anstreben?

Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten Freundschaften mehr zu pflegen." Würden Sie dies anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten ein Lehrbuch für's Studium zu lesen." Würden Sie dies anstreben?

Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten ein Lehrbuch für's Studium zu lesen." Würden Sie dies anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten eine Weltreise zu machen." Würden Sie dies anstreben?

Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten eine Weltreise zu machen." Würden Sie dies anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten ein Auto zu kaufen." Würden Sie dies anstreben?

Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten ein Auto zu kaufen." Würden Sie dies anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

Other-Goal Condition

Im Folgenden werden Ihnen mögliche Ziele, Pläne oder Projekte vorgestellt, die Menschen haben können, und zwar in den Bereichen Ernährung, Reisen, Fitness, Freundschaften, Finanzen und Studium.

Stellen Sie sich nun eine ganz bestimmte Person aus Ihrem Bekanntenkreis vor; es darf jede beliebige Person sein, die Sie kennen, nur nicht ein Familienmitglied, Partner oder jemand, mit dem Sie eine enge Beziehung haben.

Nehmen Sie sich bitte Zeit und denken Sie darüber nach, ob das genannte **Ziel** etwas wäre, das diese Person in den kommenden sechs Monaten anstreben würde.

Sie haben pro Ziel eine halbe Minute Zeit, erst dann können Sie die Antwort eingeben.

Weiter mit der Leertaste

Geben Sie nun bitte den Vornamen dieser Person ein.

_____

ZIEL:

"In den nächsten Monaten abzunehmen." Denken Sie diese Person würde das anstreben? Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten abzunehmen." Denken Sie diese Person würde das anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten regelmäßig ins Fitness-Studio zu gehen." Denken Sie diese Person würde das anstreben? Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten regelmäßig ins Fitness-Studio zu gehen." Denken Sie diese Person würde das anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten Geld zu sparen." Denken Sie diese Person würde das anstreben? Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten Geld zu sparen." Denken Sie diese Person würde das anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten Freundschaften mehr zu pflegen." Denken Sie diese Person würde das anstreben? Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten Freundschaften mehr zu pflegen." Denken Sie diese Person würde das anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten ein Lehrbuch für's Studium zu lesen." Denken Sie diese Person würde das anstreben? Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten ein Lehrbuch für's Studium zu lesen." Denken Sie diese Person würde das anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten eine Weltreise zu machen." Denken Sie diese Person würde das anstreben? Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten eine Weltreise zu machen." Denken Sie diese Person würde das anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

ZIEL:

"In den nächsten Monaten ein Auto zu kaufen." Denken Sie diese Person würde das anstreben? Sie haben eine Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

ZIEL:

"In den nächsten Monaten ein Auto zu kaufen." Denken Sie diese Person würde das anstreben?

1	2	3	4	5	6	7
auf keinen Fall						ganz sicher

Personal-Evaluation Condition

Im Folgenden werden Ihnen mögliche Aktivitäten genannt und zwar aus den Bereichen Ernährung, Reisen, Fitness, Freundschaften, Finanzen und Studium.

Diese Aktivitäten können gut oder schlecht sein.

Sie sollen nun verschiedene Aktivitäten bitte auf einer Skala bewerten.

Sie haben zum Nachdenken pro Aktivität eine halbe Minute Zeit, erst danach können Sie die Antwort eingeben.

"...abnehmen..." Sie haben eine halbe Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

"...abnehmen..." Bewertung:

1	2	3	4	5	6	7
schlecht						gut

"...regelmäßig ins Fitness-Studio gehen..." Sie haben eine halbe Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

"...regelmäßig ins Fitness-Studio gehen..." Bewertung:

1	2	3	4	5	6	7
schlecht						gut

"...Geld sparen..." Sie haben eine halbe Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

"...Geld sparen..." Bewertung:

1	2	3	4	5	6	7
schlecht						gut

"...Freundschaften pflegen..." Sie haben eine halbe Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

"...Freundschaften pflegen..." Bewertung:

1	2	3	4	5	6	7
schlecht						gut

"...ein Lehrbuch für's Studium lesen..." Sie haben eine halbe Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

"...ein Lehrbuch für's Studium lesen..." Bewertung:

1	2	3	4	5	6	7
schlecht						gut

"...eine Weltreise machen..." Sie haben eine halbe Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

"...eine Weltreise machen..." Bewertung:

1	2	3	4	5	6	7
schlecht						gut

"...ein Auto kaufen..." Sie haben eine halbe Minute Zeit, erst danach können Sie die Antwort eingeben.

Next Page

"...ein Auto kaufen..." Bewertung:

1	2	3	4	5	6	7
schlecht						gut

Control Questions Goals

Im Folgenden bitten wir Sie ein paar Fragen zu den möglichen Zielen, über die Sie nachdenken sollten, zu beantworten.
Wie sehr hatten Sie sich vor der Untersuchung mit dem Ziel "abzunehmen" auseinandergesetzt?
Haben Sie das Ziel in den nächsten Monaten "abzunehmen"?
Wie wichtig ist Ihnen das Ziel in den nächsten Monaten "ein Auto zu kaufen"?
Wie wichtig ist Ihnen das Ziel in den nächsten Monaten "regelmäßig ins Fitness-Studio zu gehen"?
Wie wichtig ist Ihnen das Ziel in den nächsten Monaten "Geld zu sparen"?
Wie sehr hatten Sie sich vor der Untersuchung mit dem Ziel "regelmäßig ins Fitness-Studio zu gehen" auseinandergesetzt?
Wie sehr hatten Sie sich vor der Untersuchung mit dem Ziel "Freundschaften mehr zu pflegen" auseinandergesetzt?
Wie wichtig ist Ihnen das Ziel in den nächsten Monaten "Freundschaften mehr zu pflegen"?
Wie wichtig ist Ihnen das Ziel in den nächsten Monaten "eine Weltreise zu machen"?
Wie wichtig ist Ihnen das Ziel in den nächsten Monaten "ein Lehrbuch für's Studium zu lesen"?
Wie sehr hatten Sie sich vor der Untersuchung mit dem Ziel "Geld zu sparen" auseinandergesetzt?
Haben Sie das Ziel in den nächsten Monaten "regelmäßig ins Fitness-Studio zu gehen"?
Wie sehr hatten Sie sich vor der Untersuchung mit dem Ziel "eine Weltreise zu machen" auseinandergesetzt?
Haben Sie das Ziel in den nächsten Monaten "eine Weltreise zu machen"?
Haben Sie das Ziel in den nächsten Monaten "Geld zu sparen"?
Haben Sie das Ziel in den nächsten Monaten "Freundschaften mehr zu pflegen"?
Wie sehr hatten Sie sich vor der Untersuchung mit dem Ziel "ein Auto zu kaufen" auseinandergesetzt?
Haben Sie das Ziel in den nächsten Monaten "ein Auto zu kaufen"?
Wie sehr hatten Sie sich vor der Untersuchung mit dem Ziel "ein Lehrbuch für's Studium zu lesen" auseinandergesetzt?
Haben Sie das Ziel in den nächsten Monaten "ein Lehrbuch für's Studium zu lesen"?
Wie wichtig ist Ihnen das Ziel in den nächsten Monaten "abzunehmen"?
Wie nah sind Sie dem Ziel "abzunehmen"?
Wie nah sind Sie dem Ziel "ein Auto zu kaufen"?
Wie nah sind Sie dem Ziel "regelmäßig ins Fitness-Studio zu gehen"?
Wie nah sind Sie dem Ziel "Geld zu sparen"?
Wie nah sind Sie dem Ziel "Freundschaften mehr zu pflegen"?
Wie nah sind Sie dem Ziel "eine Weltreise zu machen"?
Wie nah sind Sie dem Ziel "ein Lehrbuch für's Studium zu lesen"?

1 überhaupt nicht wichtig	2	3	4	5	6	7 sehr wichtig

1 überhaupt nicht nah	2	3	4	5	6	7 sehr nah

Experiment 4

Instructions

General Instructions

Sehr geehrte Versuchsteilnehmerin, sehr geehrter Versuchteilnehmer,

vielen Dank, dass Sie sich bereit erklärt haben an dieser Studie teilzunehmen.

Sie erhalten alle Instruktionen am Bildschirm. Lesen Sie sich diese bitte aufmerksam durch.

Bei Fragen wenden Sie sich an die Versuchsleitung.

Personal Goal Instructions

Im Folgenden ist es Ihre Aufgabe mögliche **Ziele** anzugeben, die Sie in den nächsten 6 Monaten anstreben. Welche **drei Ziele** planen Sie in den nächsten 6 Monaten zu erreichen?

Nehmen Sie sich Zeit und denken Sie darüber nach, welche drei Ziele Ihnen in den nächsten 6 Monaten **am wichtigsten** sind. Sie haben eine halbe Minute Zeit darüber nachzudenken, erst dann können Sie die Antwort eingeben.

Welche drei WICHTIGSTEN Ziele planen Sie in den nächsten sechs Monaten zu erreichen?

Geben Sie nun Ihr ERSTES persönliches Ziel ein:

"Ich habe mir vorgenommen in den nächsten sechs Monaten ..." [6]

Next Page

"Ich habe mir vorgenommen in den nächsten sechs Monaten <ziel 1>."

Bitte beschreiben Sie Ihr persönliches Ziel näher:

Welche drei WICHTIGSTEN Ziele planen Sie in den nächsten sechs Monaten zu erreichen?

Geben Sie nun Ihr ZWEITES persönliches Ziel ein:

"Ich habe mir vorgenommen in den nächsten sechs Monaten ..."

---

[6] Each indicated goal (the exact wording used by the participant) was adopted on the next page and in the control questions at the end of the experiment.

Next Page

"Ich habe mir vorgenommen in den nächsten sechs Monaten <ziel 2>."

Bitte beschreiben Sie Ihr persönliches Ziel näher:

Welche drei WICHTIGSTEN Ziele planen Sie in den nächsten sechs Monaten zu erreichen?

Geben Sie nun Ihr DRITTES persönliches Ziel ein:

"Ich habe mir vorgenommen in den nächsten sechs Monaten ..."

Next Page

"Ich habe mir vorgenommen in den nächsten sechs Monaten <ziel 3>."

Bitte beschreiben Sie Ihr persönliches Ziel näher:

Personal Evaluation Instructions

Im Folgenden ist es Ihre Aufgabe für eine Person aus einer bestimmten Berufsgruppe (z.B. Polizist, Lehrer) mögliche **Ziele** anzugeben, welche diese Person Ihrer Meinung nach anstreben sollte.

Welche drei Ziele sollte **ein Arzt** verfolgen, damit Sie die Arbeit dieser Person als „GUT" bewerten? Nehmen Sie sich Zeit und denken Sie darüber nach, welche **drei wichtigsten Ziele** ein Arzt **ihrer Meinung nach** haben sollte, damit Sie persönlich einen Arztbesuch „gut" finden. Sie haben eine halbe Minute Zeit darüber nachzudenken, erst dann können Sie die Antwort eingeben.

Next Page

Welche drei WICHTIGSTEN Ziele sollte ein Arzt haben, damit Sie persönlich einen Arztbesuch "gut" finden?

Geben Sie nun Ihren persönlichen Vorschlag für ein ERSTES/ ZWEITES/ DRITTES Ziel ein:

"Ich finde es gut, wenn ein Arzt..." [7]

Next Page

"Ich finde es gut, wenn ein Arzt <ziel 1>."

[7] Each indicated goal (the exact wording used by the participant) was adopted on the next page and in the control questions at the end of the experiment.

Bitte beschreiben Sie dieses mögliche Ziel eines Arztes, welches für Sie einen Arztbesuch "gut" machen würde, genauer:

Welche drei Ziele sollte **ein Friseur** verfolgen, damit Sie die Arbeit dieser Person als „GUT“ bewerten? Nehmen Sie sich Zeit und denken Sie darüber nach, welche **drei wichtigsten Ziele** ein Friseur **ihrer Meinung nach** haben sollte, damit Sie persönlich einen Friseurbesuch „gut“ finden. Sie haben eine halbe Minute Zeit darüber nachzudenken, erst dann können Sie die Antwort eingeben.

Next Page

Welche drei WICHTIGSTEN Ziele sollte ein Friseur haben, damit Sie persönlich einen Friseurbesuch "gut" finden?

Geben Sie nun Ihren persönlichen Vorschlag für ein ERSTES Ziel ein:

"Ich finde es gut, wenn ein Friseur ..."

Next Page

"Ich finde es gut, wenn ein Friseur <ziel 1>."

Bitte beschreiben Sie dieses mögliche Ziel eines Friseurs, welches für Sie einen Friseurbesuch "gut" machen würde, genauer:

Welche drei Ziele sollte ein **Regisseur** verfolgen, damit Sie die Arbeit dieser Person als „GUT“ bewerten? Nehmen Sie sich Zeit und denken Sie darüber nach, welche **drei wichtigsten Ziele** ein Regisseur **ihrer Meinung nach** haben sollte, damit Sie persönlich einen Film „gut“ finden. Sie haben eine halbe Minute Zeit darüber nachzudenken, erst dann können Sie die Antwort eingeben.

Next Page

Welche drei WICHTIGSTEN Ziele sollte ein Regisseur haben, damit Sie persönlich einen Film "gut" finden?

Geben Sie nun Ihren persönlichen Vorschlag für ein ERSTES Ziel ein:

"Ich finde es gut, wenn ein Regisseur ..."

Next Page

"Ich finde es gut, wenn ein Regisseur <ziel 1>."

Bitte beschreiben Sie dieses mögliche Ziel eines Regisseurs, welches für Sie einen Film "gut" machen würde, genauer:

Control Questions

Personal Goal Condition

Im Folgenden sollen Sie ein paar Fragen zu den Zielen, die Sie anfangs beschrieben haben, beantworten.

Wie wichtig ist es Ihnen in den nächsten sechs Monaten <ziel 1>/<ziel 2>/<ziel 3>?

1	2	3	4	5	6	7
überhaupt nicht wichtig						sehr wichtig

Wie nah sind Sie diesem Ziel?

1	2	3	4	5	6	7
überhaupt nicht nah						sehr nah

Warum verfolgen Sie dieses Ziel? Wählen Sie den wichtigsten Grund:

1 weil es von mir erwartet wird
2 weil es mir selbst wichtig ist
3 weil es mir Spaß macht
4 weil ich mich sonst schlecht fühle
5 weil ich sonst jemanden im Stich lasse

Evaluation Condition

Im Folgenden sollen Sie ein paar Fragen zu den Zielen, die Sie anfangs beschrieben haben, beantworten.

Wie wichtig ist es Ihnen, dass die Person des anfangs genannten Berufs <ziel 1>/<ziel 2>/<ziel 3>?

1	2	3	4	5	6	7
überhaupt nicht wichtig						sehr wichtig

Experiment 5

Instructions

General Instructions

Sehr geehrte Versuchsteilnehmerin, sehr geehrter Versuchteilnehmer,

vielen Dank, dass Sie sich bereit erklärt haben an dieser Studie teilzunehmen.

Sie erhalten alle Instruktionen am Bildschirm. Lesen Sie sich diese bitte aufmerksam durch.

Bei Fragen wenden Sie sich an die Versuchsleitung.

Weiter mit der Leertaste

Instruction Self-activation

In den folgenden drei Fragen ist es Ihre Aufgabe, über mehrere Eigenschaften nachzudenken und diese in das vorgegebene Feld einzutragen. Nach 2 Minuten wechselt der Bildschirm jeweils automatisch zur nächsten Frage. Wir bitten Sie darum, ehrlich zu antworten.

Private SA: Self-novelty

Bitte nennen Sie möglichst viele Eigenschaften, die Sie von Ihrer FAMILIE unterscheiden.

Bitte nennen Sie möglichst viele Eigenschaften, die Sie von Ihren FREUNDEN unterscheiden.

Control Condition

Bitte nennen Sie möglichst viele Eigenschaften, die gute von schlechten FERNSEHSERIEN unterscheiden.

Bitte nennen Sie möglichst viele Eigenschaften, die gute von schlechten ZEITSCHRIFTEN unterscheiden.

Evaluation Task

Instructions

Im Folgenden werden Ihnen verschiedene Dinge genannt, die gut oder schlecht sein können. Sie sollen kurz darüber nachdenken und auf einer Skala angeben, wie positiv/ negativ Sie diese bewerten.

Weiter mit der Leertaste

Bewertung:

1	2	3	4	5	6	7
schlecht						gut

Evaluation Task Stimuli[8]

Table E 1

Items used in the Evaluation Task in Study 5

Target words			
Studies/ profession	Vacation/ traveling	Friendship/ relationship	Sport/ fitness
Lehrbuch	Erholung	Freunde	körperliche Krankheit
beruflicher Erfolg	Wellness	soziale Kontakte	Bewegung
Universität	Hängematte	Zweisamkeit	körperliche Kondition
Seminar	Erschöpfung	Eifersucht	Doping
Vorlesung	Strand	Zuneigung	Sieger
Lernplan	Liegestuhl	Einsamkeit	Schweiß
Fleiß	Flughafen	Liebe	Athlet
Schreibtisch	Städtereise	Vertrauen	Muskeln
Practice words		**Control words**	
kalter Winter		Spinnen	
Armut		Blumen	
Geld		klassische Musik	
		Kinobesuch	
		Haustier halten	
		Gestank	
		Schmutz	
		Theater	

[8] The items were presented in randomized order.

Lexical Decision Task – Instructions

Im Folgenden ist es Ihre Aufgabe, Ihnen dargebotene Buchstabenfolgen danach einzuteilen, ob es sich dabei um ein Wort (z.B. Baum) oder um ein Nichtwort (z.B. (Zguiht) handelt.

Hierfür sollen Sie mit den rot markierten Tasten reagieren, je nachdem, ob Sie **ein Wort oder ein Nichtwort** sehen. Die Zuordnung steht am oberen Bildschirmrand.

Die Aufgabe wird Ihnen nun genauer erklärt.

Weiter mit der Leertaste

Dazu sehen Sie zunächst in der Mitte des Bildschirms ein „+“. Richten Sie Ihre Aufmerksamkeit darauf, kurz danach wird das Wort oder Nichtwort dargeboten. Falls Sie einen Fehler machen, erscheint kurz ein rotes „x“, die Aufgabe geht aber automatisch weiter.

Versuchen Sie in jedem Fall **möglichst schnell** mit den rot markierten Tasten zu reagieren, je nachdem, ob sie **ein Wort oder ein Nichtwort** sehen. Die Zuordnung steht während der gesamten Aufgabe am oberen Bildschirmrand.

Lassen Sie dafür Ihre Zeigefinger während der gesamten Aufgabe auf den rot markierten Tasten liegen.

Los geht’s mit der Leertaste

Lexical Decision Task – Stimuli

Table E 2

Stimuli used in the Lexical Decision Task in Study 5

Goal-related words			
Studies/ profession	Vacation/ traveling	Friendship/ relationship	Sport/ fitness
Lerneifrig	Urlaub	Freundschaft	Sport
Praktikum	entspannen	kontaktfreudig	gesund
diszipliniert	Reise	Beziehung	Fitness
Prüfung	verreisen	liebevoll	aktiv

Control words	Nonwords	
Blume	Difzreenu	Eiferidenzer
Wand	Uatrvrene	Aprnuditper
Wohnzimmer	Susk	Liged
Schrank	obrh	Ezlit
Tischdecke	nfhnfugo	rinferigierend
außergewöhnlich	Hirlceh	üglk
Armbanduhr	Poeolsinx	flakij
dekorativ	ravrte	loert
Papier	äqelnu	falunl
gehen	Tuw	Rtoerir
wörtlich	takvi	Pubratl
zahlreich	elüfralb	Romd
rasant	Klaeshner	Gants
verwenden	Auersehz	dbehorngu
schauen	efrenurend	Rveulste
ablichten	ackrikrend	Hacselgn
sprechen	ilestecdfnah	tinstrozt
Handlung	oltresstunel	hasemcrz
bunt	Efured	wehsahcce
volljährig	Trifzel	serftgricibr
Stuhl	Höscn	gusgtof
belüften	Hrutz	ditrwol
faltig		
Hut		
Kassette		
Schachtel		
einkaufen		
Kühlschrank		

Manikin Task - Instructions

Compatible

Bei der folgenden Aufgabe bitten wir Sie, sich mit einer Figur so schnell wie möglich auf dem Bildschirm zu bewegen. Sie können mit der Figur nach oben laufen, wenn Sie **mehrmals** auf die gelbe Taste mit dem Pfeil nach oben drücken. Nach unten laufen Sie mit der anderen gelben Taste, auch indem Sie **mehrmals** auf die Taste drücken.

Die Figur erscheint entweder oben oder unten am Bildschirm.

In der Mitte erscheint eine Buchstabenfolge, die entweder ein Wort (z.B. Baum) oder ein Nichtwort (z.B. Zguiht) darstellt. Ihre Aufgabe besteht darin, je nach Instruktion, mit der Figur auf das Wort/Nichtwort zuzulaufen oder von dem Wort/Nichtwort wegzulaufen.

Nun sollen Sie folgendermaßen reagieren.

- Wenn Sie ein **Nichtwort** sehen, dann laufen Sie **von dem Nichtwort weg**.
- Wenn Sie ein **Wort** sehen, dann laufen Sie **auf das Wort zu**.

Die Aufgabe wird Ihnen nun genauer erklärt.

Am Anfang eines jeden Durchgangs erscheint in der Mitte ein Kreuz. Wenn Sie das Kreuz sehen, dann drücken Sie die blaue Taste zwischen den beiden gelben Pfeiltasten und halten Sie gedrückt. Nur dann erscheint auch die Figur. Halten Sie diese Taste solange gedrückt, bis Sie loslaufen können.

Es ist wichtig, dass Sie **so schnell wie möglich** reagieren und dabei **keine Fehler** machen!

Benutzen Sie für alle drei Tasten **immer denselben Finger,** und zwar den **Mittelfinger**. Das ist wichtig, weil sonst die Reaktionszeiten verfälscht werden. Wenn Sie Linkshänder sind und lieber mit der linken Hand die Tasten bedienen möchten, können Sie dies tun.

Sie können diese Aufgabe nun üben. Legen Sie Ihren Mittelfinger dafür schon auf die rechte blaue Taste.

Zur Übung geht's mit der Leertaste

Nun werden die Reaktionen vertauscht:

- Wenn Sie ein **Nichtwort** sehen, dann laufen Sie **auf das Nichtwort zu**.
- Wenn Sie ein **Wort** sehen, dann laufen Sie **von dem Wort weg.**

Es ist wichtig, dass Sie **so schnell wie möglich** reagieren und dabei **keine Fehler** machen!

Legen Sie Ihren Mittelfinger auf die blaue Taste zwischen den gelben Pfeiltasten und starten Sie den Übungsdurchgang mit der Leertaste.

Incompatible

Bei der folgenden Aufgabe bitten wir Sie, sich mit einer Figur so schnell wie möglich auf dem Bildschirm zu bewegen. Sie können mit der Figur nach oben laufen, wenn Sie **mehrmals** auf die gelbe Taste mit dem Pfeil nach oben drücken. Nach unten laufen Sie mit der anderen gelben Taste, auch indem Sie **mehrmals** auf die Taste drücken.

Die Figur erscheint entweder oben oder unten am Bildschirm.

In der Mitte erscheint eine Buchstabenfolge, die entweder ein Wort (z.B. Baum) oder ein Nichtwort (z.B. Zguiht) darstellt. Ihre Aufgabe besteht darin, je nach Instruktion, mit der Figur auf das Wort/Nichtwort zuzulaufen oder von dem Wort/Nichtwort wegzulaufen.

Nun sollen Sie folgendermaßen reagieren:

- Wenn Sie ein **Nichtwort** sehen, dann laufen Sie **auf das Nichtwort zu**.
- Wenn Sie ein **Wort** sehen, dann laufen Sie **von dem Wort weg**.

Die Aufgabe wird Ihnen nun genauer erklärt.

Weiter mit der Leertaste

Am Anfang eines jeden Durchgangs erscheint in der Mitte ein Kreuz. Wenn Sie das Kreuz sehen, dann drücken Sie die blaue Taste zwischen den beiden gelben Pfeiltasten und halten Sie gedrückt. Nur dann erscheint auch die Figur. Halten Sie diese Taste solange gedrückt, bis Sie loslaufen können.

Es ist wichtig, dass Sie **so schnell wie möglich** reagieren und dabei **keine Fehler** machen!

Benutzen Sie für alle drei Tasten **immer denselben Finger,** und zwar den **Mittelfinger**. Das ist wichtig, weil sonst die Reaktionszeiten verfälscht werden. Wenn Sie Linkshänder sind und lieber mit der linken Hand die Tasten bedienen möchten, können Sie dies tun.

Sie können diese Aufgabe nun üben. Legen Sie Ihren Mittelfinger dafür schon auf die rechte blaue Taste.

Zur Übung geht's mit der Leertaste

Nun werden die Reaktionen vertauscht:

- Wenn Sie ein **Nichtwort** sehen, dann laufen Sie **von dem Nichtwort weg**.
- Wenn Sie ein **Wort** sehen, dann laufen Sie **auf das Wort zu**.

Es ist wichtig, dass Sie **so schnell wie möglich** reagieren und dabei **keine Fehler** machen!

Legen Sie Ihren Mittelfinger auf die blaue Taste zwischen den gelben Pfeiltasten und starten Sie den Übungsdurchgang mit der Leertaste.

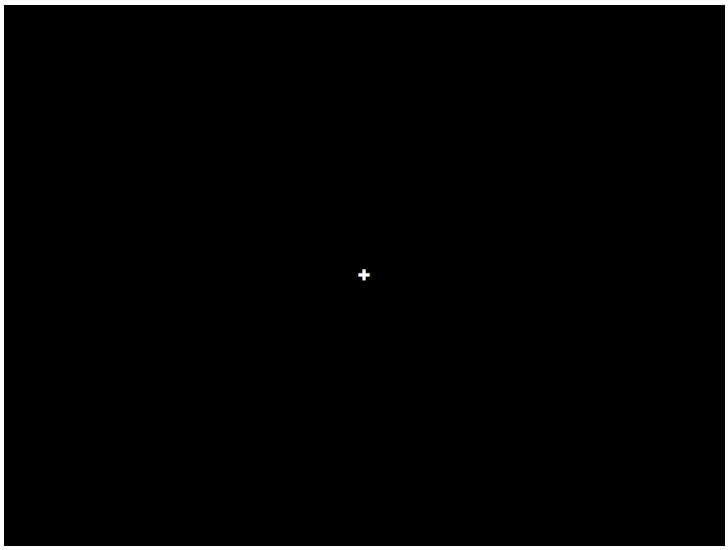
Manikin Task – Stimuli

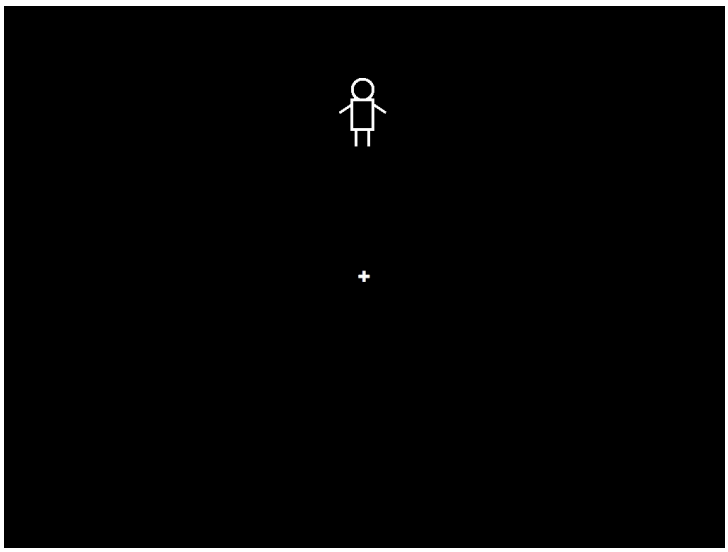
Table E 3

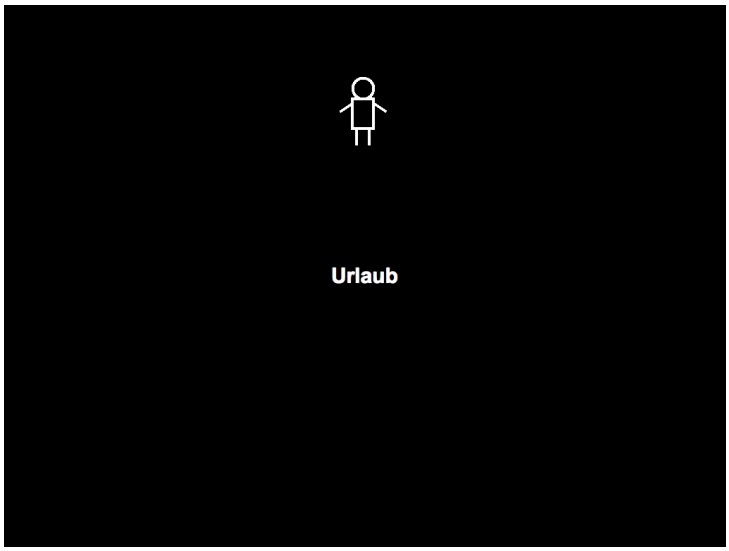
Stimuli used in the Manikin Task in Study 5

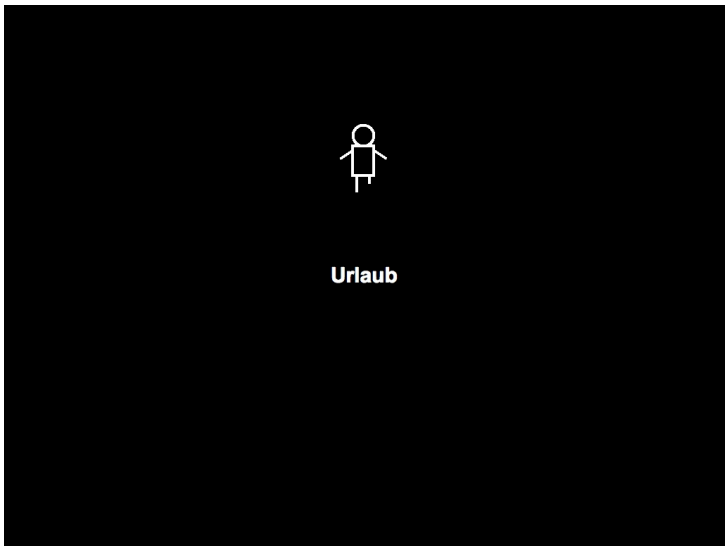
Goal-related words			
Studies/ profession	Vacation/ traveling	Friendship/ relationship	Sport/ fitness
Lerneifrig	Urlaub	Freundschaft	Sport
Prüfung	verreisen	Beziehung	gesund
Control words			
Blume			
Wohnzimmer			
Tischdecke			
Armbanduhrdekorativ			
Papier			
gehen			
Nonwords			
Klaeshner			
Auersehz			
efrenurend			
ackrikrend			
ilestecdfnah			
oltresstunel			
Efured			
Trifzel			
Höscn			
Hrutz			
Eiferidenzer			
Aprnuditper			
Liged			
Ezlit			
rinferigierend			
üglk			

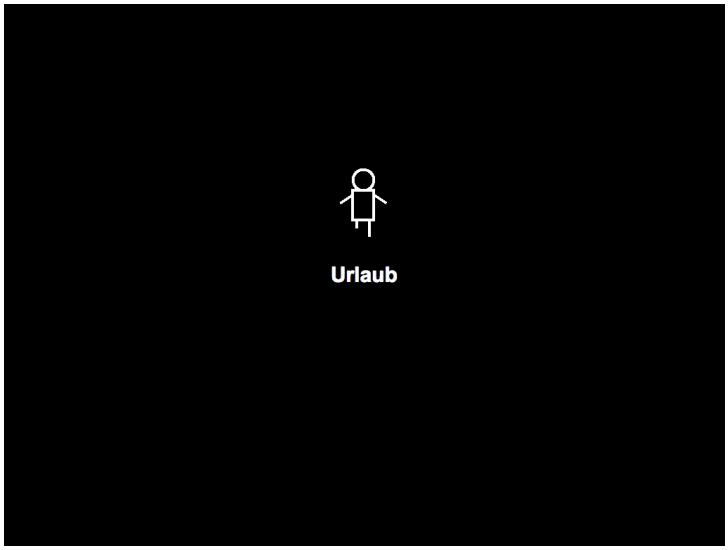
Manikin Task – Sequence of Stimulus Presentation

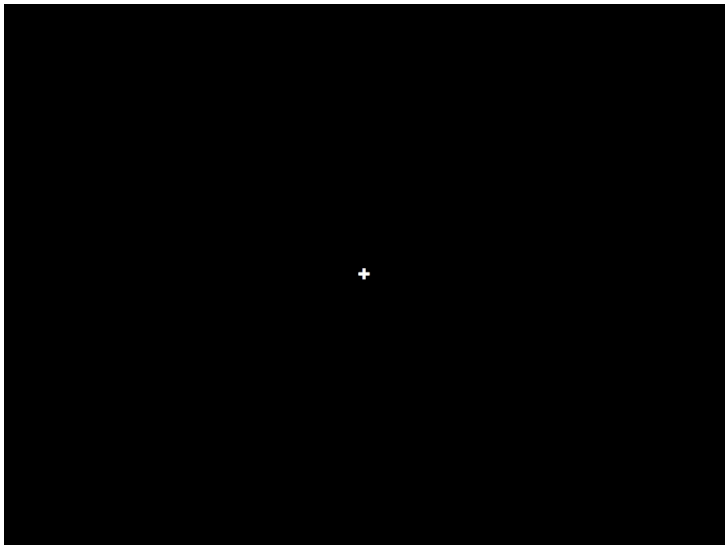







Urlaub


Urlaub



Preliminary Analyses - Manikin Task

Table E 4

Mean Reaction Times as a Function of Block Order and Type of Trial

	Trial	
	compatible	incompatible
Block Order		
Compatible first		
M	648.93	740.99
SD	89.77	99.26
Incompatible first		
M	659.22	763.74
SD	106.76	110.37

Note. $N = 65$.

Table E 5

Analysis of Variance as a Function of Block Order (compatible first vs. incompatible first) and Type of Trial (compatible vs. incompatible)

Source	*df*	*F*
	Between Participants	
Block Order (O)	1	.467
Error (O)	63	(18254)
	Within Participants	
Type of Trial (T)	1	135.44**
T X O	1	.544
Error (T)	63	(2225)

Note. Values enclosed in parantheses represent mean square errors.

**$p<.01$.

Table E 6

Mean Number of Errors as a Function of Block Order and Type of Trial

	Trial	
	compatible	incompatible
Block Order		
Compatible first		
M	1.103	2.410
SD	1.209	2.336
Incompatible first		
M	1.577	2.654
SD	1.629	2.019

Note. $N = 65$.

Table E 7

Analysis of Variance as a Function of Block Order (compatible first vs. incompatible first) and Type of Trial (compatible vs. incompatible)

Source	*df*	*F*
	Between Participants	
Block Order (O)	1	.825
Error (O)	63	(4.876)
	Within Participants	
Type of Trial (T)	1	22.521**
T X O	1	.211
Error (T)	63	(1.969)

Note. Values enclosed in parantheses represent mean square errors.

**$p<.01$.

Experiment 6

Instructions

General Instructions

Lieber Versuchsteilnehmer,

vielen Dank, dass Sie sich bereit erklärt haben an dieser Studie teilzunehmen.

Sie erhalten alle Instruktionen am Bildschirm. Lesen Sie sich diese bitte aufmerksam durch.

Bei Fragen wenden Sie sich an die Versuchsleitung.

Self-Characterization

Bei der folgenden Frage ist es Ihre Aufgabe, bestimmte Eigenschaften in das vorgegebene Feld einzutragen.

Sie sollen dazu über sich selbst nachdenken und beschreiben, was Sie als Person ausmacht.

Die Aufgabe wird gleich näher erläutert.

Nach 1,5 Minuten wechselt der Bildschirm automatisch zur nächsten Frage.

Control Condition

Bei der folgenden Frage ist es Ihre Aufgabe, bestimmte Eigenschaften in das vorgegebene Feld einzutragen.

Sie sollen dazu über Kinofilme nachdenken und beschreiben, was für Sie gute Kinofilme ausmacht.

Die Aufgabe wird gleich näher erläutert.

Nach 1,5 Minuten wechselt der Bildschirm automatisch zur nächsten Frage.

Evaluation Task

Instructions

Im Folgenden werden Ihnen verschiedene Dinge genannt, die gut oder schlecht sein können.

Sie sollen kurz darüber nachdenken und auf einer Skala angeben, wie positiv/ negativ Sie diese bewerten.

Weiter mit der Leertaste

Bewertung:

1	2	3	4	5	6	7
schlecht						gut

Evaluation Task Stimuli[9]

Table F 1

Items used in the Evaluation Task in Study 6

Target words			
Studies/ profession	Vacation/ traveling	Friendship/ relationship	Sport/ fitness
Lehrbuch	Erholung	Freunde	körperliche Krankheit
beruflicher Erfolg	Wellness	soziale Kontakte	Bewegung
Universität	Hängematte	Zweisamkeit	körperliche Kondition
Seminar	Erschöpfung	Eifersucht	Doping
Vorlesung	Strand	Zuneigung	Sieger
Lernplan	Liegestuhl	Einsamkeit	Schweiß
Fleiß	Flughafen	Liebe	Athlet
Schreibtisch	Städtereise	Vertrauen	Muskeln

Practice words	Control words
kalter Winter	Spinnen
Armut	Blumen
Geld	klassische Musik
	Kinobesuch
	Haustier halten
	Gestank
	Schmutz
	Theater

[9] The items were presented in randomized order.

Goal Activation

Friendship/ Relationship – Explicit judgment:

Im Folgenden geht es um den Bereich „Freundschaften“.

Wie viel Prozent Ihrer Freizeit würden Sie im nächsten Monat gerne mit Ihren Freunden verbringen?

0 Prozent

bis 9 Prozent

10-19 Prozent

20-29 Prozent

30-39 Prozent

40-49 Prozent

50-59 Prozent

60-69 Prozent

70-79 Prozent

80-89 Prozent

90-99 Prozent

100 Prozent

Sport/Fitness- Choice behavior:

Bevor es am Rechner weiter geht, gehen Sie jetzt zur Versuchsleitung.

Dort bekommen Sie Ihre Belohnung.

Weiter mit der Leertaste

Studies/Profession – Connect-the-Dots Task:

Im Folgenden sollen Sie eine **Reaktionszeitaufgabe** bearbeiten, bei der Sie möglichst schnell und genau sein sollen.

Wenn Sie dabei **besonders schnell** sind, wird bis zur nächsten Aufgabe etwas Zeit übrig bleiben.

In dieser **gewonnenen Zeit** erhalten Sie als Belohnung am Bildschirm eine Seite mit einigen psychologisch fundierten Tipps zum **effektiveren Lernen und besserer Studiumsbewältigung**.

Weiter mit der Leertaste

Im Folgenden sollen Sie eine ZAHLENVERBINDUNGS-Aufgabe bearbeiten.

Das heißt, Sie müssen Zahlen in aufsteigender Reihenfolge verbinden, so dass ein Bild entsteht.

Versuchen Sie, die Aufgabe **so schnell wie möglich** zu bearbeiten.

Wenn Sie besonders schnell sind, und etwas Zeit bis zur nächsten Aufgabe übrig ist, erhalten Sie in der **gewonnenen Zeit** als Belohnung einige **psychologisch fundierte Tipps fürs Studium**.

Weiter mit der Leertaste

Die Zeit, die Sie für die Bearbeitung der Aufgabe brauchen, wird am Computer erfasst. Deshalb sollen Sie SOFORT bei Beginn und Ende der Bearbeitung die Leertaste drücken. Versuchen Sie möglichst schnell zu sein!

Der STARTPUNKT der Aufgabe ist mit gelbem Textmarker markiert und der ENDPUNKT mit einem blauen Kreis gekennzeichnet.

Nehmen Sie nun den Bleistift in die Hand, drücken Sie zum **Starten der Zeitmessung** die Leertaste, drehen Sie das Blatt um, das rechts neben Ihnen liegt, und beginnen Sie SOFORT mit der Aufgabe am gelb markierten Punkt.

Zur Zeitmessung – Los geht's mit der Leertaste

Gut gemacht! Sie waren besonders schnell!

Deshalb werden Ihnen nun die Lerntipps am Bildschirm dargeboten, die Sie nach dem Versuch auch in ausgedruckter Form vom Versuchsleiter bekommen können.

Tipps zum Lernen und Studieren

1. Für effektives Lernen ist es hilfreich, möglichst viele Sinnesorgane am Lernprozess zu beteiligen (Lesen, Hören, Schreiben).

2. Einteilung des gesamten Lernstoffes in "Lernportionen" hilft die Übersicht zu bewahren und macht Erfolge sichtbar.

3. Sich für Erfolge belohnen lassen. Oder sich Selbst belohnen, indem man sich etwas Gutes gönnt, nachdem man ein Zwischenziel erreicht hat. Damit steigt die Motivation fürs Weiterlernen.

4. Möglichst bald nach der Veranstaltung den gelernten Stoff zumindest kurz wiederholen.

5. Nach 45 bis 60 Minuten vollster Konzentration ist eine kurze Pause (5-10min) notwendig. Ein wenig Bewegung an frischer Luft (auch geöffnetes Fenster), ist ein optimales Pausenprogramm.

6. Gute Lernumgebung schaffen indem man sich einen geräumigen, ruhigen und gut beleuchteten Arbeitsplatz aussucht. (Tageslichtlampen wirken Wunder!)

7. Vor dem Lernen nicht zu viel Essen. Ein voller Bauch studiert nicht gern. In den Pausen nur kleine Portionen essen.

8. Bei leichten Kopfschmerzen nicht gleich mit Schmerztabletten dagegen ankämpfen. Ein kleines Mittagsschläfchen oder ein guter grüner Tee helfen oft genauso gut und sind außerdem gesund.

9. Ausreichend schlafen! Zeit beim Schlafen zu sparen ist der falsche Weg, denn Schlaf ist gerade in Lernphasen sehr wichtig.

Weiter mit der Leertaste

Vacation/ Traveling – Variation of the Test d2:

Im Folgenden sollen Sie wieder eine Reaktionszeitaufgabe bearbeiten, bei der Sie möglichst schnell und genau sein sollen! Wenn Sie dabei besonders schnell sind, wird wieder etwas Zeit bis zur nächsten Aufgabe übrig sein. In dieser gewonnen Zeit werden Sie mit einem 2minütigen Urlaubsfilm belohnt.

Ihre Aufgabe ist zu entscheiden, ob jeder dargebotene Buchstabe ein "d" mit ZWEI Strichen ist oder nicht. Die Striche können entweder beide oberhalb des Buchstaben, oder beide unterhalb des Buchstaben, oder einer oben und einer unten erscheinen.

Wenn diese Kombination von "d" und ZWEI Strichen erscheint, drücken Sie bitte die LINKE rot markierte Taste (richtig). Wenn ein "p" erscheint, bzw. wenn beim "d" mehr oder weniger als ZWEI Striche sind, drücken Sie dann die RECHTE rot markierte Taste (falsch).

Ihre Aufgabe ist zu entscheiden, ob jeder dargebotene Buchstabe ein "d" mit ZWEI Strichen ist oder nicht. Die Striche können entweder beide oberhalb des Buchstaben, oder beide unterhalb des Buchstaben, oder einer oben und einer unten erscheinen.

Wenn diese Kombination von "d" und ZWEI Strichen erscheint, drücken Sie bitte die RECHTE rot markierte Taste (richtig). Wenn ein "p" erscheint, bzw. wenn beim "d" mehr oder weniger als ZWEI Striche sind, drücken Sie dann die LINKE rot markierte Taste (falsch).

Practice Trials

Dies werden Sie jetzt üben können. Seien Sie dabei so schnell und machen Sie so wenige Fehler wie möglich. Legen Sie bitte nun Ihre Zeigefinger auf die rot markierten Tasten.

Experimental Trials

Nun startet der Messdurchgang. Bitte beachten Sie, dass Sie diesmal keine Fehlerrückmeldung mehr bekommen werden! Legen Sie bitte nun Ihre Zeigefinger auf die rot markierten Tasten und seien Sie bereit.

Gut gemacht!

Sie waren bei der Aufgabe besonders schnell und dürfen deshalb nun den Urlaubsfilm ansehen.

Setzen Sie dazu bitte die Kopfhörer auf.

Questions

Ranking of the Four Domains

Im Folgenden werden Ihnen verschiedene Lebensbereiche vorgestellt (Studium/Beruf, Urlaub/Reisen, Freundschaft/Beziehung und Fitness). Sie sollen diese Bereiche in eine Rangreihe bringen, in Abhängigkeit davon, wie wichtig Ihnen diese Bereiche persönlich sind.

Auf Platz 1 sollte der Bereich stehen, der Ihnen **im Allgemeinen** am wichtigsten ist und auf Platz 4 der Bereich, der Ihnen am wenigsten wichtig ist.

Weiter mit der Leertaste

(Packen Sie den jeweiligen Bereich mit der linken Maustaste, halten Sie diese Taste und ziehen Sie jeden Bereich mit der Maus auf den entsprechenden Rangplatz)

Ihre Rangreihe für die Wichtigkeit im Allgemeinen:

Studium/ Beruf
Urlaub/ Reisen
Freundschaft/ Beziehung
Sport/ Fitness

Platz 1:
Platz 2:
Platz 3:
Platz 4:

Nun sollen Sie dieselben Bereiche (Studium/Beruf, Urlaub/Reisen, Freundschaft/ Beziehung und Fitness) wieder in eine Rangreihe bringen, in Abhängigkeit davon, wie wichtig Ihnen diese Bereiche **in den nächsten 6 Monaten** sind.

Dabei sollte der Ihnen wichtigste Bereich wieder auf Platz 1 stehen.

Weiter mit der Leertaste

(Packen Sie den jeweiligen Bereich mit der linken Maustaste, halten Sie diese Taste und ziehen Sie jeden Bereich mit der Maus auf den entsprechenden Rangplatz)

Ihre Rangreihe für die Wichtigkeit in den nächsten sechs Monaten:

Studium/ Beruf
Urlaub/ Reisen
Freundschaft/ Beziehung
Sport/ Fitness

Platz 1:
Platz 2:
Platz 3:
Platz 4:

Erklärung

gemäß §4 Abs. 4 der PromO vom 14.06.2001

Hiermit versichere ich an Eides statt, dass ich die vorliegende Dissertation selbständig angefertigt und ausschließlich die angegebenen Quellen und Hilfsmittel benutzt habe. Die vorliegende Arbeit wurde bislang weder veröffentlicht, noch in gleicher oder ähnlicher Form an einem anderen Prüfungsamt eingereicht.

Würzburg, den 08.05.2009 _____

Petra Markel

Zusammenfassung

In der vorliegenden Arbeit wurde der Zusammenhang zwischen Selbst und persönlichen Zielen genauer untersucht. Hierzu wurde zunächst ein reaktionszeitbasiertes Maß zur impliziten Messung von Selbstaktivierung entwickelt (Studien 1 und 2). Im nächsten Schritt wurde untersucht, ob ein direkter Zusammenhang zwischen Selbst und persönlichen Zielen besteht. Hierfür wurde mit Hilfe des neu entwickelten Maßes getestet, ob Probanden, die über persönliche Ziele nachdenken eine erhöhte Selbstaktivierung zeigen (Studien 3 und 4). Schließlich wurde analysiert, ob eine bidirektionale Beziehung zwischen Selbst und persönlichen Zielen besteht. Dazu wurde geprüft, ob positive Bewertungen mit höherer Wahrscheinlichkeit als Ziele konstruiert werden, wenn das Selbst vor Abgabe der Bewertungen aktiviert worden ist (Studien 5 und 6).

Stand der Forschung

In klassischen Theorien zum Selbstkonzept wird davon ausgegangen, dass das Selbstkonzept neben vergangenen Erfahrungen und Erinnerungen der Person auch Informationen über mögliche zukünftige Selbstaspekte enthält („possible selves“; z.B., Markus & Nurius, 1986; Oyserman & James, 2008). Diese *possible selves* beschreiben Vorstellungen vom Selbst in der Zukunft und enthalten Vorstellungen über das Selbst, das sich die Person wünscht zu sein und das sie vermeiden möchte zu sein. Sie motivieren somit zielgerichtetes Verhalten, um das entsprechende gewünschte Selbst zu erreichen. Ähnlich geht auch die Theorie des regulatorischen Fokus (Higgins, 1997) davon aus, dass die chronische Diskrepanz zwischen dem aktuellen Selbst und einem Ideal- oder Soll-Selbst die Zugänglichkeit von ziel-relevantem Wissen und von verschiedenen Strategien zur Zielerreichung beeinflusst. Außerdem wird angenommen, dass das Selbstkonzept auch persönliche Ziele enthält (z.B. Hannover, 1997).

Klassische Forschung zur Theorie der Selbstaufmerksamkeit (z.B., Duval & Wicklund, 1972) geht davon aus, dass in einem Zustand erhöhter Selbstaufmerksamkeit (SA) aktuelles Verhalten mit idealen Standards verglichen wird. Im Falle einer bestehenden Diskrepanz zu diesem idealen Standard wird negativer Affekt ausgelöst, der Verhalten zur Beseitigung der Diskrepanz motiviert. Zahlreiche Studien zeigen, dass sich Personen unter hoher SA mehr ihren Standards und Zielen entsprechend verhalten (z.B., Duval & Lalwani, 1999; Gibbons, 1978; Macrae, Bodenhausen, & Milne, 1998). Außerdem zeigen Studien zur Theorie des überlegten Handelns (theory of reasoned action; Fishbein & Ajzen, 1975), dass Persönlichkeitseigenschaften, die eine unterschiedliche Aktivierung selbst-bezogenen Wissens beinhalten (z.B., Self-consciousness, Self-monitoring), den Zusammenhang zwischen Einstellungen und Verhalten moderieren; und zwar zeigen Personen mit einer erhöhten Selbstaktivierung mehr Verhalten, das ihren persönlichen Einstellungen entspricht.

Darüber hinaus gehen auch Modelle der Selbstregulation davon aus, dass der aktuelle Zustand des Selbst mit Referenzwerten verglichen wird, um die Diskrepanz zwischen dem aktuellen und dem gewünschten Selbst zu bestimmen, wodurch Selbstregulationsprozesse aktiviert werden, um den gewünschten Zustand zu erreichen (z.B., Boldero & Francis, 2002; Carver & Scheier 1998). In vielen Modellen werden Begriffe wie Referenzwerte Standards, Ziele und mögliche Selbste synonym verwendet. Die dargestellten Befunde machen deutlich, dass zahlreiche Theorien implizit von einem Zusammenhang zwischen Selbst und persönlichen Zielen ausgehen. Diese Beziehung ist jedoch nie empirisch geprüft worden und wurde daher in der vorliegenden Arbeit genauer untersucht.

Hauptziele und Hypothesen der vorliegenden Arbeit

Um den Zusammenhang zwischen Selbst und Zielen zu untersuchen, sollte in einem ersten Schritt ein implizites Maß zur Messung von Selbstaktivierung entwickelt werden. Bei der klassischen Messung von Selbstaktivierung (SA) werden Personen direkt nach ihren

inneren Gedanken und Gefühlen gefragt (z.B. Fragebögen, Tagebücher). Diese Messung ist damit anfällig für erwünschte Antworten und Selbstpräsentation (Duval & Wicklund, 1972; Silvia & Gendolla, 2001); außerdem wird durch den Selbstreflexionsprozess, der zur Beantwortung der Fragen nötig ist auch SA induziert. In der Literatur gibt es sehr wenig valide Maße, die SA auf impliziter Ebene erfassen (z.B., word recognition latencies: Eichstaedt & Silvia, 2003; self-Stroop Task: Segal & Vella, 1990). Da diese in verschiedenen Studien zum Teil gemischte Befunde zeigen, wurde in der vorliegenden Arbeit ein individualisiertes reaktionsbasiertes Maß zur Messung von SA entwickelt, bei dem *Bilder* der Probanden als Stimuli dargeboten werden (Studie 1 und 2). Probanden sollen dabei möglichst schnell Gesichter danach einteilen, ob die Person *lächelt* oder *nicht lächelt*. Es wurde angenommen, dass Personen deren Selbst aktiviert worden ist, aufgrund erhöhter Zugänglichkeit von selbstrelevantem Wissen, selbstbezogene Informationen leichter verarbeiten und schneller reagieren, wenn sie Bilder von sich selbst kategorisieren.

In einem zweiten Schritt sollte mit Hilfe dieses impliziten SA Maßes nachgewiesen werden, dass ein direkter Zusammenhang zwischen Selbst und persönlichen Zielen besteht. Es wurde angenommen, dass Selbst und Ziele über verschiedene Mechanismen verknüpft sein könnten: (1) Wenn bspw. das Selbstkonzept auch Ziele enthält, aufgrund erhöhter Zugänglichkeit und unwillkürlicher Aktivierungsausbreitung in assoziativen Netzwerken, die als grundlegender Informationsverarbeitungsmechanismus im Impulsiven System angesehen wird (RIM; Strack & Deutsch, 2004); (2) Selbst und Ziele könnten über einen reflektiven Informationsverarbeitungsstil verknüpft sein (Strack & Deutsch, 2004), da bspw. Personen unter bewusster Selbstaufmerksamkeit ihre Ziele besser erreichen; (3) Beim Nachdenken über Ziele könnte die Aufmerksamkeit auf die Diskrepanz zwischen aktuellem und gewünschtem Selbst gelenkt werden, wodurch motivationale Prozesse zur Diskrepanz-reduktion aktiviert werden. In der vorliegenden Arbeit wurde angenommen, dass aufgrund

dieser möglichen Mechanismen das Nachdenken über persönliche Ziele das Selbst stärker aktiviert als das Nachdenken über persönliche Bewertungen, was sich bei allen möglichen zugrundeliegenden Mechanismen in stärkerer Selbstaktivierung im neuen Bilder-Maß zeigen sollte, d.h. in schnelleren Reaktionszeiten auf Selbstbilder (Studie 3 und 4).

In einem dritten Schritt sollte dann gezeigt werden, dass die Beziehung zwischen Selbst und persönlichen Zielen *bidirektional* ist. Hierzu wurde untersucht, wie Ziele als Folge von Selbstaktivierung aktiviert werden Es wurde angenommen, dass Bewertungen als Ziele konstruiert werden, wenn vor der Bewertung das Selbst aktiviert worden ist (Studie 5 und 6). Dazu wurden als Indikatoren für Zielaktivierung die Zugänglichkeit von ziel-relevantem Wissen (LDT; Fishbach & Shah, 2006), Annäherungsmotivation als unmittelbare Verhaltensbereitschaft (Manikin Task; De Houwer et al., 2001) und zielgerichtetes Verhalten (z.B., Hoyle & Sherill, 2006) erfasst. Im Folgenden sollen die wichtigsten Ergebnisse der vorliegenden Arbeit im Überblick dargestellt werden.

Kernbefunde der vorliegenden Arbeit

Entwicklung des impliziten Bilder-Maßes zur Messung von SA. Das neu entwickelte Bildermaß hat sich als geeignete Methode zur Messung von Selbstaktivierung erwiesen. Probanden, die über sich selbst nachgedacht haben (private SA; Snow et al., 2003) oder gefilmt wurden (öffentliche SA; Duval & Wicklund, 1972) konnten Selbstbilder schneller in *lächeln* vs. *nicht lächeln* kategorisieren als Probanden deren Selbst nicht aktiviert worden ist. Die Reaktionszeiten auf Kontrollbilder waren von Selbstaktivierung unbeeinflusst. Somit konnten die Ergebnisse des SA Maßes, das auf Wörtern basiert (Eichstaedt & Sivlia, 2003) auf visuelle Stimuli erweitert werden; erhöhte Selbstaktivierung scheint die Verarbeitung von selbst-bezogenen Wörtern und Bildern zu erleichtern, was sich in schnelleren Reaktionszeiten zeigt. Darüber hinaus zeigte sich über alle Studien hinweg ein robuster Haupteffekt für die Art des präsentierten Bildes: Auf Selbstbilder wird generell

langsamer reagiert als auf Kontrollbilder. Dieser Effekt lässt sich nicht mit einem Vorteil selbst-bezogener Verarbeitung erklären, denn dadurch würde man eine *schnellere* Verarbeitung selbstbezogener Informationen vorhersagen (aufgrund des stark elaborierten Selbstschemas; Markus, 1977). Ausgehend von einem dynamischen Selbst (Hannover, 1997) könnten Selbst-Motive, die beim Sehen von persönlichen Bildern aktiviert werden diese Effekte besser erklären (z.B., self-verification, Swann, 1983; self-enhancement; Jones, 1973). Darüber hinaus, zeigte sich eine Veränderung der Reaktionszeiten im Laufe des Bildermaßes. Vor allem auf Selbstbilder reagieren Probanden im Laufe des Maßes signifikant schneller. Es wird angenommen, dass das Sehen der eigenen Bilder das Selbst aktiviert, so dass nur Reaktionen auf das erste Selbstbild und das Kontrollbild, das diesem Selbstbild vorausgeht, in die Analysen eingehen sollten, um eine mögliche SA auf die experimentelle Manipulation und nicht auf das Bildermaß zurückführen zu können.

Selbstaktivierung als Folge von Zielaktivierung. Die These, dass das Nachdenken über persönliche Ziele das Selbst aktiviert, konnte in der vorliegenden Arbeit bestätigt werden. In Studie 3 und 4 wurde gefunden, dass Probanden, die über persönliche Ziele nachdenken im SA-Maß Selbstbilder schneller kategorisieren als Probanden, die über eine Person einer für sie selbst relevanten beruflichen Kategorie (z.B., Arzt) nachdenken und angeben sollen, welche Ziele diese Person haben sollte, damit sie selbst die Arbeit dieser Person (z.B., einen Arztbesuch) als gut bewerten. Die Ergebnisse bestätigen die Hypothese, dass eine direkte Verbindung zwischen *persönlichen* Zielen und dem Selbst besteht. Wenn die Ziele im Experiment vorgegeben werden (Studie 3) findet sich dieser Effekt nur für Personen, die diese Ziele in ihrem Leben als wichtig erachten. Außerdem zeigte sich ein signifikanter Effekt des chronischen regulatorischen Fokus (Higgins, 1997): Probanden mit einer hohen chronischen Diskrepanz zwischen ihrem aktuellen und einem Ideal-/ Soll-Selbst

kategorisieren Selbstbilder signifikant schneller, was darauf hindeutet, dass bei Zielaktivierung diese Diskrepanz salient wird und die Aufmerksamkeit auf das Selbst lenkt.

Zielaktivierung als Folge von Selbstaktivierung. Um die bidirektionale Art der Beziehung zwischen Selbst und Zielen zu untersuchen, wurde in den letzten beiden Studien Zielaktivierung nicht mehr als unabhängige Variable, sondern als abhängige Variable betrachtet. Die Hypothese, dass Bewertungen stärker als Ziele konstruiert werden wenn vorher dass Selbst aktiviert worden ist, wurde ebenfalls bestätigt. In Studie 5 wurde gefunden, dass Probanden, die Bewertungen unter erhöhter SA abgeben, stärkere Annäherungsmotivation auf zielrelevante Wörter zeigen als Probanden deren Selbst nicht aktiviert worden ist (Manikin Aufgabe; De Houwer et al., 2001). Allerdings wurde in dieser Studie keine erhöhte Zugänglichkeit zielrelevanter Wörter in der lexikalen Entscheidungs-aufgabe gefunden. Dies könnte zum Einen daran liegen, dass die SA Manipulation nicht funktioniert hat (bestätigt durch den Manipulation-Check); zum Anderen, könnte es bei allen Probanden zu einer erhöhten semantischen Aktivierung der zielrelevanten Inhalte gekommen sein, da die LDT direkt nach der Evaluationsaufgabe folgte. Diese Annahme wird durch die Ergebnisse von Studie 6 bestätigt, in der es in der AV, die direkt nach der Evaluationsaufgabe folgte auch keine Unterschiede zwischen Experimental- und Kontroll-gruppe gab. In dieser Studie wurden folgende Indikatoren für Zielaktivierung erfasst: direktes ziel-relevantes Verhalten (z.B., Mitnahme von Lerntipps als Indikator für ein aktives Ziel im Bereich *Studium*) und Verhalten, das zwar nicht primär mit den Zielen assoziiert ist, das jedoch instrumentell zur Zielerreichung gemacht wird (z.B., Schnelligkeit in der Bearbeitung einer Zahlenverbindungsaufgabe, um in der gewonnen Zeit einen Urlaubsfilm sehen zu können als Indikator für ein aktives Ziel im Bereich *Urlaub*). Die Ergebnisse zeigen, dass Probanden, die Bewertungen unter SA abgeben diese mit höherer Wahrscheinlichkeit als Ziele konstruieren im Vergleich zu Probanden der KG deren Selbst

nicht aktiviert worden ist. Darüber hinaus zeigten sich wieder Effekte des chronischen regulatorischen Fokus (Higgins, 1997): Probanden mit einer hohen Diskrepanz zwischen ihrem aktuellen und einem Ideal-/ Soll-Selbst zeigten zum Teil mehr zielrelevantes Verhalten und unterstützt die Annahme, dass bei Zielaktivierung diese Diskrepanz salient wird und andersherum, die Salienz der Diskrepanz Ziele aktiviert.

Fazit

Die vorliegende Arbeit zeigt, dass das neu entwickelte Bildermaß zur impliziten Messung von Selbstaktivierung geeignet ist. Es scheint ein sehr sensitives Maß zu sein, da sich die erwarteten Effekte trotz einer geringen Stichprobengröße zeigen. Probanden, die entweder über sich selbst oder über persönliche Ziele nachdenken, kategorisieren Bilder von Gesichtern schneller in *lächeln* vs. *nicht lächeln*, wenn es sich dabei um Selbstbilder handelt. Weiterhin konnte gezeigt werden, dass eine direkte Verknüpfung zwischen Selbst und persönlichen Zielen besteht. Bisherige Theorien gehen zwar implizit von einer Verbindung zwischen diesen beiden Konstrukten aus (z.B., Higgins, 1997; Markus & Nurius, 1986; Oyserman & James 2008), jedoch wurde diese Verbindung in keiner Studie explizit getestet. Die Ergebnisse der vorliegenden Arbeit liefern erste Evidenz für Selbstaktivierung als Folge einer Aktivierung persönlicher Ziele und zeigen darüber hinaus, dass diese Beziehung bidirektional zu sein scheint. Probanden konstruieren Bewertungen unter SA mit größerer Wahrscheinlichkeit als Ziele, was sich in stärkerer direkter Verhaltensbereitschaft (motivationale Tendenzen), mehr zielrelevantem Verhalten und auch mehr Motivation in instrumentellen Aufgaben zur Zielerreichung zeigt. Durch den Einsatz von Zielen als unabhängige und abhängige Variable, sowie durch die Anwendung unterschiedlicher AVs war es letztlich möglich umfassende Erkenntnisse über das Zusammenspiel von Zielen und dem Selbst zu gewinnen, die zu einer deutlichen Ergänzung bisheriger Theorien und weiterer Forschung anregen.