Motivated creativity: A conservation of energy approach
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Chapter Two

Avoidance Motivation and Conservation of Energy

Promising opportunities can motivate people to achieve positive outcomes and looming failures can motivate people to avoid negative outcomes. How do these different types of motivation influence goal pursuit? In which situations is approach motivation more beneficial and in which situations is avoidance motivation more beneficial? How does motivation influence performance on different types of tasks? What are consequences of striving for approach and avoidance goals? Is striving for certain goals more depleting than others? In the following, we frame our discussion of these questions around the principle that people are reluctant to expend cognitive resources unless the benefits outweigh the costs. We put forward three propositions regarding when approach and avoidance motivation facilitate performance, and the consequences of striving for approach and avoidance goals.

We define approach motivation as the energization of behavior by or the direction of behavior toward positive stimuli (objects, events, possibilities), and avoidance motivation as the energization of behavior by or the direction of behavior away from negative stimuli (Elliot, 2006). People differ in the extent to which they are sensitive to cues signaling potential positive or negative outcomes (Carver et al., 2000; Elliot & Thrash, 2002; Larsen & Augustine, 2008), and in the extent to which they tend to strive for approach or avoidance goals (Elliot & Church, 1997). However, approach and avoidance motivation can also be triggered by situational cues. For example, observing things that one would want to approach, such as cute puppies or tasty cookies, evokes approach motivation (Gable & Harmon-Jones, 2008). Also, explicitly instructing people to strive for approach goals (e.g., to improve performance, to do better than others), or avoidance goals (e.g., to not decline in one’s performance, to not do worse than others) can evoke different motivational orientations (Van Yperen, 2003; Van Yperen, Hamstra, & van der Klauw, 2011). Even subtle cues, such as seeing the color red, which is associated with danger, can evoke avoidance motivation (Mehta & Zhu, 2009). Thus, approach and avoidance motivation can be a product of both stable individual differences (trait) and fluctuating situational influences (state).

Approach and avoidance motivation influence cognitive processes and behavior (e.g., Cretenet & Dru, 2009; Elliot, 2006; Friedman & Förster, 2005b; Roskes et al.,

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1 One theoretical framework that makes use of the approach-avoidance distinction, and that is often the target of queries regarding the use of this distinction, is regulatory focus theory. This theory distinguishes between approach and avoidance at different levels of analysis (Scholer & Higgins, 2008): A distinction is made between desired or undesired end-states (system level), the process of moving towards desired end-states or away from undesired end-states (strategic level), and the tactics used to serve approach and avoidance strategies (tactic level).
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2011), in turn influencing how well people perform on different types of tasks. Approach motivation evokes a relatively flexible processing style, eagerness, a global focus, and enhances performance on tasks that require creativity and insight (Cretenet & Dru, 2009; De Dreu et al., 2011; Lichtenfeld et al., 2012; Friedman & Förster, 2002). For example, people typically generate more creative ideas (e.g., creative uses for a brick, Mehta & Zhu, 2009) when they are approach- rather than avoidance-motivated. Avoidance motivation in contrast, evokes systematic information processing, vigilance, a local focus, and enhances performance on tasks that require vigilant attention to detail (Förster et al., 2004; Friedman & Förster, 2005a; Koch et al., 2008). For example, when people are avoidance- rather than approach-motivated, they typically perform better on the Stroop task in which they have to indicate the color in which color-words are presented while ignoring the content of the words (e.g., Koch et al., 2008). It seems that both approach and avoidance motivation can be useful, but in different situations.

**Conservation of Energy**

In general, people (as well as non-human organisms) are reluctant to spend energy unless the benefits of expending this energy outweigh the costs (Tooby & Cosmides, 1990). As described above, compared to approach motivation, avoidance motivation evokes persistent, systematic, and controlled information processing. Such processing requires executive control, and taxes working memory capacity, cognitive resources, and energy (i.e., it is costly; Bohner et al., 1995; Chaiken & Trope, 1999; Evans, 2003; Koch et al., 2008). From a conservation of energy perspective it follows that people would be reluctant to engage in this kind of effortful cognitive processing evoked by avoidance motivation. In Roskes et al. (2012a) we propose a conservation of energy principle to explain when and how avoidance motivation enhances (creative) performance. Here we further develop this idea and put forward three empirically testable propositions concerning approach and avoidance motivation, investment of energy, and the consequences of such investments. Specifically, we propose that compared to approach-motivated people, avoidance-motivated people (1) carefully select situations in which they exert cognitive effort, (2) only perform well in the absence of distracters that occupy cognitive resources, and (3) become depleted after exerting cognitive effort.

**Proposition 1: Selective Investment of Resources**

Avoidance motivation leads to the recruitment of cognitive resources and a focusing of attention and energy. These resources, however, are limited, and people
should be reluctant to spend them. We posit that avoidance-motivated people selectively invest their effort and resources. We found evidence for this in a series of studies in which we asked people to do creativity tasks. Creativity tasks are particularly demanding for avoidance-motivated people, because creativity is stimulated by flexible and associative thinking which is inhibited under avoidance motivation. Although creativity can also be achieved through systematic and persistent thinking (De Dreu et al., 2008; Nijstad et al., 2010; Roskes et al., 2012a), creative performance through systematic efforts requires considerable energy. This implies that under avoidance motivation, people should be relatively reluctant to invest in creative performance, and should only be willing to invest their resources when it is worthwhile, e.g., when it helps them to avoid negative outcomes. In other words, we suggest that the investment of effort and resources depends on (a) the quantity of effort and resources that this investment requires, and (b) the likelihood that it will lead to successful avoidance. Additionally, avoidance motivated people may be reluctant to devote their attention and energy to avoidance-goal irrelevant actions, and risk not being able to attend sufficiently to more urgent goal-relevant actions.

We tested this idea by asking students to do creative tasks that either served or did not serve goal progress (Roskes et al., 2012a). In five experiments we manipulated approach versus avoidance motivation, either by framing instructions in terms of approach or avoidance, or by providing visual cues. For example, in one experiment participants could lose vs. gain time to work on another task in which they could earn money, by generating ideas in an individual brainstorming session. We manipulated the likelihood that one’s own performance (versus another person's performance) would determine the time provided for the payment-task to be high or low. When it was unlikely that they could influence their time on the payment-task, avoidance-motivated people generated ideas that were less original than those generated by approach-motivated people. However, when it was likely that they could influence their time on the payment-task, approach- and avoidance-motivated people were equally original. It thus appears that avoidance-motivated people were reluctant to exert effort and invest energy necessary for creative performance, unless creativity served their (avoidance) goals.

The idea that avoidance motivation may lead to selective investment of resources is further supported by the relation between avoidance motivation and withdrawal tendencies. Avoidance motivation has often been linked to behavioral inhibition (as opposed to activation), and withdrawal (Adams Jr., Ambady, Macrae, &
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Kleck, 2006; Amodio, Master, Yee, & Taylor, 2008; Carver, 2006). Avoidance-related personality traits, for example, have been linked to withdrawal from active job search behavior, even when job-satisfaction is low (Zimmerman, Boswell, Shipp, Dunford, & Boudreau, 2012). Additionally, situational threats evoke behavioral inhibition and heightened attention (Gray, 1990). It appears that avoidance motivation evokes a cognitively demanding processing style, which makes people think through, and prepare, actions thoroughly in order to act in a focused and efficient manner against threats. Future research could test the idea that avoidance motivation leads to behavioral inhibition in order to save energy while deciding on the best strategy to avert negative outcomes. If this is true, avoidance motivation is not only related to a general tendency for behavioral inhibition, but this relation between avoidance motivation and behavioral inhibition should be less pronounced when additional motivators are present (e.g., when action is required to avoid negative outcomes).

**Proposition 2: Performance when Resources are Occupied**

If avoidance motivation leads to heightened recruitment of cognitive resources and control, people should be more easily cognitively overloaded when they are avoidance- rather than approach-motivated and faced with resource-consuming distracters. In other words, the occupation of cognitive resources should particularly undermine performance when people are avoidance-motivated. Indeed, when we asked participants to solve creative insight problems while memorizing 5-digit numbers (compared to 2-digit numbers) avoidance-motivated people were no longer able to be as creative as approach-motivated people, even when creativity served goal progress (Roskes et al., 2012a).

Working under other types of pressure should similarly tax cognitive resources and consequently inhibit performance, particularly when people are avoidance-motivated. Time pressure, for example, elicits stress and arousal, which consume resources needed for exercising control over competing responses (Bargh, 1992; Keinan, Friedland, Kahneman, & Roth, 1999). We have found that performance suffered more from working under high time-pressure when people were avoidance-motivated than when they were approach-motivated, on tasks that require creativity (solving insight problems by making unusual associations), tasks that require attention to detail (locating specific targets among similar looking distracters), and tasks that require analytic thinking (solving mathematical problems; (Roskes, Elliot, Nijstad, & De Dreu, 2012). These effects were obtained by looking at personality differences in approach and avoidance temperament (Elliot & Thrash, 2002), by manipulating approach and
avoidance motivation within participants (winning points for correct answers on some items versus losing points for incorrect answers on other items), and by manipulating approach and avoidance motivation between participants (writing a story about a mouse trying to obtain a piece of cheese versus trying to avoid being eaten by an owl).

Previous research has shown that avoidance motivation leads to the recruitment of cognitive resources and control, which in turn can improve certain types of performance (Förster et al., 2004; Friedman & Förster, 2005a; Koch et al., 2008). However, our new findings suggest that when these resources are occupied (due to dual-task demands or working under time pressure) avoidance-motivated people's performance is impaired. This undermining effect of limiting cognitive resources should extend to other resource-consuming factors. We would, for example, expect similar performance undermining effects when working under self-evaluation threat (Tesser, 2000), during emotion suppression (Gross & John, 2003), or when trying to ignore distracting sounds (Campbell, 2005). Furthermore, these undermining effects should be particularly pronounced for people higher in working memory capacity, as people lower in working memory capacity may have difficulty recruiting sufficient cognitive resources regardless of the presence or absence of distracters. This idea may thus help generate new predictions about performance under avoidance- (relative to approach-) motivation in various situations.

**Proposition 3: Depletion after Avoidance Goal Striving**

Vigilantly engaging in effortful, controlled, systematic cognitive processing should furthermore be depleting. Striving for avoidance goals consumes energy and consequently has long-term negative effects on self-regulatory resources (Oertig, Schüler, Schnelle, Brandstätter, Roskes, & Elliot, in press). A growing body of literature provides additional evidence for long-term negative consequences of adhering to avoidance goals. Avoidance goals predict reduced cognitive functioning (Elliot & Church, 1997; Elliot & McGregor, 1999), lower work engagement (De Lange, Van Yperen, Van der Heijden, & Bal, 2010), unhealthy eating behaviors (Sullivan & Rothman, 2008), depression (Sideridis, 2005), stress (Elliot, Thrash, & Murayama, 2011; Sideridis, 2008), and lower well-being (Elliot & Sheldon, 1997). Also, avoidance-related constructs, such as working under a prevention focus, have been associated with resource depletion and impaired performance over time (Ståhl, Van Laar, & Ellemers, 2012). In Roskes et al. (2012a), we provided further support for this proposition: People who received instructions framed in avoidance (compared to approach) terms (e.g., they could lose vs. gain time to work on another task in which they could earn money), reported more
depletion directly after creative performance (on a four item scale, e.g., “I felt depleted”). Moreover, for avoidance (but not approach) motivated people, higher levels of creativity were associated with higher levels of depletion, which indicates that their depletion was due to the effort invested in the creative performance. However, the link between avoidance motivation and depletion has only been tested directly in a very limited number of studies, and further consideration of the specific circumstances that may attenuate or amplify the effect is needed.

**Conclusion**

Avoidance motivation makes people careful and enhances performance on tasks requiring vigilance and attention to detail (Friedman & Förster, 2005a; Koch et al., 2008). The immediate recruitment of cognitive resources associated with avoidance goal striving can be useful, or even necessary, to deal with urgent problems requiring immediate attention and to avoid the harmful effects of failure (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; David, Green, Martin, & Suls, 1997; Elliot, 2006). This focused attention and recruitment of resources can initially enhance performance, enabling one to adequately deal with present or imminent threatening situations. However, we propose that this intensive use of cognitive resources under avoidance motivation: (1) makes people reluctant to spend their energy and careful in selecting situations in which they invest cognitive effort and energy, (2) leads to cognitive overload and declined performance when distracters occupy cognitive resources, and (3) is depleting over time.

Although each of these propositions has gained some support, much more work is needed to test them and identify situations in which people invest (versus do not invest) their energy, factors that lead to cognitive overload, and factors predicting depletion. For example, we predicted that avoidance-motivated people would be more likely to invest their resources when this would help them avoid negative outcomes. Although avoidance motivation has often been related to declines in creativity, avoidance-related mood states, such as fear and anxiety, can sometimes stimulate creative performance (Baas et al., 2008; Clapham, 2001). Recent work has shown that people focusing on avoiding failure are just as creative as people focusing on achieving success as long as their goals are unfulfilled (Baas et al., 2011a) and when creativity is useful for goal progress (Roskes et al., 2012a), fitting the idea that in order to avoid bad outcomes, people tend to go out of their way to do whatever it takes to avoid these bad outcomes. For example, people focusing on eliminating losses are usually risk averse. However, when taking risks is the only way of eliminating losses, they are more likely
to take risks (Scholer, Zou, Fujita, Stroessner, & Higgins, 2010). Thus, avoidance motivation has merits even in domains not typically associated with avoidance motivation and the systematic way of thinking it evokes. Avoidance motivation energizes people to avert urgent dangers or losses. However, adhering to avoidance goals can be costly: it can be depleting and reduce well-being and performance, both in the short and the long run.

As avoidance motivation can be useful in some situations, and approach motivation in others, an interesting issue to address in future research concerns switching between approach and avoidance motivation. One potential avenue for future research is to identify predictors of switching between approach and avoidance motivation. Another is to look at potential costs attached to switching between these motivations, and whether there are differences in switching from approach to avoidance and avoidance to approach (e.g., switching speed, resource consumption, difficulty). Understanding when and how people switch between approach- and avoidance-based striving can have both theoretical and practical implications, as understanding which motivational orientation is most effective in a given situation, and the ability to actively switch orientations, can potentially be used strategically.

Ample research exists on how approach and avoidance motivation evoke different cognitive processes. Approach motivation has repeatedly been shown to evoke relatively associative thinking, a global focus, cognitive flexibility, and eagerness, whereas avoidance motivation has been shown to evoke more systematic thinking, a local focus, cognitive persistence, and vigilance. This knowledge about the cognitive processes evoked by approach and avoidance motivation provides a solid basis for thinking about the implications and consequences of approach and avoidance motivation. We propose a conservation of energy principle to explain how and when avoidance-motivated people choose to invest effort and cognitive resources. Studying the circumstances under which people striving for different types of goals flourish and achieve high levels of performance seems a promising avenue for future research.