



Motivated Strategies for Judgment: How Preferences for Particular Judgment Processes can Affect Judgment Outcomes

Daniel C. Molden*
Northwestern University

Abstract

Beyond motivations to achieve particular outcomes, people also have motivations to use particular strategies while pursuing these outcomes. This article integrates research on the latter *strategic preferences* and discusses the place of such research in the broader investigation of motivated thinking. A review of studies examining the strategic preferences stemming from both motivations for promotion versus prevention (Higgins, 1997) and motivations for locomotion versus assessment (Higgins, Kruglanski, & Pierro, 2003) illustrates that these preferences have unique effects on basic processes of judgment, including the evaluation of alternative hypotheses or counterfactuals, the prioritization of fast versus accurate information processing, and the recall and activation of knowledge from memory. Moreover, this review also demonstrates important interactions between strategic preferences and outcome preferences. Strategic preferences thus appear to make distinct and important contributions to understanding how motivation influences judgment and should feature prominently in general analyses of motivated thinking.

At some point, most of us have indulged in “wishful thinking” or “let our hearts run away with our heads.” That is, we have engaged in *motivated thinking* and experienced the effects of our needs, desires, and goals on our information processing, perceptions, and reasoning. Indeed, much research has found motivated thinking to be pervasive in both everyday and high-stakes judgment and decision-making (Dunning, 1999; Kunda, 1990; Kruglanski, 1996; for recent overviews see Balcells, 2008; Molden & Higgins, 2005, forthcoming).

However, such research has primarily focused on how the types of *outcomes* people are motivated to reach during judgment, such as concluding that they are virtuous (Dunning, 1999), socially connected (Baumeister & Leary, 1995), and in control (Whitson & Galinsky, 2008), create biases that make these desired conclusions more likely. This article describes an alternate approach to motivated thinking that examines how motivation affects judgment by influencing not only the conclusions people desire to reach, but also the manner in which they prefer to form these conclusions. Several separate programs of research have shown that such preferences for particular *strategies* of information processing during judgment also have important effects on the conclusions people reach (Higgins & Molden, 2003; Kruglanski, Orehek, Higgins, Pierro, & Shalev, 2010). The present review integrates this research on strategic preferences and discusses its relationship to the broader literature on motivated thinking.

Strategy-Oriented Versus Outcome-Oriented Motivations

Success in one's personal and professional life is an outcome that most people desire. As noted, this desire (among others) can then alter how information processing is initiated,

implemented, and utilized so as to produce more generous evaluations of how well one is achieving such outcomes (Kunda, 1990; Molden & Higgins, 2005, forthcoming). However, most people are also motivated to pursue success (and other desired outcomes) in what they perceive to be “right way” (Higgins, 2000, 2008). These additional motivations can then influence the value they place on pursuing some means and strategies for success (e.g., innovation, risk-taking, and decisive action) over others (e.g., vigilance, caution, and exhaustive analysis). Such differing values then, in turn, alter people’s information processing so as to conform to their valued strategies (Higgins & Molden, 2003; Scholer & Higgins, 2008). Thus, although past discussions of how motivation affects basic judgment processes primarily focus on the effects of outcome-oriented motivations, strategy-oriented motivations can have profound effects on the initiation and utilization of these processes as well.

Furthermore, beyond representing an additional influence of motivation on judgment, strategy-oriented motivations operate differently from outcome-oriented motivations in important ways. People typically recognize that simply endorsing judgment outcomes they prefer is neither wise nor acceptable; therefore they may often attempt at least some adjustment for the anticipated effects of their outcome preferences (even if they frequently do not eliminate these effects; Kunda, 1990). However, because people’s preferred strategies essentially involve perceptions about the right way to form judgments, they should have little inclination to adjust for these preferences. Moreover, because people do not have the same access to the processes by which they arrive at judgments as they do to judgment outcomes (Nisbett & Wilson, 1977), even were they to try to adjust for their strategic preferences, they would be more likely to fail. Thus, although less frequently discussed, the effects of strategy-oriented motivations on judgment may at times be more subtle and more difficult to correct (cf. Lerner & Tetlock, 1999; Lind & Tyler, 1988), which illustrates the importance of more fully integrating such motivations into broader analyses of motivated thinking.

Sources of Strategic Preferences: Regulatory Focus and Regulatory Mode

Preferences for particular strategies of judgment can arise from motivations related to any specific means or procedures of judgment and can affect any strategy that is perceived to match and sustain such motivations (Higgins, 2000, 2008). However, existing research on strategic preferences has almost exclusively involved one of two different classes of motivation: people’s *regulatory focus* (Higgins, 1997) or their *regulatory mode* (Higgins et al., 2003).

Regulatory focus describes the distinction between *promotion* concerns with attaining growth and ensuring against missed opportunities versus *prevention* concerns with maintaining security and ensuring against threats. Whereas promotion concerns foster representations of goals as hopes and aspirations to be attained, prevention concerns foster representations of goals as responsibilities and obligations to be maintained. Thus, because they revolve around attaining growth, promotion concerns create preferences (at either a conscious or unconscious level) for *eager strategies* that emphasize seeking opportunities for gain, even at the risk of committing errors and accepting losses. In contrast, because they revolve around maintaining security, prevention concerns create preferences for *vigilant strategies* that emphasize a narrower focus on protecting against loss, even at the risk of missing opportunities for gain (Higgins, 1997; Molden, Lee, & Higgins, 2008).

Regulatory mode describes a separate distinction between *locomotion* concerns with initiating action and making progress versus *assessment* concerns with critical analysis and evaluation. Whereas locomotion concerns foster a primary focus on doing something,

anything, to move closer to achieving one's goals, assessment concerns foster a primary focus on ensuring that one is doing the right thing before continuing goal pursuit. Thus, because they revolve around movement, locomotion concerns create preferences (again at either a conscious or unconscious level) for strategies of *progressive elimination* and moving from evaluation to evaluation to sustain feelings of continuous progress. In contrast, because they revolve around analysis, assessment concerns create preferences for strategies of *exhaustive comparison* and delayed action to sustain feelings of thoroughness (Higgins et al., 2003; Kruglanski et al., 2000).

Given all of these influences on people's judgment strategies, differences in concerns with promotion versus prevention or locomotion versus assessment should affect the processes by which people form their judgments even when preferences for judgment outcomes are the same. For example, among individuals who are all focused on achieving the most accurate outcome possible, stronger promotion concerns should lead to broad consideration of any possible information that could be relevant for attaining accuracy, whereas stronger prevention concerns should lead to narrow consideration of only the information that is most relevant to eliminate mistakes. Similarly, stronger locomotion concerns should lead to reviewing each available piece of information and quickly deciding its importance, whereas stronger assessment concerns should lead to thoroughly comparing and analyzing the relative importance of all the available information.

Several additional features of these distinctions between strategic preferences are also worth noting. First, a greater focus on any of concerns described above often exists as a chronic individual difference (Higgins et al., 2001; Kruglanski et al., 2000). However, because everyone possesses some desire for both growth and security and for both progress and accuracy, everyone may also have any one of these concerns temporarily primed by particular contexts, incentives, or situational constraints (see Kruglanski et al., 2010; Molden et al., 2008). Furthermore, although, in some circumstances, concerns related to regulatory focus and regulatory mode might produce similar-looking judgment strategies, these concerns are conceptually independent. For example, both a broad, promotion-focused consideration of any possibly relevant information and a narrow, prevention-focused consideration of the most probably relevant information could be implemented either using a rapid, locomotion-focused acceptance versus elimination or a more thorough, assessment-focused comparative analysis. Thus these two different sources of strategic preferences can simultaneously and independently affect judgment processes.

Effects of Strategic Preferences on Basic Judgment Processes

Space limitations preclude a comprehensive review of all the documented influences of regulatory focus or regulatory mode on judgment and behavior (see Kruglanski et al., 2010; Molden et al., 2008); in this article, I thus focus on the most basic effects of the strategic preferences created by these motivational orientations on information processing during judgment. As shown in Table 1, the types of effects investigated thus far include the generation and evaluation of alternative hypotheses or counterfactuals, the prioritization of fast versus accurate information processing, and the selective recall and activation of knowledge from memory.

Consideration of alternatives

Evaluating alternative hypotheses or choice options is central to most judgment processes. Most of the information people encounter in their daily experiences involves some

Table 1 A summary of effects of preferred judgment strategies arising from motivations for promotion versus prevention and for locomotion versus assessment on basic judgment processes

Motivation	Effects on			
	Preferred strategy	Considering alternatives	Counterfactual thinking	Speed versus accuracy
Regulatory focus Promotion	Eager focus on gains at the risk of incurring losses	Endorsement of many possible alternatives to ensure inclusion of correct answers	Greater occurrence of additive counterfactuals that mentally undo missed gains	Priority for speed of processing to maximize opportunity for gain
				Increased accessibility of gain-related information; reduced accessibility of completed goals to allow eager pursuit of new gains
Prevention	Vigilant focus on protecting against loss at the risk of missing gains	Endorsement of few probable alternatives to ensure elimination of incorrect answers	Greater occurrence of subtractive counterfactuals that mentally undo experienced losses	Priority for accuracy of processing to minimize errors
				Increased accessibility of loss-related information; sustained accessibility of completed goals to sustain vigilance for the need to resume previous goals
Regulatory mode Locomotion	Progressive focus on movement and change	Successive comparison and elimination of undesirable alternatives across multiple stages	Decreased counterfactual thinking to "move on" to other concerns	Priority for speed of processing to maximize feelings of progress
				No data yet available
Assessment	Analytic focus on thoroughness and accuracy	Simultaneous and exhaustive comparison of all available alternatives	Increased counterfactual thinking to thoroughly analyze contingencies of outcomes	Priority for accuracy of processing to maximize feelings of thoroughness
				No data yet available

degree of uncertainty. To form an interpretation upon which they can act, people must frequently generate and choose among several different alternative possibilities. Differences in how they consider such alternatives can therefore influence many different judgment outcomes, and several programs of research have examined how strategic preferences affect this consideration.

Effects of regulatory focus. In general, an eager, promotion-focused strategy of considering alternatives involves remaining open to multiple possibilities and setting lower thresholds for accepting potentially relevant information. This approach increases the likelihood of identifying correct hypotheses and avoiding the omission of any important information, even though it also increases the likelihood of endorsing alternatives that are mistaken. Promotion-focused individuals thus typically prefer to select multiple hypotheses that are possibly correct, and risk being wrong, rather than endorse fewer hypothesis and potentially miss being right. In contrast, a vigilant, prevention-focused strategy of considering alternatives involves narrowing in on the few, most certain hypotheses and setting higher thresholds for accepting potentially relevant information. This approach increases the chance of rejecting incorrect hypotheses and avoiding commitment to information that is mistaken, even though it also increases the likelihood of overlooking information that is relevant and important. Prevention-focused individuals thus typically prefer to only endorse a few hypotheses that are probably correct, and potentially miss other correct alternatives, rather than to endorse more hypotheses and risk being wrong. Therefore, overall, those with promotion concerns should generally endorse more alternatives during judgment than those with prevention concerns.

Studies examining many different psychological processes have confirmed these effects. One important instance of considering alternatives involves forming hypotheses about what one perceives (Tversky, 2005). Therefore, Liberman, Molden, Idson, and Higgins (2001) had participants identify objects in vague photographs (e.g., common household objects photographed in extreme close-up or at odd angles). Individuals with chronically or temporarily heightened promotion concerns generated more alternative identities than individuals with chronically or temporarily heightened prevention concerns.

Another important instance of considering alternative hypotheses occurs when people classify objects and individuals into larger categories (Murphy, 2002). Therefore, Molden and Higgins (2004) provided participants with vague descriptions of individuals for whom different categorizations were possible (e.g., “In all the time I have known Rob, he has enjoyed literature, although he has not really decided if he wants to pursue it as a career” could support the trait categories *intellectual*, *literary*, or *indecisive*). As before, individuals with temporarily heightened promotion concerns generated more categories than individuals with temporarily heightened prevention concerns (see also Crowe & Higgins, 1997).

More recent studies (Molden, Scholer, Lucas, & Richeson, 2011) have demonstrated similar effects for implicit categorizations as well. After watching a video of a “fellow student”, who was an African-American pre-med major, white college students with temporarily heightened promotion concerns responded relatively faster to words related to both African-American and “pre-med” stereotypes. These results indicated the implicit activation of both these social categories. In contrast, students with temporarily heightened prevention concerns only responded relatively faster to words related to African-American stereotypes. These results indicated the implicit activation of only the most salient social category (i.e., the student’s non-shared ethnic identity).

Yet another important instance of considering alternatives occurs when people attempt to explain others’ behaviors (Kelley, 1973). Therefore, Liberman et al. (2001)

also had participants read a description of a target person's helpful behavior and evaluate several plausible explanations (e.g., the target was a helpful person, another individual was clearly in need, or it was simply easy and convenient to help). Again, both chronically and temporarily promotion-focused individuals endorsed more alternative explanations than did prevention-focused individuals. Moreover, additional studies by Molden and Higgins (2008) found similar effects when people explained their own behavior. After receiving feedback that they had performed relatively well or poorly at an anagram task, participants evaluated several possible explanations for their performance, including their ability and effort, the difficulty of the task, and luck or their current mood. Regardless of their performance, individuals who were chronically or temporarily promotion-focused again endorsed more of these explanations than individuals who were prevention-focused.

Extending these results from simply how many alternatives people generate or endorse, Friedman and Förster (2001) examined whether eager, promotion-focused strategies of considering alternatives also facilitate exploratory and imaginative processing styles, whereas vigilant, prevention-focused strategies facilitate cautious and unimaginative processing styles. Supporting this proposition, when promotion concerns were temporarily activated, participants generated a greater number of innovative uses for everyday objects, as judged by independent observers, than when prevention concerns were activated (see also Crowe & Higgins, 1997). Furthermore, chronic or temporarily promotion-focused individuals solved a greater number of creative insight problems than prevention-focused individuals, and were better able to overcome previous associations in memory to provide novel responses on word completion tasks.

Beyond the consistent effects of eager or vigilant strategic preferences on the process of considering alternatives while forming a variety of judgments, some of these studies also demonstrated notable consequences of such preferences for the conclusions that people ultimately reached. For example, the more alternative explanations people endorse for a behavior, the less confident they can be in the validity of any single alternative (Kelley, 1973). Thus, in their efforts not to leave anything out when explaining their own or others' behaviors, promotion-focused individuals actually formed more equivocal overall impressions and were less able to generalize from these impressions to future situations. In contrast, in their efforts not to commit to anything of which they were not sufficiently certain, prevention-focused individuals actually formed more confident impressions from which they were more willing to generalize (Lieberman et al., 2001; Molden & Higgins, 2008). Additional studies have further shown that promotion-focused individuals' preferences for considering more alternatives affects how they select and pursue goals, leading them to (a) more readily abandon uncompleted goals for new opportunities (Lieberman, Idson, Camacho, & Higgins, 1999), (b) less readily escalate their commitment when obstacles arise in previously chosen courses of action (Molden & Hui, 2011), and (c) place more value on outcomes of decisions made from among many versus few choice alternatives (Pham & Chang, 2010). Thus, the influence of eager or vigilant strategic preferences on process of considering alternatives has important effects on the outcomes of these processes.

Effects of regulatory mode. Fewer studies have examined the influence of preferences for locomotion-focused strategies of progressive elimination or assessment-focused strategies of exhaustive comparison on the consideration of alternatives. However, some evidence exists for these effects as well. Avnet and Higgins (2003) showed that participants whose locomotion concerns were temporarily activated reported greater

satisfaction with decisions when instructed to use progressive elimination strategies than when instructed to use exhaustive comparison strategies. That is, they evaluated a chosen product more favorably after they successively compared choice alternatives on one dimension and eliminated the alternative evaluated as the worst on that dimension than when they simultaneously compared all choice alternatives on all attribute dimensions. In contrast, individuals whose assessment concerns were temporarily activated showed more satisfaction following simultaneous, exhaustive comparison versus progressive elimination. These results thus directly confirm that locomotion concerns with progress and movement produce preferences for strategies of successively eliminating choice alternatives and assessment concerns with analysis and critical evaluation produce preferences for strategies of simultaneously comparing choice alternatives. These results also suggest that future research should explore how such preferences might influence the types of identification, categorization, and creativity effects described in the previous section.

Counterfactual thinking

Besides generating and evaluating hypotheses, another important judgment process is the consideration of *counterfactuals*. Counterfactual thinking involves mentally undoing the present by pondering what would have happened if only different actions had been taken, and the way in which people engage in this process has multiple implications for their feelings of regret and choices of future actions (Roese, 1997). Thus, studies have also examined how different strategic preferences may affect this process as well.

Effects of regulatory focus. Various types of counterfactual thinking exist, but one broad distinction involves *additive* counterfactuals concerning the reversal of previous inaction (if only I had acted, things might have gone better), versus *subtractive* counterfactuals concerning the reversal of previous actions (if only I had not acted, things would not be so bad). Because additive counterfactuals allow the mental correction of missed opportunities for gain, they represent a more eager strategy of counterfactual thinking. In contrast, because subtractive counterfactuals allow the correction of mistakes that resulted in loss, they represent a more vigilant strategy of counterfactual thinking.

Consistent with this logic, when people consider hypothetical scenarios or recall personal behaviors that primarily activate promotion concerns, they tend to generate more additive counterfactuals, whereas when they read scenarios or recall behaviors that primarily activate prevention concerns, they tend to generate more subtractive counterfactuals (Roese, Hur, & Pennington, 1999; see also Molden, Lucas, Gardner, Dean, & Knowles, 2009). Overall, research on counterfactual thinking has generally suggested that subtractive counterfactuals are more common and that mistaken actions inspire more regret (Roese, 1997). However, these findings demonstrate that strategic preferences alter these typical circumstances, leading additive counterfactuals to be more common, and to cause greater regret, when individuals are promotion-focused (see also Camacho, Higgins, & Lugar, 2003).

Effects of regulatory mode. Whereas strategic preferences associated with promotion or prevention concerns influence what type of counterfactuals people predominantly generate, strategic preferences associated with locomotion or assessment concerns influence how many counterfactuals people generate overall. Counterfactual thinking produces an analysis of past decisions intended to allow better decisions in the future (Roese, 1997).

Therefore, increased motivations to analyze and evaluate one's decisions should generally increase counterfactual thinking, whereas increased motivations to "move on" after decisions should decrease counterfactual thinking. Consistent with this logic, both when considering hypothetical scenarios and when recalling personal behaviors, chronically assessment-focused individuals generated more counterfactuals and displayed more regret than chronically locomotion-focused individuals (Pierro et al., 2008).

Trade-offs between fast and accurate information processing

Across many areas of psychology, research has examined when and why people emphasize either speed or accuracy during decision-making (e.g., Miller & Vernon, 1997; Revelle & Leon, 1985). That is, although the best decisions are both fast and accurate, people are often forced to sacrifice one to prioritize the other. Moreover, which priority they choose will determine whether they are more likely to make more errors of commission by processing information too quickly or more errors of omission by not progressing quickly enough. Several studies have examined how different strategic preferences influence this choice.

Effects of regulatory focus. Analogous to considering more alternatives during judgment, faster processing and a higher quantity of output increases opportunities for finding correct answers while risking the commission of more mistakes. Analogous to considering fewer alternatives during judgment, accurate processing and a higher quality of output increases the elimination of incorrect answers while risking failure to completely review the available information and the omission of correct answers. Thus, Förster, Higgins, and Bianco (2003) examined whether, analogous to the studies reviewed above (Lieberman et al., 2001; Molden & Higgins, 2004, 2008), promotion concerns create a greater focus on speed, whereas prevention concerns create a greater focus on accuracy. On several motor-performance and information-processing tasks, chronic or temporarily promotion-focused individuals did indeed perform faster, but with lower accuracy. In contrast, chronic or temporarily prevention-focused individuals performed more slowly but with greater accuracy. Moreover, these strategic-preference effects increased in strength at the end of the task, indicating that, as with other types of outcome-related motivations, the motivational intensity of strategic preferences increases as goals near completion (Lewin, 1935; see also Touré-Tillery & Fishbach, 2011).

Effects of regulatory mode. Concerns with locomotion versus assessment can also affect the prioritization of fast or accurate information processing. Prioritizing faster processing should increase feelings of progress, and thus be preferred by locomotion-focused individuals, whereas prioritizing more accurate processing should increase feelings of thoroughness, and thus be preferred by assessment-focused individuals. These effects were shown by Mauro, A. Pierro, Higgins, and Kruglanski (2009), who had individuals perform a group decision-making task in which everyone in the group possessed different pieces of information that needed to be shared to find the correct solution. Groups in which locomotion concerns were temporarily activated made faster, but less accurate decisions, as is consistent with strategic preferences that favor progress. In contrast, groups in which assessment concerns were temporarily activated made slower, but more accurate decisions as is consistent with strategic preferences that favor exhaustive analysis (see also Mannetti et al., 2009).

Knowledge activation and recall

One of the most pervasive effects of outcome-related motivations on thinking and reasoning concerns the selective recall and activation of motivationally relevant information from memory (Balçetis, 2008; Molden & Higgins, 2005, forthcoming). When focused on goals to maintain feelings of esteem or belonging, people bring to mind information that supports these feelings and helps them accomplish these goals (Gardner, Pickett, & Knowles, 2005; Tesser, 2000). Studies of strategy-related motivations have similarly examined how such motivations affect the selective activation of knowledge that supports and furthers the use of these strategies.

Effects of regulatory focus. In one study illustrating these effects, after reading about the experiences of a hypothetical person who used of both eager, promotion-relevant strategies (e.g., waking up early to be on time for a favorite class) and vigilant, protection-relevant strategies (e.g., being careful not to enroll in classes that conflicted with other desired activities), chronically promotion-focused individuals better recalled instances of eager versus vigilant behavior, whereas the reverse was true for chronically prevention-focused individuals (Higgins, Roney, Crowe, & Hymes, 1994). Similarly, in another study, chronically promotion-focused individuals better recalled a target person's eager experiences with both the presence and absence of gains (e.g., finding \$20 on the street or missing a movie that he wanted to see, respectively), whereas chronically prevention-focused individuals better recalled a target person's vigilant experiences with both the presence and absence of losses (e.g., being stuck in a crowded subway or getting a day off from a particularly arduous class schedule, respectively; Higgins & Tykocinski, 1992).

Another classic effect of outcome preferences on the activation of information in working memory concerns the retention of knowledge following goal-completion. Once goals are completed, goal-relevant information often fades quickly to free people's limited cognitive resources for new objectives (Lewin 1935). Yet, sustained activation of goal-relevant information could facilitate the re-initiation of a particular goal if again becomes centrally important. Because promotion-focused individuals prefer eager strategies related to advancement, they should be primarily concerned with finding new opportunities for gain following goal-completion and less likely to show continued activation of information related to this previous goal, as is the case in Lewin's classic findings. In contrast, because prevention-focused individuals prefer vigilant strategies related to maintaining security, they should be primarily concerned with ensuring that they are not caught unprepared if a completed goal arises again and, unlike the classic findings, more likely to show continued activation of information related to this previous goal.

These propositions were supported in studies by Hedberg and Higgins (2011), who asked chronically promotion-focused or prevention-focused individuals to view a series of images and identify how often a picture of eyeglasses was followed by a picture of scissors. Thus, the concept "eyeglasses" signaled the possibility of goal-completion and should have been highly active in working memory during the task; however, because the concept of eyeglasses was also highly specific to the task, its activation should have faded once the task was over. In a subsequent task, promotion-focused individuals were relatively slow in responding to words related to eyeglasses as early as 1 minute after the identification task, which indeed indicated the decreased activation of this concept in memory. In contrast, prevention-focused individuals were still relatively fast to respond to such words up to 15 minutes later, indicating sustained activation of the concept in memory.

Effects of regulatory mode. Although no studies have yet examined how regulatory mode influences knowledge activation and recall, the effects might mirror those of regulatory focus. Locomotion-focused individuals could show greater accessibility in memory of instances when they or someone else implemented successive elimination strategies, whereas assessment-oriented individuals could show greater accessibility for instances when they or someone else implemented exhaustive comparison strategies. Furthermore, locomotion-focused individuals may show decreased activation of information following goal-completion to facilitate their movement to other goals and states, whereas assessment-oriented individuals may show sustained activation of information following goal-completion to facilitate its potential use in later comparisons. These and other effects of regulatory mode on knowledge activation should be explored in future research.

Summary, Implications, and Future Directions

In sum, several continuing programs of research have demonstrated that, beyond the effects on thinking and reasoning of preferences for particular judgment outcomes, there are additional effects of preferences for using particular judgment strategies. Whether such strategic preferences arise from concerns with promotion versus prevention or locomotion versus assessment, they influence: (a) the generation and endorsement of alternatives across a variety of judgment processes, (b) the nature and extent of counterfactual thinking, (c) the prioritization of fast versus accurate information processing, and (d) the content and duration of knowledge activation and recall. Furthermore, it is important to note that many of the studies reviewed above included measures of participants' motivations for general information-processing outcomes, such as priorities for accuracy or certainty, and the effects of regulatory focus and regulatory mode remained when statistically controlling for these additional motivations. Thus, the strategic preferences examined in this research were not just a proxy for a broader class of outcome motivations and appear to have independent effects on what cognitive processes are initiated, how thoroughly these processes are implemented, and how the information that is gathered is ultimately utilized (see Molden & Higgins, 2005, forthcoming).

One primary implication of the additional perspective on motivated thinking offered by considering strategic preferences is it suggests that at times people's strategic preferences may not be fulfilled during judgment even if their outcome preferences are (cf. Lind & Tyler, 1988). Although people should typically choose judgment strategies that match their preferences, some situations or tasks may generally require greater use of one type of strategy versus another. For example, one's supervisor may demand constant innovation and the pursuit of multiple approaches to fulfill company objectives or, instead, demand the use of proven techniques and careful analysis of how to proceed on all projects. The *regulatory fit* or *non-fit* that occurs when people use strategies that are or are not compatible with their motivated preferences, respectively, could thus have its own effects on judgment (Higgins, 2000, 2008). Indeed, a fast-growing body of research is showing that experiences of regulatory fit versus non-fit can increase engagement and confidence during decision-making (e.g., Cesario & Higgins, 2008), while at the same time increasing reliance on more heuristic or affect-based modes of information processing (Koenig, Cesario, Molden, Kosloff, & Higgins, 2009). Thus, further exploring the impact that the regulatory fit emerging from one's strategic preferences has on how people evaluate products or arguments, work well with others, and perhaps even choose careers or romantic partners are important topics for future research.

Another important direction for future research on strategic preferences is examining how these preferences not only affect judgments and evaluations independently of outcome preferences but might also interact with outcome preferences as well. Several recent programs of research have begun to explore this question in different ways (Bohns & Higgins, 2011; Bohns et al., 2011; Molden & Higgins, 2008; Scholer, Stroessner, & Higgins, 2008; Scholer, Zou, Fujita, Stroessner, & Higgins, 2010). For example, several studies by Scholer and colleagues have suggested that judgments and evaluations involving information about threatening, rather than neutral or beneficial outcomes can alter how people specifically pursue their broader strategic preferences. When considering threatening information, vigilant, prevention-focused strategies actually require a general alertness to any and all possible sources of threat, whereas eager, promotion-focused strategies may facilitate narrowed attention to the most pressing danger (cf. Mishra & Lalumière, 2010). That is, in contrast to the effects of promotion or prevention concerns on the consideration of alternatives reviewed above, when situations create broad outcome-preferences centered on threat-avoidance, to maximize their vigilance, prevention-focused individuals appear attentive to all possible threats and are more likely to explore all possible tactics to escape these threats, even if some threats turn out to be benign or some tactics are unsuccessful. Promotion-focused individuals, however, appear to eagerly attend to the most salient and immediate alternative available, even if this tactic results in overlooking another means of escaping the threat.

Another example of research investigating the interaction of strategic and outcome preferences are the studies of Bohns and colleagues (Bohns & Higgins, 2011; Bohns et al., 2011). Much previous research has shown that people more smoothly pursue joint goals with others when both partners value and desire similar outcomes (see Berscheid, 1985). Although this type of compatibility has been shown to arise again and again from similar outcome preferences, Bohns and colleagues found it that instead arises from *complementary* (i.e., contrasting) strategic preferences. When considering both hypothetical interactions and their own personal romantic relationships, promotion-focused individuals preferred, were more satisfied with, and more committed to prevention-focused rather than promotion-focused partners, whereas prevention-focused individuals preferred promotion-focused rather than prevention-focused partners. In addition to this novel effect for strategic as compared to outcome preferences, results also revealed that complementary strategic preferences only increased compatibility when partners felt that they valued similar overall outcomes. That is only when in concert with their partner on what ultimate outcome they were pursuing did individuals appear to value their partner's choice to adopt a different approach while pursuing this outcome and not worry that these differences signaled different priorities. Thus, only by considering the joint implications of both outcome and strategic preferences were Bohns and colleagues able to find evidence for the potential benefits of both similar and contrasting motivations between relationship partners. Overall, these separate research programs by Bohns and Scholer (see also Molden & Higgins, 2008) further illustrate the importance of considering strategic as well as outcome preferences when investigating motivated thinking and demonstrate the broader implications strategic preferences can have for judgment and behavior.

To conclude, this article has further documented the pervasiveness of motivational influences on a wide variety of judgment processes by highlighting an alternate source of these influences. In addition to caring about what they are trying to accomplish, people also care about how exactly they go about pursuing these accomplishments, and much research has now illustrated that these latter strategic preferences can affect judgment processes as much as the former preferences for the outcome itself. Further investigation

of the role played in thinking and reasoning by motivations arising from each of these types of preference, as well as their combination, could not only benefit the study of motivated cognition, but also cognitive science as a whole.

Acknowledgement

Some of the ideas in this article were initially developed as part of my doctoral dissertation under the supervision of E. Tory Higgins. Special thanks are extended to Tory and the other members of my committee, Carol S. Dweck, Joel Brockner, and James Magnusson for their feedback and suggestions about these early ideas.

Short Biography

Daniel C. Molden's research examines how people's motivations influence the way in which they (i) gather, integrate, and interpret social information; and (ii) pursue, represent, and react to social interaction. His work has been featured in outlets such as the *Journal of Personality and Social Psychology*, *Psychological Science*, and *American Psychologist* and has been funded by grants and fellowships from the National Institute of Mental Health and the National Science Foundation. Molden is currently an Associate Professor of Psychology at Northwestern University. He earned his BA in Psychology and Biology from Emory University, and his PhD in Social Psychology from Columbia University.

Endnote

* Correspondence address: Department of Psychology, Northwestern University, 2029 Sheridan Rd., Evanston, IL 60208, USA. Email: molden@northwestern.edu

References

- Avnet, T., & Higgins, E. T. (2003). Locomotion, assessment, and regulatory fit: Value transfer from "how" to "what". *Journal of Experimental Social Psychology*, **39**, 525–530.
- Balceis, E. (2008). Where the motivation resides and self-deception hides: How motivated cognition accomplishes self-deception. *Social and Personality Psychology Compass*, **2**, 361–381.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, **117**, 497–529.
- Berscheid, E. (1985). Interpersonal attraction. In G. Lindzey & E. Aronson (Eds.), *Handbook of Social Psychology* (3rd edn., pp. 413–484). New York: Random House.
- Bohns, V. K., & Higgins, E. T. (2011). Liking the same things, but doing things differently: Outcome versus strategic compatibility in partner preferences for joint tasks. *Social Cognition*, **29**, 497–527.
- Bohns, V. K., Lucas, G. M., Molden, D. C., Finkel, E. J., Coolsen, M. K., Kumashiro, M. et al. (2011). *Opposites Fit: Regulatory Focus Complementarity and Relationship Well Being*. Unpublished manuscript, University of Waterloo.
- Camacho, C. J., Higgins, E. T., & Lugar, L. (2003). Moral value transfer from regulatory fit: What feels right is right and what feels wrong is wrong. *Journal of Personality and Social Psychology*, **84**, 498–510.
- Cesario, J., & Higgins, E. T. (2008). Making message recipients "feel right": How nonverbal cues can increase persuasion. *Psychological Science*, **19**, 415–420.
- Crowe, E., & Higgins, E. T. (1997). Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. *Organizational Behavior and Human Decision Processes*, **69**, 117–132.
- Dunning, D. (1999). A newer look: Motivated social cognition and the schematic representation of social concepts. *Psychological Inquiry*, **10**, 1–11.
- Förster, J., Higgins, E. T., & Bianco, A. T. (2003). Speed/accuracy decisions in task performance: Built in trade-off of separate strategic concerns. *Organization Behavior and Human Decision Processes*, **90**, 148–164.
- Friedman, R., & Förster, J. (2001). The effects of promotion and prevention cues on creativity. *Journal of Personality and Social Psychology*, **81**, 1001–1013.

- Gardner, W. L., Pickett, C., & Knowles, M. L. (2005). "Social snacking" and "social shielding": The use of symbolic social bonds to maintain belonging needs. In K. Williams, J. Forgas & W. von Hippel (Eds.), *The Social Outcast: Ostracism, Social Exclusion, Rejection, and Bullying* (pp. 227–242). New York: Psychology Press.
- Hedberg, P. H., & Higgins, E. T. (2011). What remains on your mind after you are done? Flexible regulation of knowledge accessibility. *Journal of Experimental Social Psychology*, **47**, 882–890.
- Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist*, **52**, 1280–1300.
- Higgins, E. T. (2000). Making a good decision: Value from fit. *American Psychologist*, **55**, 1217–1230.
- Higgins, E. T. (2008). Regulatory fit. In J. Y. Shah & W. L. Gardner (Eds.), *Handbook of Motivation Science* (pp. 356–372). New York: Guilford Press.
- Higgins, E. T., Friedman, R. S., Harlow, R. E., Idson, L. C., Ayduk, O. N., & Taylor, A. (2001). Achievement orientations from subjective histories of success: Promotion pride versus prevention pride. *European Journal of Social Psychology*, **31**, 3–23.
- Higgins, E. T., Kruglanski, A. W., & Pierro, A. (2003). Regulatory mode: Locomotion and assessment as distinct orientations. In M. P. Zanna (Ed.), *Advances in Experimental Social Psychology* (pp. 293–344). New York: Academic Press.
- Higgins, E. T., & Molden, D. C. (2003). How strategies for making judgments and decisions affect cognition: Motivated cognition revisited. In G. V. Bodenhausen & A. J. Lambert (Eds.), *Foundations of Social Cognition: A Festschrift in Honor of Robert S Wyer, Jr.* (pp. 211–236). Mahwah, NJ: Lawrence Erlbaum Associates.
- Higgins, E. T., Roney, C., Crowe, E., & Hymes, C. (1994). Ideal versus ought predilections for approach and avoidance: Distinct self-regulatory systems. *Journal of Personality and Social Psychology*, **66**, 276–286.
- Higgins, E. T., & Tykocinski, O. (1992). Self-discrepancies and biographical memory: Personality and cognition at the level of psychological situations. *Personality and Social Psychology Bulletin*, **18**, 527–535.
- Kelley, H. H. (1973). The process of causal attribution. *American Psychologist*, **28**, 107–128.
- Koenig, A. M., Cesario, J., Molden, D. C., Kosloff, S., & Higgins, E. T. (2009). Incidental experiences of regulatory fit and the processing of persuasive appeals. *Personality and Social Psychology Bulletin*, **35**, 1342–1355.
- Kruglanski, A. W. (1996). Motivated social cognition: Principles of the interface. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social Psychology: Handbook of Basic Principles* (pp. 493–520). New York: Guilford.
- Kruglanski, A. W., Orehek, E., Higgins, E. T., Pierro, A., & Shalev, I. (2010). Modes of self-regulation: Assessment and locomotion as independent determinants in goal-pursuit. In R. Hoyle (Ed.), *Handbook of Personality and Self-Regulation* (pp. 375–402). Hoboken, NJ: Wiley.
- Kruglanski, A. W., Thompson, E. P., Higgins, E. T., Atash, M. N., Pierro, A., Shah, J. Y. et al. (2000). To "do the right thing" or to "just do it": Locomotion and assessment as distinct self-regulatory imperatives. *Journal of Personality and Social Psychology*, **79**, 793–815.
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, **108**, 480–498.
- Lerner, J. S., & Tetlock, P. E. (1999). Accounting for the effects of accountability. *Psychological Bulletin*, **125**, 255–275.
- Lewin, K. (1935). *A Dynamic Theory of Personality*. New York: McGraw-Hill.
- Liberman, N., Idson, L. C., Camacho, C. J., & Higgins, E. T. (1999). Promotion and prevention choices between stability and change. *Journal of Personality and Social Psychology*, **77**, 1135–1145.
- Liberman, N., Molden, D. C., Idson, L. C., & Higgins, E. T. (2001). Promotion and prevention focus on alternative hypotheses: Implications for attributional functions. *Journal of Personality and Social Psychology*, **80**, 5–18.
- Lind, E. A., & Tyler, T. R. (1988). *The Social Psychology of Procedural Justice*. N.Y.: Plenum.
- Mannetti, L., Leder, S., Insalata, L., Pierro, A., Higgins, E. T., & Kruglanski, A. (2009). Priming the ant or the grasshopper in people's mind: How regulatory mode affects inter-temporal choices. *European Journal of Social Psychology*, **39**, 1120–1125.
- Mauro, R., A. Pierro, L. Mannetti, Higgins, E. T., & Kruglanski, A. W. (2009). The perfect mix: Regulatory complementarity and the speed-accuracy balance in group performance. *Psychological Science*, **20**, 681–685.
- Miller, L., & Vernon, P. A. (1997). Developmental changes in speed of information processing in young children. *Developmental Psychology*, **33**, 549–554.
- Mishra, S., & Lalumière, M. L. (2010). You can't always get what you want: The motivational effect of need on risky decision-making. *Journal of Experimental Social Psychology*, **46**, 605–61.
- Molden, D. C., & Higgins, E. T. (2004). Categorization under uncertainty: Resolving vagueness and ambiguity with eager versus vigilant strategies. *Social Cognition*, **22**, 248–277.
- Molden, D. C., & Higgins, E. T. (2005). Motivated thinking. In K. J. Holyoak & R. G. Morrison (Eds.), *The Cambridge Handbook of Thinking and Reasoning* (pp. 295–320). New York: Cambridge University Press.
- Molden, D. C., & Higgins, E. T. (2008). How preferences for eager versus vigilant judgment strategies affect self-serving conclusions. *Journal of Experimental Social Psychology*, **44**, 1219–1228.
- Molden, D. C., & Higgins, E. T. (forthcoming). Motivated thinking. In K. J. Holyoak & R. G. Morrison (Eds.), *The Oxford Handbook of Thinking and Reasoning* (pp. 300–319). New York: Oxford University Press.
- Molden, D. C., & Hui, C. M. (2011). Promoting de-escalation of commitment: A regulatory focus perspective on sunk costs. *Psychological Science*, **22**, 8–12.

- Molden, D. C., Lee, A. Y., & Higgins, E. T. (2008). Motivations for promotion and prevention. In J. Shah & W. Gardner (Eds.), *Handbook of Motivation Science* (pp. 169–187). New York: Guilford.
- Molden, D. C., Lucas, G. M., Gardner, W. L., Dean, K., & Knowles, M. (2009). Motivations for prevention or promotion following social exclusion. Being rejected versus being ignored. *Journal of Personality and Social Psychology*, **96**, 415–431.
- Molden, D. C., Scholer, A. A., Lucas, G. L., & Richeson, J. A. (2011). *Social Categorization in Anticipated Interracial Interactions: The Role of Threat, Salience, and Regulatory Focus*. Northwestern University: Unpublished Manuscript.
- Murphy, G. L. (2002). *The Big Book of Concepts*. Cambridge, MA: MIT Press.
- Nisbett, R., & Wilson, T. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, **84**, 231–259.
- Pham, M. T., & Chang, H. H. (2010). Regulatory focus, regulatory fit, and the search and consideration of choice alternatives. *The Journal of Consumer Research*, **37**, 626–640.
- Pierro, A., S., Leder, L., Mannetti, Higgins, E. T., Kruglanski, A. W., & Aiello, A. (2008). Regulatory mode effects on counterfactual thinking and regret. *Journal of Experimental Social Psychology*, **44**, 321–329.
- Revelle, W., & Leon, M. R. (1985). Effects of anxiety on analogical reasoning: A test of three theoretical models. *Journal of Personality and Social Psychology*, **49**, 1302–1315.
- Roese, N. (1997). Counterfactual thinking. *Psychological Bulletin*, **121**, 133–148.
- Roese, N. J., Hur, T., & Pennington, G. L. (1999). Counterfactual thinking and regulatory focus: Implications for action versus inaction and sufficiency versus necessity. *Journal of Personality and Social Psychology*, **77**, 1109–1120.
- Scholer, A. A., & Higgins, E. T. (2008). Distinguishing levels of approach and avoidance: An analysis using regulatory focus theory. In A. J. Elliot (Ed.), *Handbook of Approach and Avoidance Motivation* (pp. 489–504). New York: Psychology Press.
- Scholer, A. A., Stroessner, S. J., & Higgins, E. T. (2008). Responding to negativity: How a risky tactic can serve a vigilant strategy. *Journal of Experimental Social Psychology*, **44**, 767–774.
- Scholer, A. A., Zou, X., Fujita, K., Stroessner, S. J., & Higgins, E. T. (2010). When risk seeking becomes a motivational necessity (2010). *Journal of Personality and Social Psychology*, **99**, 215–231.
- Tesser, A. (2000). On the confluence of self-esteem maintenance mechanisms. *Personality and Social Psychology Review*, **4**, 290–299.
- Touré-Tillery, M., & Fishbach, A. (2011). The course of motivation. *Journal of Consumer Psychology*, **21**, 414–423.
- Tversky, B. (2005). Visuospatial reasoning. In K. Holyoak & R. Morrison (Eds.), *The Cambridge Handbook of Thinking and Reasoning* (pp. 209–249). New York: Cambridge University Press.
- Whitson, J. A., & Galinsky, A. D. (2008). Lacking control increases illusory pattern perception. *Science*, **322**, 115–117.