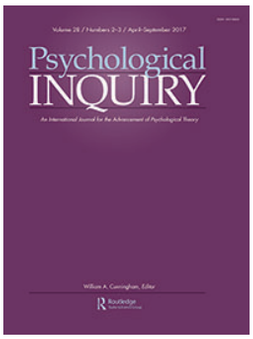

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Understanding How Identity and Value Motivate Self-Regulation Is Necessary but not Sufficient: A Motivated Effort-Allocation Perspective

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Despite its many, well-recognized benefits for prosperity and well-being (De Ridder, Adriaanse, & Fujita, in press), effective self-regulation—the active monitoring and alteration of one's thoughts and behaviors in pursuit of a desired objective—is something that most people find difficult.[1] A prominent explanation for this difficulty has long been that individuals all possess some fixed capacity for self-regulation that depletes when used and limits subsequent regulation (Baumeister & Vohs, 2007, 2016). However, many recent findings are inconsistent with this type of limited capacity and raise doubts that it can adequately explain why people often fail at self-regulation (for a review, see Molden, Hui, & Scholer, 2016; see also Carter, Kofler, Forster, & McCullough, 2015; Hagger et al., 2016). Instead, the accumulating evidence suggests that such failures instead stem from at least two primary sources: (a) the amount and type of motivation that directs or instigates self-regulation (e.g., Alberts, Martijn, & de Vries, 2011; Hong & Lee, 2008; Moller, Deci, & Ryan, 2006; Muraven & Slessareva, 2003; Muraven, Gagné, & Rosman, 2008; Wan & Sternthal, 2008), and (b) the types of experiences that accompany self-regulation (e.g., Clarkson, Hirt, Chapman, & Jia, 2011; Clarkson, Hirt, Jia, & Alexander, 2010; Derrick, 2013; Egan, Hirt, & Karpen, 2012; Friese, Messner, & Schaffner, 2012; Job, Dweck, & Walton, 2010; Macrae et al., 2014; Martijn, Tenbült, Merckelbach, Dreezens, & de Vries, 2002; Tice, Baumeister, Shmueli, & Muraven, 2007). Accordingly, an increasing number of new perspectives have arisen that reconceptualize why people might struggle with self-regulation and what might be done to relieve this struggle (Inzlicht, Schmeichel, & Macrae, 2014; Kotabe & Hofmann, 2015; Kurzban, Duckworth, Kable, & Myers, 2013; Molden et al., 2016, in press).

The *identity-value* model of self-regulation that Berkman, Livingston, and Kahn develop is built upon the motivations that arise from core aspects of people's self-identities and the subjective value these identities provide to the act of regulation, and is much in the spirit of these new perspectives. This model's focus on the central role of motivational processes in self-regulation reinforces other similar recent proposals (e.g., Inzlicht et al., 2014; Kurzban et al., 2013; Molden et al., 2012), and it possesses a number of important features required to explain the emerging evidence on failures of self-regulation. However, at present, the identity-value model also possesses some important limitations and still requires a substantial amount of further development before it can provide a unique or compelling addition to existing theories on self-regulation and self-control. That is, although this model includes some necessary components for any comprehensive account of self-regulation, it is not sufficient for explaining many of the important processes that influence such regulation. In the following sections, we elaborate on both the important strengths and critical limitations of the identity-value model and then describe our own *motivated effort-allocation* model (Molden et al., 2016, in press), which attempts to develop a more comprehensive explanation of the difficulties of self-regulation.

Strengths of the Identity-Value Model

Previous research on self-regulation guided by the notion of a limited capacity has acknowledged the importance of motivation in understanding this process (Baumeister, 2014; Baumeister & Vohs, 2007). However, this research has primarily characterized such motivation in terms of desires to manage and conserve self-regulatory efforts in order to avoid fully depleting one's capacity unless absolutely necessary (e.g., Muraven, Shmueli, & Burkley, 2006). Yet, as Berkman et al. (this issue) discuss, a much wider range of motivational processes can influence when and how people engage in self-regulation. A major strength of their identity value model, therefore, is that it captures and emphasizes this potentially wide range of idiosyncratic and dynamic motivational processes involved in self-regulation that have not always received enough attention.

Integrating Multiple Sources of Motivation for Self-Regulation

First, other recent attempts to emphasize motivational processes that can explain why people find it difficult to sustain self-regulation have each focused largely on one specific type of motivational influence. These types have included the strength of the immediate desires that interfere with self-regulation (e.g.,

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[1]Some researchers distinguish between processes of *self-regulation* and *self-control* and argue the latter is a special case of the former that specifically involves managing the conflict between pursuing two or more desired, but incompatible, objectives (e.g., Duckworth & Gross, 2014; Fujita, 2011). Although Berkman, Livingston, and Kahn (this issue) make a similar distinction in their identity-value model, the central mechanisms they describe in this model, and that we describe later in our own conceptualization of such processes, apply equally well to more general instances of self-regulation. Therefore, we focus on this broader, more general process throughout.

Kotabe & Hofmann, 2015), the perceived opportunity costs of continuing self-regulation versus pursuing alternative goals (e.g., Kurzban et al., 2013), the absence of perceived autonomy during self-regulation (e.g., Martela, DeHaan, & Ryan, 2016), motivations to rationalize or justify pursuing immediate desires over long-term goals (e.g., De Witt Huberts, Evers, & De Ridder, 2013), or an increasing concern with goals focused on "leisure" instead of those focused on "labor" (e.g., Inzlicht et al., 2014). Each of these perspectives provides some unique insights on the motivational processes of self-regulation, but they do not readily allow the more integrative approach possible with the identity-value model. The primary ability of this model to organize and integrate all of these different motivational processes that may alter self-regulation, as well as to consider how these motivations might interact with each other, is thus a substantial advantage over other approaches.

Person-Centered and Dynamic Perspectives on Motivation for Self-Regulation

Beyond simply integrating a variety of different motivational influences, the identity-value model also recognizes the importance of considering how people themselves individually prioritize and interpret these influences (see also Molden, 2013). By placing people's idiosyncratic identities at the heart of what determines the types of motivations that drive their self-regulation, this model allows for the possibility that what constitutes successful self-regulation for one person may not for another. For example, although choosing an apple over a piece of chocolate cake for dessert may represent successful self-regulation for someone who identifies as health conscious and values avoiding unnecessary calories, choosing the cake may instead represent successful self-regulation for someone who does not like chocolate but identifies as supportive and values the feelings of their friend who baked it.

Indeed, Rawn and Vohs (2011) argued that behaviors such as binge eating, smoking, or consuming alcohol—actions often associated with failures of self-regulation—may in many instances instead reflect the successful exertion of self-regulation by individuals who pursue these (at least initially) unpleasant experiences because they value the social acceptance they expect the behaviors to ultimately bring. Similarly, McGuire and Kable (2013) argued that many instances of choosing immediate rewards over waiting for larger rewards—a prototypical case of self-regulation failure (see Fujita, 2011)—may actually reflect people assigning lower perceived value to this later reward due to uncertainty over whether they might ever attain it (see also Griskevicius, Tybur, Delton, & Robertson, 2011). Thus, a comprehensive understanding of self-regulation failure requires a motivational analysis centered on how individuals from different cultures and with different histories of experience are themselves assigning value to particular goals, like the idiosyncratic framework the identity-value model provides.

Finally, in addition to describing how motivations for self-regulation may differ between individuals, the identity-value model also allows for such motivations to dynamically shift over time within individuals. The larger context in which people pursue their goals may shift as the goals progress in ways that alter the motivations sustaining these goals. Thus, forms of self-regulation people perceive to be effective and rewarding at first may lose (or gain) subjective value over time. For example, a student who has already studied for an exam for five hours straight might have a very different perception of the value of additional studying as compared to when he or she began. More static conceptualizations of motivations for self-regulation might classify deciding to stop as simply a failure to sustain regulation toward an important goal in either instance; however, in terms of the identity-value model, it is possible to consider that, after five hours of studying, the student may come to value the relative benefits of a good night's sleep over whatever benefits additional studying might have, leading to a shift in motivations to continue. That is, this model does not define all disengagements from self-regulation as "failures" and captures the potential interactions between individuals' varying motivations for self-regulation and the demands of the contexts in which this ongoing regulation occurs. This too is an important component for a comprehensive understanding of self-regulatory processes.

Limitations of the Identity-Value Model

Although the identity-value model has notable strengths in the central role it gives idiosyncratic and dynamic shifts in motivation to explain when and why people engage in self-regulation, we believe that, in many ways, it still offers a somewhat imprecise and incomplete account of this overall process. Specifically, this model neither truly offers new perspectives on current conceptualizations of identity or value nor specifies any new mechanisms of how these variables might affect self-regulation. Also, at present, the identity-value model may actually afford too much flexibility in explaining people's self-regulatory behavior such that it becomes difficult to definitively test empirically. Finally, we noted at the outset that accumulating evidence suggests that understanding self-regulation failure requires understanding both people's motivations for and experiences with engaging in such regulation; although the identity-value model takes some necessary steps toward capturing the former motivations, it does not sufficiently incorporate the latter experiences.

Failures to Fully Incorporate or Extend Existing Conceptualizations of Identity

The identity-value model draws from robust literatures on the general motivational functions of the self-concept (e.g., Higgins, 1987; Sherman & Cohen, 2006; Swann, 2012) and on how people organize their self-concepts around specific identities (e.g., McConnell, 2011; Oyserman, 2009) to generally argue that associating some goal with one's self-identity gives this goal increased motivational value. This is certainly a reasonable prediction with much previous evidence to support it. However, such a prediction also clearly emerges from the present literature and does not require any new model of either identity or value. That is, there is no clear distinction between the overall function or representation of self and identity within the identity-value model and their function within many other well-established theoretical perspectives such as those just cited.

Furthermore, perhaps the most current and comprehensive research on self-identity (see McConnell, 2011) suggests that people typically possess a small number of relatively stable identities (four to five, on average) that structure and organize their various traits and goals. The feedback people receive about their progress in self-regulating toward these particular traits or goals determines the specific emotions and esteem connected to the separate identities with which the traits and goals are associated, and the combined evaluation of each of these identities then determines people's more global emotions or esteem. Thus, overall, although various aspects of people's self-identities can be activated or emphasized in different contexts (see also Oyserman, 2009), the identities themselves appear to be relatively broad representations with stable contents that determine how people react to particular outcomes. Although not directly inconsistent with the identity-value model, this characterization of identity stands somewhat in contrast to the portrayal of how identities are presumed to affect self-regulation in this model.

Berkman et al. (this issue) suggest that one major implication of the identity-value model is that self-regulation could be improved by linking particular goals to people's identities (e.g., getting people to identify as a "nonsmoker" rather than to just refrain from smoking); at the same time, they caution that such attempts might be hindered by people distancing themselves from the relevant identity to protect the self if the associated attempts at self-regulation are perceived to be failing. However, this seems to presume a greater malleability in the content of people's self-identities than McConnell's (2011) research suggests. Identities develop and change over time, but this may require chronic and pervasive feedback about the progress people are making toward a particular trait or goal, or the lack of progress as in the cases of disidentification that can occur in response to social-identity threat (Steele, Spencer, & Aronson, 2002). Thus, although it is an empirical question, a more promising approach to improving self-regulation by evoking self-identity may involve incorporating the desired instances of regulation into people's existing set of identities rather than attempting to create a novel identity around these instances.

One way in which Berkman et al. (this issue) attempt to go beyond previous findings on the motivational functions of self and identity is in their interpretation of their meta-analysis of functional magnetic resonance imaging (fMRI) studies that appear to further support the inherent motivational value of such identities. The evidence they provide concerning the overlapping patterns of activation in portions of the ventro-medial prefrontal cortex (vmPFC) when people are either thinking about the self or evaluating all different types of valued outcomes does add welcome convergent evidence to the host of previous experimental findings showing the many ways in which people are motivated to assign value to and defend their self-identities (see Molden & Higgins, 2005). However, there are well-established limits for what inferences can be drawn from observed haemodynamic responses in fMRI about function-specific processing, the larger network of neural signals involved, or even whether these responses illustrate activation or inhibition of the relevant population of neurons (see, e.g., Logothetis, 2008). Therefore, it is extremely difficult to regard these and the other neuroimaging findings reviewed as providing any new basis for concluding that self-identity has special motivational value beyond all other sources or that "things that are valued are by definition part of the self, and all aspects of the self are valued" (this issue, p. 82), as Berkman et al. suggest.

Underspecified Definitions of How Motivations for Self-Regulation Arise

Berkman et al. (this issue) acknowledge the high degree of overlap of the identity-value model with past research on the self and identity—which is not truly a critical flaw in its own right—and suggest that the primary contribution of this new model is its broad reconceptualization of the motivational influences of the self in terms of *subjective value*. They broadly define this value as momentary perceptions of the costs and benefits a particular goal or action might entail, which allows it to serve as the common mediator for the flexible interaction of a wide variety of motivational processes. Earlier, we noted the advantages of the idiosyncratic and dynamic approach to motivation such flexibility affords. However, because the identity-value model goes no further in detailing how subjective value arises or is calculated (beyond its aforementioned associations with self-identity), this flexibility becomes a major weakness as well.

Without additional development of the specific processes by which people derive and assign subjective value (e.g., Higgins, 2007), the identity-value model functions as a descriptive rather than a predictive account of self-regulation. That is, at present, this model creates an organizing framework for a variety of previous findings, but it does not generate clear hypotheses that can be unambiguously tested in future studies. Until some limited set of psychological processes are further specified to determine when and how subjective value for a particular act of self-regulation arises—how it becomes relevant or instrumental to a particular identity, how its anticipated costs and benefits are calculated, how its priority in relation to other possible behaviors is assessed—it is not possible within the identity-value model to anticipate what factors might influence self-regulation at any given moment.

Therefore, as the model now stands, any pattern of self-regulation could be explained by a seemingly arbitrary and near limitless set of assumptions about the value such regulation might or might not afford. A student who continues studying despite having just studied for five hours must place a high subjective value on performing well, or on putting high effort into his or her preparation, or on the continued effectiveness of further studying; or perhaps the student places a low subjective value on sleep, socializing, or any other more leisurely pursuit. A student who does not continue studying must simply have in some way reversed his or her assignment of subjective value to these factors. Thus, unfortunately, Berkman et al.'s (this issue) criticism of existing models of self-regulation for relying on mechanisms of desire and inhibition that are not sufficiently specified to avoid circular explanations of self-regulation failure applies equally well to the alternative mechanisms they propose in the identity-value model.

Another drawback of equating the primary motivations for self-regulation with global and flexible perceptions of subjective value in this model is that this seems to directly undermine the emphasis placed on self and identity as the critical sources of value. If in determining whether to engage in self-regulation

people combine all potential motivations for such regulation—whether they are related to identity relevance, the availability of external rewards, social approval, perceived difficulty of success, or any other factor—into one general calculation of overall subjective value, what is the justification for particular emphasis on the value that may come from people's self-identity in understanding or improving self-regulation?

As noted earlier, we believe that strong evidence is currently still lacking to support the conclusion that self-identities are an overwhelming source of subjective value for self-regulation as compared to all other factors. Without such evidence, the previously discussed complexities of determining how readily new concerns with self-regulation may be incorporated fit with different people's identities, or how these concerns might fit with different individuals' existing personal or cultural identities, suggest that interventions to improve self-regulation might be better aimed at other potential sources of subjective value. That is, if subjective value is the critical mediator driving self-regulation as the identity-value model proposes, the most effective intervention would seem to be one that targets the mostly widely shared sources of perceived value. Indeed, Berkman et al. (this issue) review several examples of successful attempts to improve self-regulation by offering monetary rewards, which likely produces this type of widely shared value. If such interventions are equally likely to be effective in increasing the value people place on self-regulation, this too appears to undermine the special emphasis on the value associated with identity in the identity-value model.

Failures to Adequately Incorporate Experiences of Pursuing Self-Regulation

Beyond problems concerning how the identity-value model defines and describes the role of identity and value in self-regulation, another major limitation of this model is its underemphasis on some factors that are becoming widely recognized as particularly influential for explaining self-regulation failure. Processes by which people monitor and evaluate their progress during goal pursuit have long been a prominent component of models of self-regulation (see Carver & Scheier, 2001). However, as alluded to at the outset, many emerging findings on self-regulation failure have recently highlighted the importance of examining such monitoring processes in terms of people's experiences and interpretations of effort during ongoing regulation (Clarkson et al., 2010, 2011; Egan et al., 2012; Job, Bernecker, Miketta, & Friese, 2015; Job et al., 2010; Macrae et al., 2014; Martijn et al., 2002; see also Koriat, Ma'ayan, & Nussinson, 2006; Labroo & Kim, 2009; Miele & Molden, 2010; Miele, Finn, & Molden, 2011). Based on these findings, a consensus has begun to form that such experiences are a likely a key component in determining whether people continue to pursue self-regulation (e.g., Hockey, 2013; Inzlicht et al., 2014; Kurzban et al., 2013; Molden et al., 2016, in press).

Although it includes a wide array of influences related to the motivations that can affect self-regulation, the identity-value model does not directly incorporate processes for monitoring experiences of ongoing self-regulation or clearly articulate how or when such experiences might alter people's motivations for regulation (cf. Inzlicht et al., 2014; Kurzban et al., 2013; Molden et al., 2016, in press). Earlier, we noted that the dynamic approach of incorporating many different sources of motivation that may vary from context to context does allow this model to potentially capture shifts in motivation. However, just as it lacks a well-defined conceptualization of the critical mechanisms by which people determine subjective value, at present the identity-value model also lacks a clear means of describing how monitoring of one's experiences during self-regulation might alter subjective value for continued regulation. That is, because this model does not explicitly detail how people monitor and update their perceptions of subjective value from moment to moment, it does not adequately capture the potential influence of the experiences that arise from these types of monitoring processes.

Berkman et al. (this issue) do make some attempt to incorporate the perceived effort of self-regulation in the identity-value model by including judgments of the usefulness of continued effort at such regulation as part of the subjective value calculations that determine whether self-regulation will continue (cf. Kool & Botvinick, 2014; Kool, McGuire, Rosen, & Botvinick, 2010). This type of assessment is indeed likely a part of the processes by which people monitor and evaluate their effort during self-regulation. However, it cannot fully explain the many findings indicating that positive experiences unrelated to the primary focus of self-regulation—such as watching a humorous video or favorite television program (Derrick, 2013; Tice et al., 2007), meditating (Friese et al., 2012), or simply imagining a relaxing experience (Egan et al., 2012)—that precede self-regulation tasks can still help sustain regulation (for reviews, see Loschedler & Friese, 2016; Masicampo, Martin, & Anderson, 2014). Berkman et al. appear to claim that these types of experiences somehow indirectly enhance the value that people assign to continued self-regulation or to their own self-identity, but it is not at all clear why or how such experiences would do so. Instead, it seems more likely that these positive experiences mitigate the perceptions of fatigue subsequently associated with engaging in self-regulation and facilitate continued regulation by altering the impact of such perceptions on people's evaluations of their effort and progress (Hockey, 2013; Inzlicht et al., 2014; Kurzban et al., 2013; Molden et al., 2016, in press). We elaborate further on this idea in the following section.

In summary, despite some notable strengths concerning its integration of many different types of motivational influences on self-regulation, in its current form, the identity-value model provides only limited contributions to the variety of developing perspectives that are attempting to move beyond the idea that people's struggles with self-regulation are due to the depletion of some limited capacity. Because this model does not sufficiently justify its primary focus on self-identity or sufficiently specify how subjective value for pursuing self-regulation arises or changes, it cannot currently (a) produce clear predictions for when people are likely to succeed or fail at self-regulation that are not completely open to post hoc reinterpretation, or (b) adequately capture all of the key processes that emerging evidence suggests are critical for explaining self-regulation failure. For the remainder of this commentary, we thus briefly outline our own model of self-regulation that aims to achieve both of these objectives.

A Motivated Effort-Allocation Account of Self-Regulation

The general structure of our motivated effort-allocation model is presented in Figure 1. It involves a cyclical framework with three main components: (a) the *assessment* of how strongly one is motivated to engage in self-regulation, (b) the *allocation* of effort and attention to self-regulation produced by this assessment, and (c) the *monitoring* of the consequences of this allocation, which then spurs a further reassessment of one's motivations to continue self-regulation.

Thus, akin to the identity-value model, our motivated effort-allocation model proposes that people initially assess whether engaging in self-regulation is likely to produce a desired outcome, which then determines the strength of their motivation for regulation and the allocation of attention and effort to pursuing the appropriate actions to attain this outcome. However, going beyond the identity-value model, the motivated effort-allocation model further proposes that, following this allocation, people monitor whether self-regulation is effectively bringing about the desired state by evaluating the costs and benefits of their current level of regulation and adjusting their motivations for continuing accordingly. Moreover, the specific mechanisms of evaluating such costs and benefits are presumed to derive directly from people's perceptions and experiences of their ongoing regulation. If, at any point, these experiences signal that the costs of sustained effort outweigh the benefits of progress toward the desired state, then people's motivations for self-regulation and their effort and attention toward their current task diminish. Therefore, self-regulation should persist as long as people's experiences of pursuing regulation sustain their motivations to continue (see also Inzlicht et al., 2014; Kurzban et al., 2013). In the following sections, we outline these processes in greater detail (for more elaborate discussions, see Molden et al., 2016, in press).

Assessing Motivations for Self-Regulation

As Figure 1 illustrates, the motivated effort-allocation model conceptualizes people's assessments of motivations to initiate, continue, or withdraw from self-regulation in line with long-standing theories on the role of expectancy and value in goal-setting and goal-pursuit (Feather, 1982). That is, in this model, such assessments depend upon both people's expectations concerning their ability to muster the effort and attention self-regulation will require and the total value they believe regulation will have for producing the desired outcome. Thus, if either people's expectations about or valuing of self-regulation is presently low, so too will be their motivations to allocate effort and attention toward such regulation.

Furthermore, because research has shown that perceptions about the possibility of other demands for self-regulation in the near future can affect motivations for current self-regulation (e.g., Job et al., 2015; Job et al., 2010; Martijn et al., 2002; Muraven et al., 2006), the motivated effort-allocation model includes motivational assessments of this possible future regulation as well. As Figure 1 also illustrates, this additional assessment again depends both on the expected ability to summon the effort and attention such future self-regulation might demand—particularly in light of one's current efforts at self-regulation—and the value this future regulation would have for accomplishing its intended outcome—particularly in relation to the value of current regulation. In this case, the more that potential self-regulation toward some future objective is perceived to be highly constrained by current self-regulation or the more that potential future regulation is seen as higher in value than current regulation, the less motivated people will be to allocate effort and attention toward this current regulation. Thus, overall, the assessment stage of the motivated effort-allocation model captures the dynamic influence of both motivations to sustain effort on the current focus of self-regulation and possible motivations to conserve effort for important demands for future regulation.

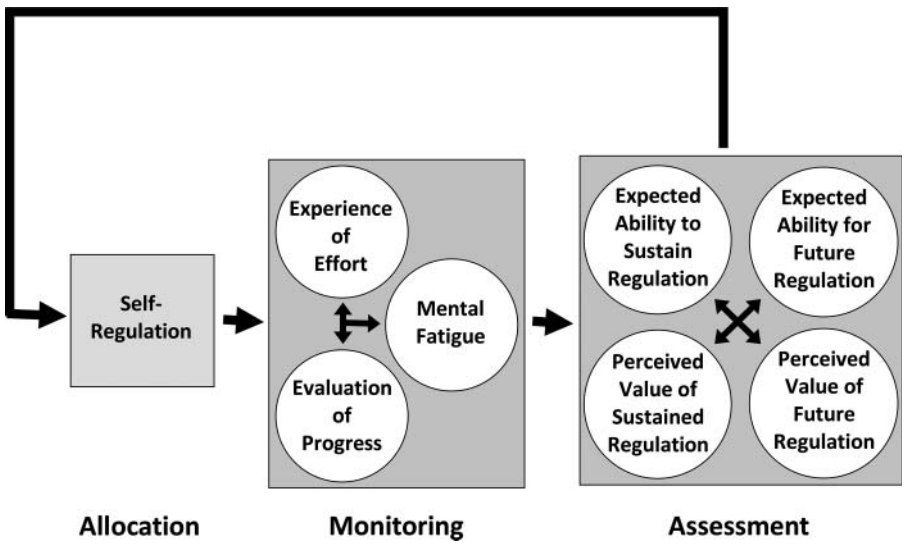

Figure 1. A motivated effort-allocation model of self-regulation. Assessments of motivations to exert self-regulation produce allocations of effort and attention to engage in regulation. The consequences of self-regulation are then monitored and motivations to continue regulation reassessed.

Monitoring the Consequences and Experiences of Self-Regulation

Once assessment processes activate motivations to engage in self-regulation toward a desired outcome, and these motivations evoke the allocation of effort and attention toward pursuing the outcome, the motivated effort-allocation model proposes that this also activates a monitoring process to evaluate how effective the current level of self-regulation is in producing the desired outcome. This monitoring process then has further motivational implications for continued self-regulation. As shown in Figure 1, drawing again from long-standing theories of self-regulation (Carver & Scheier, 2001), the first component of this monitoring is an evaluation of the progress made toward the desired outcome. This aspect of monitoring captures the perceived benefits produced by self-regulation.

However, the motivated effort-allocation model extends traditional theories by also including in the monitoring process evaluations of effort as well as progress. Drawing upon recent reconceptualizations of experiences of mental fatigue as a motivational signaling process (Hockey, 2013; Kurzban et al., 2013), we propose that the second major component of the monitoring process is an evaluation of the effort—that is, the level of sustained, focused attention—required to self-regulate toward the desired outcome. This aspect of monitoring captures the perceived costs produced by self-regulation.

Furthermore, as also illustrated in Figure 1, although evaluations of effort and progress are independent, the motivated effort-allocation model proposes that they are integrated by a weighting of the benefits of the perceived progress achieved through self-regulation by the costs of the perceived effort required to sustain this progress. This integration produces an overall evaluation of the *worth* of maintaining current levels of self-regulation, such that as the perceived progress produced by self-regulation becomes relatively small or the perceived effort becomes relatively large, then the overall worth of continued regulation will rapidly diminish.

Two additional aspects of these evaluations of worth that occur during monitoring processes should be noted. First, the motivated effort-allocation model proposes that such evaluations result in specific phenomenological experiences of mental fatigue (i.e., feeling exhausted or "drained"); as the judged worth of continuing self-regulation diminishes, experiences of mental fatigue grow (see also Kurzban et al., 2013). This distinguishes experiences of fatigue from experiences of effort: Whereas perceptions of effort are proposed to arise from the direct experiences associated with sustaining focused attention during self-regulation, perceptions of fatigue are proposed to arise from the accumulated effects of this effort on the judged worth of continued regulation (see also Hockey, 2013). Second, the motivated effort-allocation model also proposes that, over time, the judged worth of continued regulation inherently decreases and mental fatigue increases (e.g., Kool & Botvinick, 2014; Kool et al., 2010; Wascher et al., 2014). That is, as effort toward self-regulation continues, it should be perceived as increasingly more costly (see also Inzlicht et al., 2014; Kurzban et al., 2013), fatigue should accumulate, and judgments of the worth of self-regulation should decrease. Thus, overall, the monitoring stage of the motivated effort-allocation model captures how online evaluations of momentary fluctuations in the experiences of engaging in self-regulation, as well as how these experiences progress over time, dynamically signal whether regulation is producing desirable effects.

Reassessment and Reallocation

The final component of the motivated effort-allocation model is that the judgments of worth emerging from the monitoring of ongoing self-regulation provide additional motivational influences on whether to engage or disengage in this regulation. That is, these judgments spur a cyclical reassessment of motivations to continue regulation. As Figure 1 illustrates, the experience of fatigue produced by the judged worth of the progress achieved relative to the effort invested creates motivational signals that may alter the perceived ability for and value of continued self-regulation, updating motivations to continue regulation (see also Hockey, 2013; Kurzban et al., 2013). If judged worth is high and fatigue is low, perceptions of ability and value for continued self-regulation should also generally remain high and motivate sustained regulation as opposed to conserving effort for the future. However, if judged worth is low and fatigue is high, perceptions of either ability for or the value of continued regulation, or both, should decrease and motivations to continue self-regulation rather than conserve effort should diminish.

In summary, the motivated effort-allocation model explains self-regulation in terms of the motivated commitment of effort and attention toward valued goals people expect to be able to effectively pursue. When monitoring of ongoing self-regulation leads to perceptions of diminishing worth for such regulation and experiences of fatigue arise, motivations to sustain such regulation should dissipate. Furthermore, because the perceived costs of effort and experiences of fatigue during self-regulation accumulate over time, after ceasing regulation toward one objective, motivations to pursue regulation on subsequent tasks may still be impaired. Such impairment can thus explain not only failures to sustain self-regulation toward current goals but also carryover effects of exerting regulation in one domain to subsequent self-regulation failures in another (see also Kool & Botvinick, 2014, Kurzban et al., 2013; Inzlicht et al., 2014).

Advantages of the Motivated Effort-Allocation Model Over the Identity-Value Model

On the whole, we believe our motivated effort-allocation model has several advantages over the identity-value model. First, in contrast to the identity-value model, the motivation effort-allocation model generates clear and testable hypotheses concerning when people will be more or less likely to sustain self-regulation, and it does so by evaluating only two essential components: (a) people's perceptions of how likely it is that engaging in self-regulation will be both effective in producing a desired outcome and something that can they reasonably expect to accomplish, and (b) their subsequent evaluations of both the effort required and the progress produced by this regulation. Moreover, our model does not sacrifice the ability to integrate a wide variety of motivational influences or operate from a person-centered and dynamic perspective, which are the primary strengths of the identity-value model. For

example, according to the motivated effort-allocation model, whether someone successfully exerts self-regulation by choosing an apple over chocolate cake for health reasons or by choosing chocolate cake over an apple for social support reasons, this person would be expected to (a) experience this regulation as being relatively less effortful and see it as achieving progress toward the desired outcome, which would then (b) sustain their expectations that they could perform this regulation and that it would continue to be effective for accomplishing their desired outcome. Similarly, a student who does not exert further self-regulation after five hours of studying for an exam would be expected to (a) have begun to experience this regulation as more effortful and resulting in less progress toward increasing their understanding of the material, leading to (b) reduced expectations that they would be able to sustain further regulation and reduced perceptions that this would be particularly effective at further improving their exam performance as compared to when they first began studying. But, it is important to note, in all of these cases, if the continuation or cessation of self-regulation were not accompanied by these additional experiences and perceptions predicted by the model, this would provide clear evidence against it.

Another advantage of the motivated effort-allocation model is that beyond incorporating a wide variety of motivational processes, this model also can predict and explain the effects of other types of variables such as perceived efficacy for accomplishing particular types of goals (e.g., Chow, Hui, & Lau, 2015), experiences of engagement while pursuing these goals (e.g., Hong & Lee, 2008; Moller et al., 2006; Muraven et al., 2008), or the expected consequences of these goals for future attempts at regulation (Job et al., 2015; Job et al., 2010; Martijn et al., 2002) for example. Furthermore, this model can predict and explain the effects of all of these types of variables in terms of how they directly alter people's assessed motivations for engaging in self-regulation, their monitoring of the experience of regulation, or both (for more detailed discussion of all of these possibilities, see Molden et al., 2016, in press). That is, it can incorporate factors that primarily affect people's motivational assessments of how much effort to allocate to self-regulation (e.g., various intrinsic or extrinsic incentives; e.g., Muraven & Slessareva, 2003), factors that primarily affect people's experiences of ongoing self-regulation (e.g., variations in mood or relaxation; e.g., Friese et al., 2012; Tice et al., 2007), and factors that may influence both (e.g., perceptions of autonomy that can both boost motivation through increased engagement and improve experiences of goal pursuit through increased feelings of vitality; see Martela et al., 2016). Thus, although many direct empirical tests of the various components of the motivated effort-allocation model are still needed, we believe that it has the potential to provide a more comprehensive account of self-regulation than the other alternative models currently available (for an extended discussion, see Molden et al., 2016).

Summary and Conclusions

Throughout this commentary, we have argued that contemporary approaches to understanding self-regulation, and why it so often fails, must continue to expand beyond notions of a limited capacity for regulation and instead examine the motivations and experiences that sustain or hinder ongoing regulation. Although we applaud the efforts of the identity-value model to take up this challenge and acknowledge the strengths of some aspects of the model, we also believe that it in many ways falls short of providing a substantial contribution beyond existing approaches. Our main concerns center on (a) the lack of theoretical or empirical justification for proclaiming that people's self-identities are an all-encompassing source of motivations for self-regulation, (b) the lack of specificity concerning the mechanisms by which people assign subjective value to the wide variety of influences potentially contributing to these act of regulation, and (c) the lack of attention given to how people might monitor and update their motivations for continuing self-regulation based on their dynamic perceptions of and experiences with this regulation.

Therefore, as an alternative to the identity-value model, we offer our own motivated effort-allocation model that attempts to articulate specific and testable mechanisms for determining how people assess their motivations for self-regulation, how they monitor their experiences of engaging in self-regulation, and how they reassess their motivations for self-regulation in light of these experiences. We hope that this motivated effort-allocation model might help in further conceptualizing the role of self-identities in improving self-regulation and in the development of more effective approaches for defining and studying the subjective value for self-regulation these identities might create.

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