Decentering and Related Constructs: A Critical Review and Metacognitive Processes Model

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Abstract

The capacity to shift experiential perspective—from *within* one's subjective experience *onto* that experience—is fundamental to being human. Scholars have long theorized that this metacognitive capacity—which we refer to as *decentering*—may play an important role in mental health. To help illuminate this mental phenomenon and its links to mental health, we critically examine decentering-related constructs and their respective literatures (e.g., self-distanced perspective, cognitive distancing, cognitive defusion). First, we introduce a novel metacognitive processes model of decentering. Specifically, we propose that, to varying degrees, decentering-related constructs reflect a common mental phenomenon subserved by three interrelated metacognitive processes: meta-awareness, disidentification from internal experience, and reduced reactivity to thought content. Second, we examine extant research linking decentering-related constructs and their underlying metacognitive processes to mental health. We conclude by proposing future directions for research that transcends decentering-related constructs in an effort to advance the field's understanding of this facet of human experience and its role in (mal)adaptation.

People can be both actors engrossed in the unfolding story of their minds' experience of the world as well as third-person observers of that subjective experience. Indeed, the capacity to shift experiential perspective—from within one's subjective experience onto that experience—is fundamental to being human. Scholars have long believed that the process of "stepping out" from one's experience and looking upon it is important to mental health (James, 1890/1950). Accordingly, the field is permeated with various ostensibly distinct constructs

that, we argue in this article, reflect this common mental phenomenon to varying degrees. In alphabetical order, these constructs include the following: *cognitive defusion* (or deliteralization; Hayes, Strosahl, & Wilson, 1999, 2012), *cognitive distancing* (Beck, Rush, Shaw, & Emery, 1979; Ingram & Hollon, 1986), *decentering* (Safran & Segal, 1990), *detached mindfulness* (Wells, 2005), *meta-cognitive awareness* (Teasdale et al., 2002), *metacognitive mode* (Wells, 2000), *mindfulness* (e.g., Bishop et al., 2004), *reperceiving* (Shapiro, Carlson, Astin, & Freedman, 2006), *self-as-context* (Grieger, 1985; Hayes, Strosahl, & Wilson, 1999, 2012), and *self-distanced perspective* (Kross, Ayduk, & Mischel, 2005). Throughout the article, we use the term *decentering* to refer to the common mental phenomenon that we argue transcends these related constructs. We chose this term specifically because we believe that the theoretical conceptualization of the construct of decentering, reviewed later, most comprehensively captures the common mental processes that we believe cut across all related constructs. Accordingly, to refer collectively to these constructs, we use the term *decentering-related constructs*.

The overarching objective of the present article is to examine outstanding questions regarding the nature of decentering-related constructs and the mental phenomena that they represent. These questions include the following: What metacognitive processes subserve the mental phenomenon of decentering? Do these metacognitive processes help advance understanding of the overlap and differences among decentering-related constructs? To what degree and through what plausible mechanisms might the mental phenomenon of decentering and its metacognitive processes relate to mental health?

To examine these questions, we organize the article as follows. First, we propose a novel *metacognitive processes model of decentering*. Second, we describe each decentering-related construct and then relate each construct to the proposed metacognitive processes model. In turn, we review empirical evidence linking each construct to the metacognitive processes model and to mental health. Finally, we highlight future directions for the psychological science of decentering-related constructs.

A Metacognitive Processes Model of Decentering

We propose a model describing three interrelated psychological processes that, together, constitute the mental phenomenon of decentering (see Figure 1). This meta-cognitive processes model of decentering entails three interrelated processes: *meta-awareness, disidentification from internal experience*, and *reduced reactivity to thought content*. We believe that this model may help integrate decentering-related constructs by elucidating the core processes that transcend, and potentially differentiate between, these constructs. Next, we describe each metacognitive process and then describe their relations.

Meta-awareness

Meta-awareness is awareness of subjective experience (or the explicit awareness of the contents of consciousness; Schooler, 2002; Smallwood & Schooler, 2015). Meta-awareness can also be conceptualized as awareness of present moment experience as a process—that is, an awareness of the processes occurring in consciousness (e.g., thinking, feeling, sensing; Blackledge, 2007; Carmody, 2009; Hayes et al., 2012; Segal, Williams, & Teasdale, 2013).

Accordingly, this "meta-" level of awareness is distinguished from awareness of the *contents* of thoughts (i.e., metal representations) without concurrent meta-awareness of the thinking *process*—or similarly, awareness of the objects producing sense impressions with no meta-awareness of the sense impressions themselves (Hölzel et al., 2011; Schooler, 2002; Vago & Silbersweig, 2012). For example, a person may be aware of the contents of a self-judgmental thought (e.g., "I am worthless"), or a person may be meta-aware of the thinking processes within which that self-judgmental thought occurs (e.g., "I am thinking a self-critical thought"). Similarly, a person may be aware of the conceptual representation of an external object (e.g., "Computer screen in front of me"), or a person may be meta-aware of the subjective experiences produced by perceiving this object (e.g., awareness of sense impressions, of emotional reactions, and of engaging in reading or thinking).

Disidentification from internal experience

Disidentification from internal experience is the experience of internal states as separate from one's self. This experiential disidentification contrasts with the human tendency to identify with subjective experience and, therein, to experience internal states such as thoughts, emotions, and sensations as integral parts of the self (Gusnard, 2005; Jordan, 2003). For example, when a person is identified with his or her experience of fear, he or she may verbally relate to it by noting "I am afraid." However, when disidentified from fear, he or she may relate to it by simply noting "a feeling of fear." Disidentification from internal experience is thus linked to experiencing sensations, emotions, and thoughts from a third-person perspective (Esslen, Metzler, Pascual-Marqui, & Jancke, 2008; Kross et al., 2005; Tagini & Raffone, 2010). This process does not refer to conceptual forms of dis-identification (e.g., "I am generally not a happy person"), which are forms of narrative self-referential processing (i.e., thinking about the self across time; Dor-Ziderman, Berkovich-Ohana, Glicksohn, & Goldstein, 2013; Esslen et al., 2008; Farb et al., 2007; Gallagher, 2000; Tagini & Raffone, 2010; Vago & Silbersweig, 2012).

Reduced Reactivity to Thought Content

Reduced reactivity to thought content is the reduced effects of thought content on other mental processes (e.g., attention, emotion, cognitive elaboration, motivation, motor planning). For example, the thought "Oh no, he doesn't like me" during a social interaction will not necessarily engender anxiety or postevent rumination or avoidance of the social situation that may be expected to follow from elevated reactivity to this type of self-critical thought content. As another example, the thought "I am fat" may not trigger self-focus on one's body or self- critical thought and feelings of guilt or shame.

Interrelations Among the Three Metacognitive Processes

We propose that these three psychological processes, together, constitute the mental phenomenon of decentering. Thus, understanding the interrelations among three metacognitive processes is important to the model. First, we propose that disidentification from internal experience and reduced reactivity to thought content are initiated by meta-awareness (see Figure 1). Specifically, we propose that meta-awareness engenders disidentification from internal experience because the act of observing subjective experience

creates a distinction (i.e., disidentification) between the observing self or consciousness and the observed subjective experience (Deikman, 1982; Goleman, 1980; Hölzel et al., 2011; Shapiro et al., 2006). Moreover, we theorize that meta-awareness engenders reduced reactivity to thought content by directing attention to present moment experiences rather than thought content and its related mental representations (Hayes, Strosahl, & Wilson, 1999, 2012; Segal et al., 2013; Teasdale, Segal, & Williams, 1995). In addition, when meta-awareness is directed toward the process of thinking, thought content may be construed as interpretations of present/past/future situations and experiences and, therefore, not necessarily as accurate representations of these situations and experiences (Hayes, Strosahl, & Wilson, 1999, 2012; Safran & Segal, 1990). When construed in this way, thought content is no longer treated as fact or as a binding rule; therefore, its impact on other mental processes such as motivation, motor planning, and emotion is reduced (Hayes, Strosahl, & Wilson, 1999, 2012; Teasdale et al., 2002).

Second, we also theorize that disidentification from internal experience and reduced reactivity to thought content likely affect one another (see Figure 1). For example, reduced reactivity to negative thought content (e.g., "He is so annoying") may not only reduce emotional reactivity to that thought content (e.g., anger) but may also reduce identification with those emotions (e.g., "a feeling of anger" instead of "I am angry"). Moreover, disidentification from thoughts may lead to construals of thoughts as less significant to one's self (e.g., "this is just a thought" instead of "I think that . . .") and thereby reduce a person's reactivity to his or her content (Shapiro et al., 2006; Teasdale et al., 2002).

Finally, we theorize that disidentification from internal experience and reduced reactivity to thought content reinforce meta-awareness (see Figure 1). Disidentification from internal experience creates an experiential distinction between the observing self and (aversive) subjective experience. We theorize that this distinction promotes tolerance of aversive internal experience, thereby facilitating the capacity to maintain meta-awareness of these states (Beck et al., 1979; Hayes et al, 2012; Shapiro et al., 2006). Moreover, we theorize that while engaging in negative evaluative thoughts of an experience (e.g., "It's dangerous to feel anxious"), reduced reactivity to thought content may also promote the capacity to maintain meta-awareness of this experience by reducing the reactive tendency to orient attention away from it (Ehlers & Steil, 1995; Grabovac, Lau, & Willett, 2011; Starr & Moulds, 2006; Williams & Moulds, 2008).

Decentering-Related Constructs: Conceptual and Empirical Links to the Metacognitive Processes Model and Mental Health

In this section, we review conceptual definitions and empirical evidence linking each decentering-related construct, first, to our proposed metacognitive processes model and, second, to mental health.[1] We organized this section by reviewing the decentering-related constructs in order of their relevance to the proposed metacognitive processes model,

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[1]To select empirical studies relevant to the constructs and proposed metacognitive processes, we reviewed the literature using search terms that we theorized reflect the phenomenon of interest. Using PsycINFO (items published between January 1840 and May 2013), MEDLINE (items published between 1966 and May 2013), and Google Scholar, we searched databases, abstracts, and article titles

beginning with the constructs that most comprehensively reflect all three proposed metacognitive processes. In Table 1, we provide a summary of the decentering-related constructs with respect to the proposed metacognitive processes. In Table 2, we provide a summary of the means by which these constructs have been operationalized/ measured to date.

Decentering and metacognitive awareness

Conceptualization—The construct of decentering is conceptualized as the ability to "step outside of one's immediate experience, thereby changing the very nature of that experience" (Safran & Segal, 1990, p. 117). Similarly, meta-cognitive awareness is conceptualized as a metacognitive monitoring process that enables one to decenter from thoughts and, thereby, to view thoughts as events in the mind rather than reflections of external reality or of one's self (Segal, Williams, & Teasdale, 2002, 2013). Indeed, Teasdale et al. (2002) referred to "the process of experiencing negative thoughts and feelings within a decentered perspective as metacognitive awareness" (p. 276).

We reason that the constructs of decentering and meta-cognitive awareness reflect all three of the proposed meta-cognitive processes: meta-awareness, disidentification from internal experience, and reduced reactivity to thought content. First, decentering and metacognitive awareness by definition entail observation of subjective experience, as we conceptualize meta-awareness. Second, decentering and metacognitive awareness are conceptualized as stepping outside of one's immediate experience; hence, they also reflect disidentification from internal experience. Third, decentering and metacognitive awareness entail reduced reactivity to thought content particularly in so far as "experienced and interpreted through such a decentered cognitive set . . . negative thoughts and feelings will have different cognitive, emotional, and behavioral consequences than if they are experienced and interpreted as 'me' or 'reality'" (Teasdale et al., 2002, p. 276).

Empirical links to the metacognitive processes model—Two self-report instruments were developed to operationalize and measure decentering: the Decentering subscale of the Experiences Questionnaire (EQ; Fresco, Moore, et al., 2007) and the Decentering sub-scale of the Toronto Mindfulness Scale (TMS; Lau et al., 2006). With respect to our metacognitive processes model,[2] these measures reflect disidentification from internal experience. Several items in both measures also reflect meta-awareness. Furthermore, no items in the EQ clearly reflect reduced reactivity to thought content, and only one item in the Decentering subscale of the TMS reflects this process (Item 4; Lau et

containing the following search terms, in alphabetical order: cognitive defusion, cognitive defusion, cognitive fusion, cognitive distance/cognitive-distance, decentering/de-centering/decentring/de-centring, deliteralization, metaconsciousness, detached mindfulness, disidentification, fly on the wall, meta-cognitive awareness/metacognitive awareness, meta-awareness/meta awareness/metaawareness, metacognitive mode/meta-cognitive mode, psychologic* distanc*, reflective processing, reperceiv*/re-perceiv*, self distancing/self-distancing/self distanced analysis, self-distanced perspective/self distanced perspective, self-immersed perspective/self immersed perspective, and self as context/self-as-context. The search yielded approximately 1,874 article hits. Of these articles, 88 were retained as a function of their relevance to the description of the decentering-related constructs, following review of the title, abstract, and body of the articles.
[2]To link the empirical literature on each of the decentering-related constructs to our metacognitive processes model, we first highlight how measurements of these constructs are associated to each of the metacognitive processes in our model. This is important in so far as it helps to interpret the relevance of extant findings not only with respect to the construct broadly but with respect to the specific measured metacognitive process(es) more specifically.

al., 2006). Accordingly, we conceptualize the Decentering sub-scales of the EQ and TMS as primarily measures of the more specific decentering-related process of disidentification from internal experience. Metacognitive awareness has been measured by the Measure of Awareness and Coping in Autobiographical Memory (MACAM; Moore, Hayhurst, & Teasdale, 1996). A semistructured interview, the MACAM was designed to measure metacognitive awareness of autobiographical memories elicited by depression-related cues. High levels of meta-cognitive awareness are reflected by verbal descriptions of recalled memories "in which negative thoughts and feelings are seen as passing mental events rather than as aspects of self" (Teasdale et al., 2002, p. 277). Thus, much like the Decentering subscales of the EQ and TMS, the MACAM also seems to primarily measure dis-identification from internal experience as conceptualized in our metacognitive processes model.

Various controlled and uncontrolled studies have examined the effects of mindfulness on decentering-related dis-identification from internal experience assessed with the EQ, TMS, and MACAM. As meta-awareness is an integral component of mindfulness (Carmody, 2009; Holas & Jankowski, 2013; Jankowski & Holas, 2014; Vago & Silbersweig, 2012), these mindfulness-decentering studies are well-suited to begin to test the relations we theorize between meta-awareness and disidentification from internal experience, as hypothesized in our proposed metacognitive processes model of decentering. In several trials of mindfulness-based manipulations and interventions, disidentification from internal experience as measured by the EQ, TMS, and MACAM increased from pre- to posttreatment (Bieling et al., 2012; Carmody, Baer, Lykins, & Olendzki, 2009; Lau et al., 2006), and this increase was significantly greater relative to control conditions (Feldman, Greeson, & Senville, 2010; Gayner et al., 2012; Hargus, Crane, Barnhofer, & Williams, 2010; Hoge et al., 2014; Orzech, Shapiro, Brown, & McKay, 2009; Tanay, Lotan, & Bernstein, 2012; Teasdale et al., 2002). Furthermore, in two of these studies, elevations in dispositional and state mindfulness during mindfulness interventions were related to elevation in disidentification from internal experience as measured by the EQ (Carmody et al., 2009; Tanay et al., 2012). Therefore, mindfulness-decentering/metacognitive-awareness studies support the idea that meta-awareness may indeed engender disidentification, as hypothesized in our proposed metacognitive processes model.

Empirical links to mental health—Several controlled and uncontrolled studies have examined the role of decentering-related disidentification from internal experience in mental health and well-being. First, studies found that disidentification from internal experience as measured by the EQ and MACAM was associated with anxiety and depression symptoms (McCracken, Gutiérrez- Martínez, & Smyth, 2012; Teasdale et al., 2002). Second, in trials of mindfulness-based interventions conducted among various populations, disidentification from internal experience as measured by the EQ, TMS, and MACAM mediated treatment gains. For example, changes in dis-identification from internal experience were related to reduced levels of anxiety and depressive symptoms (Bieling et al., 2012; Gayner et al., 2012; Lau et al., 2006; Teasdale et al., 2002), reduced avoidance, increased positive affect (Gayner et al., 2012), and other mental-health-related treatment outcomes (Fresco, Segal, Buis, & Kennedy, 2007; Hoge et al., 2014; Lau et al., 2006; Orzech et al, 2009; Tanay et al., 2012).

In total, this body of studies supports the idea that disidentification from internal experience is associated with various facets of mental health and mediates the effects of mindfulness-based interventions or meta-awareness on these outcomes.

Cognitive distancing

Conceptualization—Distancing of one's self from one's thoughts is conceptualized as central to adaptively reflecting on and engaging with or disputing dysfunctional cognitions (Beck et al., 1979). We reason that the construct of cognitive distancing reflects all three of the proposed metacognitive processes: meta-awareness, disidentification from internal experience, and reduced reactivity to thought content. First, distancing of one's self from one's thoughts reflects a process of disidentification from thoughts. Second, Beck et al. (1979) theorized that cognitive distancing facilitates the capacity to observe thoughts as psychological events and, thereby, to engage with these events in a more adaptive manner. Thus, in terms of our metacognitive processes model, cognitive distancing from thoughts also reflects meta-awareness of these thoughts. Third, Ingram and Hollon (1986) conceptualized cognitive distancing as a "switch process" into a metacognitive mode, which permits a person to engage with maladaptive cognitions while also getting out of an automatic mode in which such maladaptive cognitions go unmonitored and lead to maladaptive behavior. This metacognitive mode that reduces the effects of maladaptive cognitions on behavior is similar to reduced reactivity to thought content. Therefore, we argue that, conceptually, cognitive distancing reflects all three processes of our metacognitive processes model of decentering; although, unlike decentering, cognitive distancing reflects the activation of these processes in reference to thoughts but not necessarily to other internal states.

Empirical links to the metacognitive processes model and mental health—Despite the foundational role of cognitive distancing in multiple related literatures, and the extensive theoretical attention it received, we are not aware of direct empirical study of cognitive distancing beyond the large body of research on Beck et al.'s (1979) cognitive therapy. In this large cognitive therapy literature, cognitive distancing—in addition to a variety of other cognitive-behavioral phenomena—is targeted therapeutically (Butler, Chapman, Forman, & Beck, 2006). Accordingly, it is not possible to make specific inferences about cognitive distancing per se or our metacognitive processes model from these therapy studies.

Metacognitive mode and detached mindfulness

Conceptualization—The concept of metacognitive mode (Wells, 2000) was introduced within the self- regulatory executive function model of emotional disorders (Wells & Matthews, 1994, 1996). Metacognitive mode is conceptualized as a mental state in which "thoughts can be consciously observed as separate events from the self and the world . . . individual's relationship to thoughts is one of standing back and observing them as part of a greater multifaceted landscape of conscious experience" (Wells, 2011, p. 8). An inverse mode—*object mode*—is theorized to be maladaptive and is characterized by fusion of thoughts or beliefs with the direct experience of the self or the world (Wells, 2000).

First, in terms of our metacognitive processes model, metacognitive mode entails meta-awareness and disidentification from internal experience. Furthermore, meta-cognitive mode is also conceptualized as a state in which an individual can refer to his or her thoughts, appraisals, and beliefs "as events that should be evaluated and not merely accepted as depictions of reality" (Wells, 2000, p. 27). This conceptualization reflects reduced reactivity to thought content—specifically, reduced believability of thought content and the resulting reduced effect of thought content on emotion and behavior. Furthermore, metacognitive mode is conceptualized to enable detached mindfulness, described as "an objective awareness of a thought or belief . . . the disengagement of any conceptual or coping based activity in response to the thought and . . . separating the conscious experience of self from the thought" (Wells, 2011, p. 8). Accordingly, we reasoned that the constructs of metacognitive mode and detached mindfulness may reflect all three of the proposed metacognitive processes included in our model—although, like cognitive distancing, it reflects the activation of these processes in reference to thoughts but not necessarily to other internal states.

Empirical links to the metacognitive processes model and mental health—We are not aware of direct empirical study of metacognitive mode or detached mindfulness beyond the body of research on metacognitive therapy, wherein metacognitive mode in addition to a variety of other cognitive-behavioral phenomena are targeted therapeutically (Wells, 2011). Accordingly, it is not possible to make specific inferences about metacognitive mode or detached mindfulness per se or our metacognitive processes model from these therapy studies.

Reperceiving

Conceptualization—Reperceiving is defined as the ability to "disidentify from the contents of consciousness (i.e., one's thoughts) and view moment-by-moment experience with greater clarity and objectivity" (Shapiro et al., 2006, p. 377). Reperceiving is conceptualized to permit a person to "dis-identify from thoughts, emotions, and body sensations as they arise, and simply be with them" (Shapiro et al., 2006, p. 378). Accordingly, with respect to our metacognitive processes model, we understand reperceiving to entail both the processes of meta-awareness and disidentification from internal experience but not necessarily reduced reactivity to thought content.

Empirical links to the metacognitive processes model and mental health—In two studies reviewed earlier, researchers used the EQ—a measure of decentering—to measure reperceiving in mindfulness-based interventions (Carmody et al., 2009; Orzech et al., 2009). We are not aware of any other empirical studies on reperceiving.

Mindfulness

Conceptualization—The concept and practice of mindfulness originated in the Buddhist tradition and reflects a number of Buddhist and secular meditative practices and related states of awareness (Analayo, 2003; Thanissaro, 1996). It is largely agreed among scholars that mindfulness is characterized by present moment attention and awareness (Analayo, 2003; Bishop et al., 2004; Kabat-Zinn, 1990; Segal et al., 2013; Shapiro et al., 2006;

Thanissaro, 1996). With respect to our metacognitive processes model of decentering, meta-awareness is considered an integral component of mindfulness (Carmody, 2009; Holas & Jankowski, 2013; Jankowski & Holas, 2014; Vago & Silbersweig, 2012). Other scholars have proposed that mindfulness incorporates decentering (Lau et al., 2006). However, we argue that defining mindfulness in this way confounds mindfulness with one of its proximal mechanisms of action, decentering (e.g., Tanay & Bernstein, 2013). Thus, with respect to our metacognitive processes model, mindfulness entails the process of meta-awareness, and although it may engender disidentification from internal experience and reduced reactivity to thought content, it is not one and the same with these metacognitive processes.

Empirical links to the metacognitive processes model—The empirical literature on mindfulness is far too expansive to be reviewed here (for recent reviews, see Chiesa, Calati, & Serretti, 2011; Hölzel et al., 2011; Keng, Smoski, & Robins, 2011). Accordingly, we chose to more selectively review investigations linking mindfulness to decentering-related constructs. These findings provide evidence linking mindfulness practice and decentering-related constructs and, therein, support our hypothesized relations between meta-awareness and disidentification from internal experience (i.e., mindfulness and decentering/ metacognitive awareness reviewed earlier) as well as with reduced reactivity to thought content (i.e., mindfulness and cognitive defusion reviewed later).

Empirical links to mental health—Similarly, the empirical literature on the effects of mindfulness on mental health is far too expansive to be reviewed here. In a recent meta-analysis, Hofmann, Sawyer, Witt, and Oh (2010) documented that mindfulness-based interventions are moderately effective for improving anxiety and mood symptoms. Notably, among patients with anxiety and mood disorders, these effects are large in magnitude (Hofmann et al., 2010). These effects provide support for theorizing that mindfulness, and therein meta-awareness, contributes to mental health.

Cognitive defusion

Conceptualization—Cognitive (de)fusion is rooted in relational frame theory (Hayes, Barnes-Holmes, & Roche, 2002) and acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999, 2012). Cognitive fusion is a process that strengthens the automatic effects of verbal thought content on behavior (Hayes et al., 2012). Conversely, cognitive defusion is a process that reduces the automatic effects of verbal thought content on behavior "such that other sources of behavioral regulation can better participate in the moment" (Hayes et al., 2012, p. 245). Accordingly, cognitive defusion has been described as the process that enables a person to "to see thoughts and feelings for what they are (i.e., a verbally entangled process of minding) rather than what they advertise themselves to be (e.g., the world understood, structured reality)" (Hayes, Strosahl, & Wilson, 1999, p. 150). Thus, viewed through our metacognitive processes model of decentering, the construct of cognitive defusion reflects reduced reactivity to thought content (cf. cognitive fusion reflects increased reactivity to thought content). Specifically, cognitive defusion reflects the reduced effects of verbal thought content on behavior and on mental processes influencing the activation of behavior.

Empirical links to the metacognitive processes model—Two self-report measures of cognitive (de) fusion are particularly relevant to our metacognitive processes model: the Drexel Defusion Scale (DDS; Forman et al., 2012) and the Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014; see Table 2 for additional measures of [de]fusion). The DDS is used to measure defusion, which is defined as "the ability to achieve psychological distance from internal experiences such as thoughts and feelings" (Forman et al., 2012, p. 55). Accordingly, with respect to our metacognitive processes model, DDS item content reflects meta-awareness and disidentification from internal experience and, to a lesser degree, reduced reactivity to thought content. The CFQ has been designed to measure cognitive fusion, defined as "the tendency for behavior to be overly regulated and influenced by cognition" (Gillanders et al., 2014, p. 84). With respect to our metacognitive processes model, CFQ item content reflects reduced/increased reactivity to thought content but not meta-awareness or disidentification from internal experience.

In one controlled study, reviewed earlier with respect to decentering, Tanay et al. (2012) examined the effects of mindfulness on cognitive-(de)fusion-related reactivity to thought content. Tanay et al. reported that relative to a no-intervention control condition, participants who received a mindfulness intervention demonstrated elevations in dispositional and state mindfulness that were related to reductions in cognitive fusion as measured by the CFQ. Consistent with our metacognitive processes model, these preliminary findings indicate that meta-awareness may elicit reduced reactivity to thought content.

Empirical links to mental health—Studies of cognitive (de)fusion include those that have measured the construct and those that have experimentally targeted it without measuring it. We first review the former set of studies. First, cognitive defusion as measured by the DDS was correlated with levels of psychopathology symptoms, quality of life (Forman et al., 2012), and other mental-health-related variables (Bond et al., 2011; Fresco, Moore, et al., 2007). Second, cognitive (de) fusion—as measured by the DDS, CFQ, and other measures—mediated treatment gains of ACT, cognitive therapy, and mindfulness interventions. For example, gains in cognitive defusion were related to improved psychological functioning (Forman et al., 2012); reduced levels of depression-related dysfunctional attitudes, anxiety sensitivity, and negative affect (Tanay et al., 2012); and other mental-health-related treatment gains (Hesser, Westin, Hayes, & Andersson, 2009; Zettle, Rains, & Hayes, 2011).

In a second set of studies, cognitive defusion was targeted experimentally or therapeutically with ACT defusion techniques, and its effects were inferred vis-à-vis change in theoretically relevant outcomes. In one of these techniques, the word repeating technique (WRT), a person is asked to quickly and repeatedly say a distress-evoking and emotionally relevant word over and over until he or she experiences that verbal statement as only a series of sounds void of meaning, and thereby its automatic effect on behavior is reduced (Bassett & Warne, 1919; Hayes, Strosahl, & Wilson, 1999, 2012). WRT is thus designed to induce reduced reactivity to thought content. Compared with various active control conditions, the WRT significantly reduced discomfort and believability ratings of negative self-referential thoughts (De Young, Lavender, Washington, Looby, & Anderson, 2010; Masuda, Twohig, et al., 2010; see also Masuda, Feinstein, Wendell, & Sheehan, 2010; Masuda, Hayes, Sackett,

& Twohig, 2004) as well as obsessive-compulsive-disorder-related negative responses to contamination-related thoughts (Watson, Burley, & Purdon, 2010). Furthermore, several experimental studies have demonstrated superior outcomes of ACT defusion techniques, relative to other cognitive control strategies (e.g., distraction, expressive suppression), with respect to pain believability and coping with experimentally induced pain (Gutiérrez, Luciano, Rodríguez, & Fink, 2004; Hayes, Bissett, et al., 1999; Healy et al., 2008; McMullen et al., 2008; Páez-Blarrina, Luciano, Gutiérrez-Martínez, Valdivia, Ortega, & Rodríguez-Valverde, 2008; Páez-Blarrina, Luciano, Gutiérrez-Martínez, Valdivia, Rodríguez-Valverde, & Ortega, 2008).

In total, this body of findings demonstrates the role of cognitive (de)fusion in mental health; in addition, this work suggests that defusion may, in part, mediate the effects of several types of interventions on these outcomes. In so far as the measurements and manipulations of cognitive defusion represent the metacognitive processes of meta-awareness and disidentification from internal experience (via the DDS), as well as reduced reactivity to thought content (via the CFQ and WRT), these studies provide additional evidence of the association between our metacognitive processes and mental health.

Self-as-context

Conceptualization—The construct of self-as-object was introduced in early rational emotive behavior therapy, in which the self is conceptualized as an abstraction that a person develops composed of his or her "attributes, capacities, objects and activities" (Coopersmith, 1967, p. 20). Building on this understanding of the self, an inverse construct called self-as-context was defined as a perspective in which "the self is held as the background, the context or backdrop, out of which what the person has or does emerge" (Grieger, 1985, p. 84). Hayes and Wilson (1994) referred to self-as-context as a therapeutic target of ACT and conceptualized it as a perspective that enables a person to "separate thoughts, emotions, and other private events from the person having them" (p. 294). With respect to our metacognitive processes model of decentering, self-as-context reflects disidentification from internal experience (the contents of consciousness), but it is also characterized by a concomitant identification with consciousness or awareness itself (Hayes et al., 2012).

Empirical links to the metacognitive processes model—In one study, Foody, Barnes-Holmes, Barnes-Holmes, and Luciano (2013) investigated the effects of experimental manipulations of self-as-context on reactivity to negative self-referential thought content. They study used two self-as-context manipulations inducing meta-awareness and disidentification from internal experience. One of these manipulations, referred to as *hierarchical self-as-context*, also elicited a construal of self as hierarchically above experience ("imagine yourself so big that you have room for all of these thoughts and feelings"; Foody et al., 2013, p. 378). Following both self-as-context manipulations, participants exhibited reduced believability in negative self-referential thought content as well as reduced efforts to distract themselves from these thoughts (Foody et al., 2013). Only participants in the hierarchical self-as-context condition showed reduced self-rated stress in reaction to these thoughts (Foody et al., 2013). Consistent with our metacognitive processes

model, these preliminary findings indicate that meta-awareness and disidentification from internal experience may, together, elicit reduced reactivity to thought content.

Empirical links to mental health—In one study, among adolescents with high impulsivity or emotional symptoms, only the hierarchical self-as-context manipulation led to reduced problematic behaviors and psychological inflexibility as well as elevated acceptance of experience without judgment (Luciano et al., 2011). These preliminary findings indicate that self-as-context may be linked to variables associated with mental health.

Self-distanced perspective

Conceptualization—Self-distanced perspective is grounded in social and cognitive psychology theories, including construal level theory and psychological distance (Liberman & Trope, 2008; Trope & Liberman, 2010). It is theorized that what distinguishes the degree to which self-reflection on negative events is adaptive or maladaptive is the degree to which that reflection is characterized by a self-distanced, rather than self-immersed, perspective (Kross & Ayduk, 2009; Kross et al., 2005). In a *self-immersed perspective*, a person focuses primarily on recounting the concrete details (cf. abstract recalling) of his or her past experience (i.e., adopting a "what" perspective; Mischel, Shoda, & Rodriguez, 1989; Trope & Liberman, 2003). In contrast, from a self-distanced perspective, a person takes "a step back when thinking about past experiences and reasons about them from the perspective of a distanced observer, akin to a fly on the wall" (i.e., adopting a "why" analytic perspective; Kross & Ayduk, 2011, p. 187). Thus, with respect to our meta-cognitive processes model, self-distanced perspective reflects disidentification from internal experience. Notably, self-distanced perspective does not reflect meta-awareness in so far as it entails reflection focused on thought content concerning past events and not toward one's current subjective experience.

Empirical links to the metacognitive processes model—Studies of self-distanced and self-immersed perspectives have focused on laboratory-based experimental manipulation of these putative psychological phenomena. Several of these studies have explored the effects of self-distanced perspective while thinking about past negative experiences. These studies have used a paradigm wherein participants are asked to recall an intense negative experience (e.g., an event involving sadness or anger) and then are cued to analyze the event from either a self-immersed or a self-distanced perspective (Kross, 2009). Findings show that relative to a self-immersed perspective, adopting a self-distanced perspective while analyzing negative autobiographical memories causes reduced emotional reactivity when analyzing these memories (Kross & Ayduk, 2009; Kross, Duckworth, Ayduk, Tsukayama, & Mischel, 2011). Furthermore, depressed participants who analyzed their feeling from a self-distanced perspective, relative to a self-immersed perspective, demonstrated lower levels of depressive thought accessibility and negative affect (Kross, Gard, Deldin, Clifton, & Ayduk, 2012). Moreover, recalling an experience of anger from a self-distanced perspective, relative to a self-immersed perspective, was associated with lower cognitive accessibility of anger-related thoughts (Ayduk & Kross, 2010), reduced blood pressure reactivity (total peripheral resistance), faster recovery (Ayduk & Kross, 2008, 2010), as well as reduced levels of cortisol (see also Denson, Fabiansson, Creswell, &

Pedersen, 2009). Thus, with respect to our metacognitive processes model, these findings indicate that dis-identification from internal experience induces reduced reactivity to thought content. Specifically, these findings show that disidentification from internal experience while thinking about past negative past events may be linked to reduced cognitive, emotional, and physiological reactivity to these thoughts.

Empirical links to mental health—A well-developed experimental program of research has explored self- distanced perspective and its implications for psychological vulnerability and mental health (Ayduk & Kross, 2010; Kross & Ayduk, 2008, 2009; Kross et al., 2005). Findings show that relative to a self-immersed perspective, a self-distanced perspective is associated with lower levels of distress broadly (Kross & Ayduk, 2008, 2009; Kross et al., 2005). It is also associated, among various populations, with less recounting of and more reconstrual of one's experience (Kross et al., 2012), which lead to lower levels of depressed affect (Kross & Ayduk, 2008) and reduced blame of others involved in the event, which, in turn, lead to lesser emotional reactivity (Kross et al., 2011). Other research has focused on spontaneous self-distancing rather than on an experimentally manipulated self-distanced perspective. These findings suggest that when reflecting on negative experiences, greater self-reported levels of spontaneous self-distancing were related to lower levels of rumination and distress (Ayduk & Kross, 2010).

Finally, neuroimaging studies have shown that fostering a self-distanced perspective toward negative autobiographical memories is correlated with reduced activity in a network of the cortical midline region that, in other work, is linked to psychopathology including depression (Greicius et al., 2007; Kross, Davidson, Weber, & Ochsner, 2009; Mayberg, 2003; Whitfield-Gabrieli & Ford, 2012). In patient subgroups, activation of these cortical midline circuits coincides with (a) inordinate negative self-referencing (e.g., rumination), (b) an inability to switch from this default mode network so as to engage task-positive networks, as well as (c) deficits in attention-demanding tasks and working memory capacity (e.g., Brewer et al., 2011; Whitfield-Gabrieli & Ford, 2012). A self-immersed perspective was correlated with activity in the medial prefrontal cortex (PFC) associated with self-referential processing as well as subgenual anterior cingulated cortex associated with emotion dysregulation (Kross et al., 2009). Thus, this body of findings supports the idea that disidentification from internal experience, as reflected by self-distanced perspective, is linked to mental health.

Summary of conceptual definitions and empirical findings

We reached a number of key conclusions about the conceptual (see Table 1) and empirical links among each decentering-related construct, the proposed metacognitive processes model, and mental health outcomes. First, five of the decentering-related constructs— decentering, metacognitive awareness, cognitive distancing, metacognitive mode, and detached mindfulness—are characterized by all three proposed metacognitive processes. Second, reperceiving is characterized by two of the meta-cognitive processes: meta-awareness and disidentification from internal experience. Third, cognitive defusion (Hayes et al., 2012) is characterized by reduced reactivity to thought content; however, measures used to study the construct reflect reduced reactivity (CFQ; Gillanders et al., 2014) as well

as meta-awareness and disidentification from internal experience (DDS; Forman et al., 2012). Fourth, self-as-context and self-distanced perspective are each characterized only by disidentification from internal experience. Finally, mindfulness is characterized only by meta-awareness. From this perspective, our metacognitive processes model helps clarify both theoretical similarities and differences among decentering-related constructs.

Furthermore, as reviewed in detail earlier, a growing body of research supports various elements of the proposed metacognitive processes model of decentering. First, cutting across many of these literatures, numerous findings support the hypothesis that meta-awareness elicits disidentification with internal experience as well as reduced reactivity to thought content. Furthermore, a growing body of findings support the hypothesis that dis-identification from internal experience elicits reduced reactivity to thought content. Finally, again cutting across the reviewed literatures, numerous findings support the hypothesis that the three proposed metacognitive processes contribute to mental health.

The review also highlights the variability in the scope and experimental rigor of research on decentering-related constructs. Indeed, although some constructs have been the focus of a developed experimental program of research (e.g., self-distanced perspective), others have received limited empirical study (e.g., cognitive distancing). The constructs that have been most extensively and rigorously tested, in no evaluative order, include the following: decentering/metacognitive awareness, mindfulness, cognitive (de)fusion, and self-distanced perspective. First, decentering/metacognitive awareness has been the subject of scale construction (e.g., Fresco, Moore, et al., 2007), semistructured interview (Moore et al., 1996), initial validation studies (e.g., Orzech et al., 2009), as well as controlled intervention studies (Bieling et al., 2012; Fresco, Segal, et al., 2007). Second, mindfulness has been the subject of extensive scale construction (Bergomi, Tschacher, & Kupper, 2013; Park, Reilly-Spong, & Gross, 2013; Sauer et al., 2013), laboratory studies (e.g., Feldman et al., 2010), as well as controlled intervention studies (Hofmann et al., 2010). Third, cognitive (de)fusion has been the focus of scale construction (e.g., Forman et al., 2012; Gillanders et al., 2014), extensive laboratory study (Masuda, Twohig, et al., 2010), and initial intervention study (Zettle et al., 2011). Fourth, self-distanced perspective has been the subject of extensive laboratory study (e.g., Kross et al., 2011), observational cross-sectional and initial prospective study (Kross & Ayduk, 2009), as well as experimental study of its neural correlates (Kross et al., 2009), although it has not been the subject of measurement construction or intervention research. In contrast, the constructs of cognitive distancing, metacognitive mode/detached mindfulness, reperceiving, and self-as-context have not been the subject of the same degree of empirical study.

Future Directions

We organized the gaps in extant knowledge and corresponding future research of decentering and its related constructs in three domains: (a) conceptual and operational definitions, (b) neurobiological bases, and (c) relations and mechanisms of action.

Conceptual and operational definitions

Conceptual and empirical integration of constructs—On the basis of the present review, we conclude that research designed to transcend or cut across decentering-related constructs by elucidating their core metacognitive processes may be key to advancing this area of psychological science. In this spirit, we proposed three interrelated metacognitive processes of decentering-related constructs: meta-awareness, dis-identification from internal experience, and reduced reactivity to thought content (see Figure 1). We believe that focus on this common set of metacognitive processes will help illuminate the mental phenomenon of interest and its links to mental health.

Measurement of the constructs and component processes—Systematic research on the operational definition and measurement of decentering-related constructs, and their component processes, is needed. To date, efforts have been largely limited to self-report measurement (see Table 2 for details) and inference of change in a construct (e.g., self-distancing, cognitive defusion) as a function of an experimental manipulation intended to target that construct. Laboratory-based behavioral measurement is lacking. Such measurement methods are important to move the field beyond reliance on self-report measures and toward biobehavioral or performance-based indices of decentering. Moreover, we believe that measurement development should be more systematically focused on the theorized metacognitive processes that subserve the phenomenon (i.e., meta-awareness, disidentification from internal experience, and reduced reactivity to thought content).

Trait or state—Some scholars have conceptualized decentering and related constructs largely as traits (Forman et al., 2012; Fresco, Moore, et al., 2007; Gillanders et al., 2014; Moore et al., 1996), whereas other scholars have related to them as states (Kross et al., 2005; Lau et al., 2006; Masuda, Twohig, et al., 2010). In the proposed metacognitive processes model of decentering, we primarily conceptualize the processes subserving these constructs as mental states. However, we speculate that if activated repeatedly in time and across contexts, expression of these metacognitive processes may grow more stable or trait-like. Systematic study of these constructs as a states and traits/dispositions may have important implications for developing a better understanding of these constructs and their metacognitive processes.

Neurobiological bases

Neurocognitive processes—We propose that it may be useful to attempt to map the proposed metacognitive processes underlying decentering in terms of basic neurocognitive processes and, specifically, those subserving metacognitive processes (e.g., executive functions, cognitive control, attention, self-referential processing; for initial efforts to do so, see Kross & Ayduk, 2011). It may furthermore be useful to first map the specific neurocognitive processes in healthy persons and subsequently among persons expressing psychopathology or at-risk for psychopathology. This approach may help delineate patterns of dysfunction in the neurocognitive mechanism(s) underlying decentering that may help researchers to more precisely understand how this mental phenomenon and its component processes facilitate or impair adaptation.

Neural substrates—Neuroimaging study of the neural substrates of decentering, and specifically its component metacognitive processes, may be key to advancing understanding of this phenomenon. We therefore highlight human neuroscience that we believe is particularly relevant to this aim. First, growing numbers of neuroim-aging studies have focused on meta-awareness of mind wandering (Schooler, 2002; Smallwood & Schooler, 2006). Particularly relevant to our focus, in a recent self-caught experience sampling study conducted on meditation practitioners, Hasenkamp, Wilson-Mendenhall, Duncan, and Barsalou (2012) found that meta-awareness of mind wandering was linked to activity in the bilateral anterior insula and dorsal anterior cingulate cortex. These areas are associated with salience network brain regions (Seeley et al., 2007) that may be key to supporting meta-awareness. Furthermore, during mind wandering without meta-awareness, the posterior cingulate cortex, medial PFC, posterior parietal/temporal cortex, and parahippocampal gyrus of the default mode network were activated (Hasenkamp et al., 2012). A similar experience sampling study of mind wandering among nonmeditators showed that mind wandering with low levels of meta-awareness was also associated with greater activity in default mode regions and executive control regions associated with "off-task thinking," including the medial and lateral anterior PFC, dorsal anterior cingulate cortex, right dorsolateral PFC, posterior cingulate cortex, and precuneus (Christoff, Gordon, Smallwood, Smith, & Schooler, 2009). Some of these regions overlap with brain areas implicated in self-referential processing (i.e., the process of associating exteroceptive, interoceptive, and mental stimuli with one's own self; Northoff et al., 2006). We propose that this brain circuitry may subserve not only the lack of meta-awareness but also identification with internal experience. Specifically, we propose that identification with internal experience is characterized by neural associations of internal experience with the self and is thus linked to activation in default mode network/cortical midline structures subserving self-referential processing (Northoff & Bermpohl, 2004; Northoff et al., 2006).

Farb et al. (2007) explored the neural substrate of two modes of self-awareness, which they termed *experiential-focus* and *narrative-focus*, in the context of a mindfulness-based intervention. They defined experiential-focus as a present-centered, mindful mode that is closely related to the metacognitive process of meta-awareness in our model. In contrast, they defined narrative-focus as the default mode of mind characterized by "cognitive elaboration of mental events, thereby reducing attention toward other temporally proximal sensory objects" (Farb et al., 2007, p. 314). First, experiential focus was associated with increased activation of a lateralized network (ventral and dorsolateral PFC, right insula, secondary somatosensory area, and inferior parietal lobule)—a network that might therefore subserve meta-awareness. Second, experiential focus was associated with reduced activation of cortical midline regions in the medial PFC associated with self-referential processing. Accordingly, we suggest that this pattern of activation might be linked to disidentification from internal experience. Third, functional connectivity analyses revealed coupling between the right insula and the ventromedial PFC during experiential focus in meditation novices, which was decoupled in the mindfulness intervention group (Farb et al., 2007). We propose that this decoupling between ventromedial PFC regions supporting cognitive-affective representations of the self and the right insula supporting viscerasomatic signals (Farb et al., 2007) may be linked to disidentification from internal experience—specifically, bodily

sensations. The authors explained that the patterns of activation during experiential focus in the mindfulness intervention group support a more self-detached and objective analysis of interoceptive and exteroceptive sensory events, rather than their affective or subjective self-referential value. Furthermore, they proposed that this detached or objective mode of self-focus may be aided by the recruitment of the right angular gyrus of the inferior parietal lobule, which is involved in switching between first- and third-person perspectives (Farb et al., 2007). In so far as a third-person perspective on internal experience is key to disidentification from internal experience, the right angular gyrus might also be important to this metacognitive process of decentering.

Kross et al. (2009) have begun to elucidate the neural mechanisms associated with adopting a self-distanced perspective on distressing memories. Relative to a self-immersed perspective, when participants were prompted to think about feelings elicited by a distressing memory from a self-distanced perspective, they evidenced less activation of cortical midline structures associated with self-referential processing (i.e., medial PFC, posterior cingulate, and precuneus; Northoff et al., 2006) and regions subserving emotion (dys)regulation more broadly (i.e., subgenual cingulate cortex; Kross et al., 2009; Ressler & Mayberg, 2007). Together, these findings are consistent with the aforementioned findings regarding default mode network/cortical midline structures and point to their role as a neural substrate of identification with negative feelings and memories. Moreover, regulating emotional responses to erotic video clips by adopting a self-distanced perspective (i.e., distance yourself from these stimuli, become a detached observer) was associated with less amygdala activity relative to a passive attending condition (Beauregard, Levesque, & Bourgouin, 2001). Findings from both of these studies suggest that self-distanced perspective is also linked to reduced activation in neural regions associated with emotional reactivity (i.e., subgenual cingulate cortex and amygdala). Thus, decreased activation in these and related neural areas in response to manipulation of thought content may be an important neural substrate of reduced (emotional) reactivity to thought content—a metacognitive process that we propose is key to decentering. Taken together, these studies may represent the first steps toward identifying the neural correlates of the metacognitive processes of decentering.

Relations and mechanisms of action

Psychological distance—A well-established experimental literature has evaluated the phenomenon of temporal and spatial psychological distance (Liberman & Trope, 2008). Yet, of the reviewed constructs here, only the self-distancing literature is directly linked to this body of scholarship (Kross et al., 2005). Theorizing and empirical methods of psychological distance and of its impact on cognitive processes (e.g., abstract vs. concrete thought), grounded in construal level theory (Trope & Liberman, 2010), may be particularly important to understanding decentering and its proposed component meta-cognitive processes. Accordingly, we speculate that psychological distance might be particularly relevant to the process of disidentification from internal experience. Indeed, disidentification from internal experience entails adopting a third-person perspective in reference to internal experience and the creation of mental distance between internal experience and the self.

Cognitive reappraisal and related processes—Given that decentering is purported to serve an emotion regulatory function, it may be important to consider whether and how it is qualitatively different from or related to other known emotion-regulation strategies (e.g., cognitive reappraisal; Gross, 1998). Of particular importance, future work may evaluate whether decentering may be necessary for, or facilitate, reappraisal and reinterpretation of one's experience. In terms of the proposed meta-cognitive processes model of decentering, this might be a consequence of reduced reactivity to the initial appraisal of the situation, enabling the formation of a different reappraisal of the situation. Another possibility is that dis-identification from internal experience may—in and of itself, without subsequent reappraisal or interpretation—facilitate a different "primary" appraisal or interpretation of one's experience (Safran & Segal, 1990).

Self-awareness—Relations between decentering and knowledge about one's self may represent an important understudied area of inquiry. Morin (2011) has characterized self-awareness as a "complex multidimensional phenomenon that comprises various self-domains and corollaries" (p. 808). From this perspective, various constructs—such as meta-awareness, theory of mind, autobiographical memories, and prospection about one's future—are linked to or subsumed by self-awareness. Accordingly, we speculate that decentering, and specifically meta-awareness, could contribute to the development of self-knowledge or self-awareness. Future work may begin to bridge these theoretical traditions and literatures as well as begin to more directly test their relations.

Mental health mechanisms—We lack knowledge of the mechanism(s) through which decentering may contribute to risk and resilience of various forms of suffering such as mood and anxiety psychopathology. The proposed meta-cognitive processes model may help inform such work. Multiple, mutually inclusive mechanisms may be explored, including the following: (1) meta-awareness may lead to (a) greater awareness of how internal events act as setting events for (un)wanted behaviors or subjective states and (b) greater emotional differentiation and clarity; (2) dis-identification from internal experience may lead to (a) greater tolerance of distress and negative emotions as well as (b) reduced self-referential thought; and (3) reduced reactivity to thought content may lead to (a) reduced automaticity and greater behavioral choice as well as (b) improved emotional recovery following distress.

Psychological intervention process—Limited research has evaluated the degree to which decentering and its component processes may account for therapeutic change across a range of psychological interventions. Extant research is largely circumscribed to mindfulness-based interventions. Nevertheless, researchers have purported that several intervention approaches therapeutically function vis-à-vis decentering and related constructs (e.g., Beck et al., 1979; Hayes, Strosahl, & Wilson, 1999, 2012; Teasdale et al., 2002; Wells, 2000). We theorize that, whether explicitly intended or not, the metacognitive processes of decentering may in part mediate the psychotherapeutic effects of a large number of interventions. Systematic study of this possibility may be particularly promising.

Disorder specificity or transdiagnosticity—Limited research has evaluated the degree to which impairment(s) in decentering and its metacognitive processes may be (a)

conceptualized as a transdiagnostic factor relevant to psychopathology broadly or (b) more specifically relevant to certain conditions such as mood disorders. Such research is clinically important. Study of the role(s) of low levels of the metacognitive processes of decentering with respect to the development and maintenance of prevalent mental disorders, and their multimorbidity, may be particularly promising. This knowledge is important to guide prevention and intervention efforts in which decentering is targeted (Zvolensky, Schmidt, Bernstein, & Keough, 2006).

Context and flexibility—There has been very little study of the contextual factors that may moderate the degree to which decentering and its metacognitive processes are (mal)adaptive (e.g., Aldao, 2013). One possibility is that decentering is functionally adaptive in a universal manner. That is, across various internal (e.g., thoughts) and external (e.g., situations) contexts, decentering and its metacognitive processes may be functionally adaptive. Alternatively, we theorize that it may be more likely its adaptive function may depend on the capacity to flexibly engage, in a context-sensitive manner, in meta-awareness, disidentification from internal experience, and reduced reactivity to thought content. For example, it may be the case that in the instance of fight–flight responding to a threatening event, decentering may be maladaptive, whereas upon recall and reflection on such an event, decentering may be adaptive. As another example, in the context of a "positive" thought (e.g., creative idea), reduced reactivity to thought content may be maladaptive, whereas meta-awareness of that "positive" thought may be adaptive. These are largely open empirical questions (Aldao & Nolen-Hoeksema, 2012; Sheppes, Scheibe, Suri, & Gross, 2011). Furthermore, this type of contextualized understanding of decentering may be clinically relevant as well. Decentering may be paradoxically maladaptive in the context of exposure therapies and efforts to activate emotional engagement and thereby promote extinction learning (e.g., Foa & Kozak, 1986). However, developing the capacity to decenter outside of the exposure exercises themselves may be key to the efficacy of such interventions.

Development—Few empirical studies have focused on the developmental process and acquisition of decentering or its metacognitive processes. Seminal cognitive development theory referred to the emergence of a metacognitive experiential shift somewhat similar to that suggested in the decentering-related literatures (Inhelder & Piaget, 1958). Hayes, Strosahl, and Wilson (1999, 2012) discussed the development of cognitive fusion and self-as-context during language development from the perspective of relational frame theory. Empirical developmental research, however, is lacking. Development of various forms of social cognition may be particularly important for the development of decentering and its metacognitive processes. Such work may consider the developmental role of perspective taking, empathy, or mentalization (e.g., Fonagy, Gergely, Jurist, & Target, 2002) for better understanding the development of decentering.

Summary

In this article, we argue that, to varying degrees, decentering-related constructs reflect a common mental phenomenon. We characterize this phenomenon through a novel metacognitive processes model of decentering. In this model, we delineate three metacognitive processes—meta-awareness, disidentification from internal experience, and

reduced reactivity to thought content—that help to transcend and differentiate among these constructs. We critically review the theoretical and empirical literature of decentering-related constructs, and we link each construct to the proposed metacognitive processes model and to mental health. On the basis of the proposed metacognitive processes model, we propose future directions for research on the conceptual and operational definitions of decentering, its neurobiological bases, and its relations to other constructs and mechanisms of action. We conclude that research designed to transcend decentering-related constructs by focusing on their core metacognitive processes may be key to advancing understanding of this facet of human experience and its role in (mal)adaptation.

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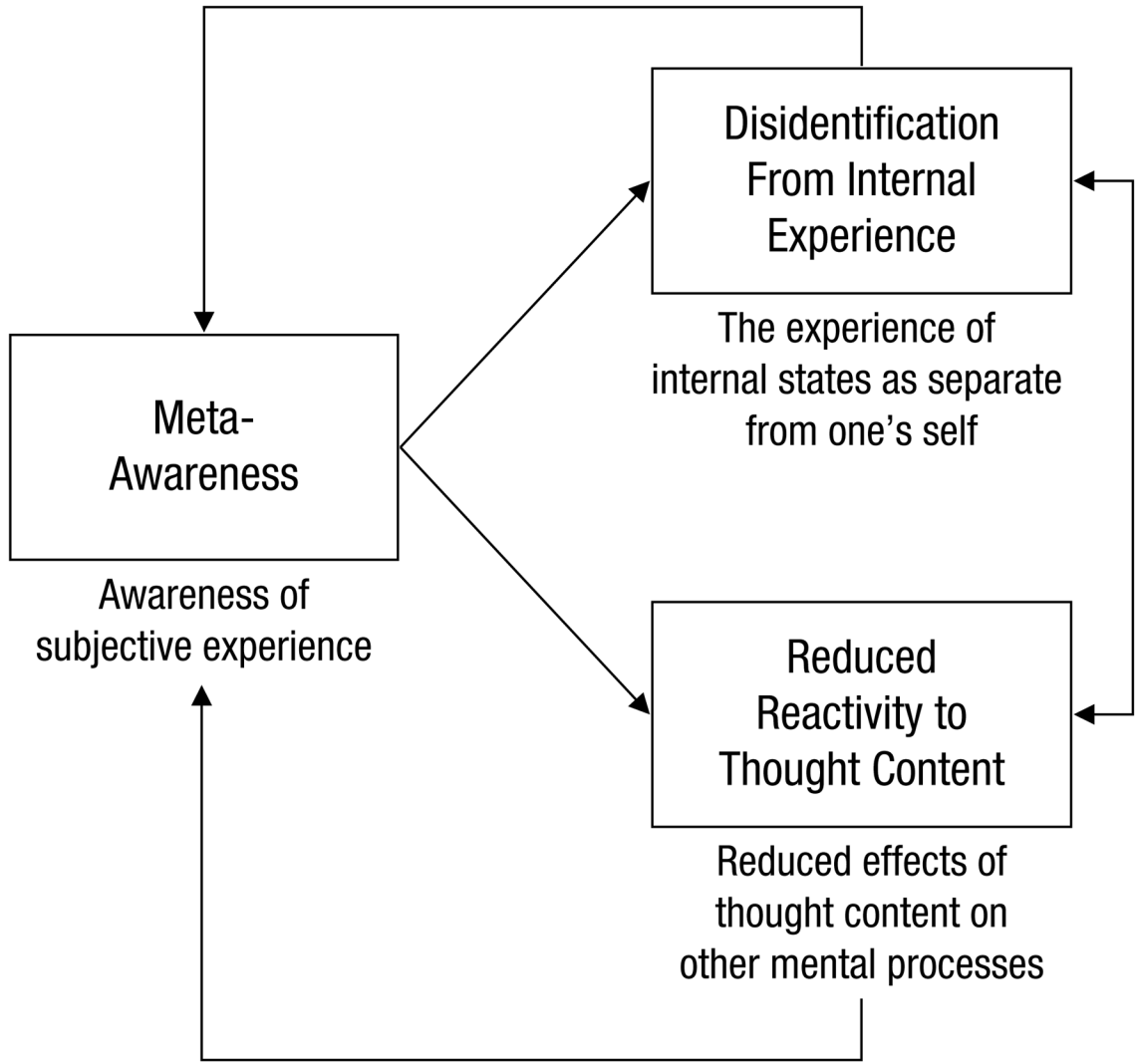
Fig. 1.
The metacognitive processes model of decentering. Meta-awareness initiates disidentification from internal experience and reduced reactivity to thought content, which, in turn, affect one another and reinforce meta-awareness.

Table 1

Decentering-Related Constructs and the Proposed Metacognitive Processes of Decentering

	Metacognitive processes		
Decentering-related constructs	**Meta-awareness**	**Disidentification from internal experience**	**Reduced reactivity to thought content**
Decentering (Safran & Segal, 1990)	x	x	x
Metacognitive awareness (Teasdale et al., 2002)	x	x	x
Cognitive distancing (Beck, Rush, Shaw, & Emery, 1979)	x	x	x
Metacognitive mode (Wells, 2000)	x	x	x
Detached mindfulness (Wells, 2005)	x	x	x
Reperceiving (Shapiro, Carlson, Astin, & Freedman, 2006)	x	x	
Mindfulness (Bishop et al., 2004)	x		
Cognitive defusion (Hayes, Strosahl, & Wilson, 1999)			x
Self-as-context (Hayes et al., 2012)		x	
Self-distanced perspective (Kross, Ayduk, & Mischel, 2005)		x	

Note: An "x" denotes that the decentering-related construct involves the particular metacognitive process from the proposed model.

Table 2

Measurements of Decentering-Related Constructs

Construct and measures	Descriptions	
Decentering	•	The ability to "step outside of one's immediate experience, thereby changing the very nature of that experience" (Safran & Segal, 1990, p. 117).
Experiences Questionnaire— Decentering subscale (EQ; Fresco, Moore, et al., 2007)	•	Measures trait-level capacity to take a metacognitively detached or observant perspective of one's thoughts and emotions (e.g., "I can separate myself from my thoughts and feelings"; "I view things from a wider perspective").
	•	Twenty-item, self-report scale; 11-item Decentering subscale.
	•	Seven-point, Likert-type scale (1 = *never*, 7 = *all the time*).
Toronto Mindfulness Scale—Decentering	•	A state measure of "awareness of one's experience with some distance and disidentification rather than being carried away by one's thoughts and feelings" (Lau et al., 2006, p. 1452; e.g., "I experienced myself as separate from my changing thoughts and feelings").
	•	Thirteen-item, self-report scale; seven-item Decentering subscale.
	•	Four-point, Likert-type scale (0 = *not at all*, 4 = *very much*).
Metacognitive awareness	•	A metacognitive monitoring process that enables one to decenter from thoughts and thereby view thoughts as events in the mind rather than reflections of external reality or of one's self (Segal, Williams, & Teasdale, 2002, 2013).
Measure of Awareness and Coping in Autobiographical Memory (MACAM; Moore, Hayhurst, & Teasdale, 1996)	•	Qualitative index of metacognitive awareness of autobiographical memories elicited by depressive cues that are based on a linguistic coding scheme.
	•	Participants are given eight tape-recorded descriptions of mildly depressing scenarios, recorded in a flat depressing tone of voice, and are instructed "to put themselves into the situations and to feel the feeling described" (Teasdale et al., 2002, p. 277).
	•	Participants describe their first (autobiographical) memory elicited by the vignette and their original response to the recalled memory.
	•	The interviewer/rater codes the metacognitive awareness shown at the time of the original event using a scale of 1–5 according to a coding manual.
Metacognitive Awareness Questionnaire (MAQ; Teasdale et al., 2001)	•	Measures metacognitive awareness to thoughts and feelings when sad or depressed (e.g., "When I get low, my feelings show things in their true light"; "I can't trust my judgments about myself when I feel down").
	•	Nine-item, self-report scale.
	•	Seven-point, Likert-type scale (1 = *totally agree*, 7 = *totally disagree*).
Cognitive distancing	•	A "switch process" into a metacognitive mode that permits a person to engage with maladaptive cognitions, and out of an automatic mode in which such maladaptive cognitions go unmonitored and lead to maladaptive behavior (Ingram & Hollon, 1986).
	•	To the best of our knowledge, no self-report measure of cognitive distancing as a general psychological or therapeutic process has been developed.

Construct and measures	Descriptions	
Beck Cognitive Insight Scale (BCIS; Beck, Baruch, Balter, Steer, & Warman, 2004)	•	On the basis of a conceptual model of insight in psychoticism characterized by "distancing, objectivity, perspective, and self-correction" (Beck et al., 2004, p. 319).
	•	Two subscales: Self-Reflectiveness and Self-Certainty of the Interpretations of Subjective Experiences.
	•	Fifteen-item, self-report scale.
	•	Four-point, Likert-type scale (0 = *do not agree at all*, 3 = *agree completely*).
Metacognitive mode and detached mindfulness[a]	•	Metacognitive mode is a psychological state in which "thoughts can be consciously observed as separate events from the self and the world . . . individual's relationship to thoughts is one of standing back and observing them as part of a greater multifaceted landscape of conscious experience" (Wells, 2011, p. 8). Detached mindfulness is "an objective awareness of a thought or belief . . . the disengagement of any conceptual or coping based activity in response to the thought and . . . separating the conscious experience of self from the thought" (Wells, 2011, p. 8).
	•	To the best of our knowledge, no comprehensive self-report measure of metacognitive mode has been developed.
The Self-Reflection and Insight Scale (SRIS; Grant, Franklin, & Langford, 2002)	•	Measures detached mindfulness or inspection; evaluation; and understanding of one's own thoughts, feelings, and behaviors.
	•	On the basis of the Private Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975).
	•	Two subscales: the Self-Reflection and Insight subscales.
	•	Twenty-item, self-report measure.
	•	Six-point, Likert-type scale (1 = *strongly disagree*, 6 = *strongly agree*).
Cognitive (de)fusion	•	Psychological process that enables "one to see thoughts and feelings for what they are (i.e., a verbally entangled process of minding) rather than what they advertise themselves to be (e.g., the world understood; structured reality)" (Hayes, Strosahl, & Wilson, 1999, p. 150).
Drexel Defusion Scale (DDS; Forman et al., 2012)	•	Measures ability to achieve psychological distance from 10 unpleasant internal experiences (e.g.,
	•	"Imagine you are having a thought such as 'no one likes me'"; "Imagine that you lose out on something you really wanted").
	•	Ten-item, self-report scale.
	•	Six-point, Likert-type scale (0 = *not at all*, 5 = *very much*).
Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014)	•	Measures cognitive fusion defined as "the tendency for behavior to be overly regulated and influenced by cognition" (Gillanders et al., 2014, p. 84; e.g., "I struggle with my thoughts"; "My thoughts cause me distress or emotional pain").
	•	Seven-item, self-report scale.
	•	Seven-point, Likert-type scale (1 = *never*, 7 = *all the time*).
Automatic Thoughts Questionnaire—Believability Scale (ATQ-B; Zettle & Hayes, 1986)	•	Measures frequency and degree of believability of negative thoughts associated with depression (e.g., "I feel like I'm up against the world"; "I'm a failure").
	•	Grounded in theorizing that degree of believability in one's negative cognitions reflects fusion.
	•	Thirty-item, self-report scale.

Construct and measures	Descriptions	
	•	Five-point, Likert-type scale (1 = *not at all*, 5 = *all the time*).
Acceptance and Defusion Process Measure (ADPM; Hesser, Westin, Hayes, & Andersson, 2009)	•	Qualitative index of acceptance and defusion that is based on a system of coding verbal statements made by patients over the course of acceptance and commitment therapy.
	•	A *defusion behavior* is defined as a verbal statement wherein the participant/client notices, labels, and separates his or her self from a private experience (e.g., a thought, feeling).
	•	Defusion behaviors are rated on a 5-point scale.
	•	ADPM is circumscribed to the measurement of fusion within the context of acceptance and commitment therapy.
Psychological Inflexibility in Pain Scale—Cognitive Fusion subscale (PIPS; Wicksell, Renöfält, Olsson, Bond, & Melin, 2008)	•	Measures psychological flexibility, including cognitive fusion, specifically related to pain (e.g., "It is important to understand what causes my pain"; "I need to understand what is wrong in order to move on").
	•	Sixteen-item, self-report scale; six-item Cognitive Fusion subscale.
	•	Seven-point, Likert-type scale (1 = *never true*, 7 = *always true*).

Note: The scientific literature on measurements of mindfulness is too expansive to be reviewed in this article (for comprehensive reviews, refer to Bergomi et al., 2013; Park et al., 2013; Sauer et al., 2013). To the best of our knowledge, no measures have been reported in the published literature with respect to self-distanced perspective, self-as-context, or reperceiving.

[a]In another effort to measure and study detached mindfulness, Sugiura (2004) attempted to operationalize detached mindfulness by proxy of a concept he introduced—detached objectivity—using the Receptiveness subscale of Sakairi's (2004) Scale of Meditation-Related Cognitive Styles. In addition, the Meta-Cognitions Questionnaire (MCQ; Cartwright-Hatton & Wells, 1997) may be related to metacognitive and object modes. However, the MCQ and MCQ–30 (Wells & Cartwright-Hatton, 2004) measure metacognitive beliefs, primarily about worry (e.g., positive beliefs about worry, beliefs about uncontrollability and danger), and not metacognitive or objective modes per se.