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The Importance of Regulatory Goal States for Autobiographical Memory: A reply to Levine and Rubin

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In their respective commentaries, Linda Levine and David Rubin raise important points for future research. Both commentaries relate to a theme that runs throughout our review (Holland & Kensinger, this issue): the importance of autobiographical memory for the self and vice-versa. Conway (2005) influentially argued that self-relevant goals are chronically active at memory encoding and retrieval; these goals lead to motivated memory processes that act partially in the interest of maintaining a coherent sense of self. The research presented by Levine points to the importance of examining a specific type of self-relevant goal—emotion regulation—on how the emotional details associated with autobiographical memories are initially encoded and later remembered. Although our review focused on the role of regulatory strategies during retrieval, prior research has demonstrated that the type of emotion regulation strategy employed at the time of encoding can differentially influence subsequent memory performance on laboratory tasks (e.g., Dillon et al., 2007; Richards & Gross, 2000). More specifically, cognitive reappraisal has been associated with improved free recall (Dillon et al., 2007) and recognition (Richards & Gross, 2000, Experiment 2) of negative picture stimuli, whereas emotional suppression has been associated with worse memory for such stimuli (Dillon et al., 2007; Richards & Gross, 1999, 2000, 2006). The role of regulatory processes on encoding is further supported by Levine's autobiographical memory studies, and these studies importantly reveal that not only can the type of emotion regulation strategy influence which stimuli are remembered (as in Dillon et al., 2007; Richards & Gross, 2000), it also can influence memory for experienced emotion.

A critical point for future research in this domain will be an examination of how individual differences in personality influence emotion regulation goals and strategies at encoding and therefore subsequent autobiographical memory for emotions. For example, it is easy to imagine how individual differences in extraversion and neuroticism might impact approach vs. avoidance motivation goals at encoding. These goals can in turn influence remembered happiness vs. anxiety as in the Lench and Levine (in press) study described by Levine (this issue). Likewise, it is plausible that personality differences guide the emotion regulation strategies employed at encoding and thereby influence subsequent memory for emotions. It is known that strategies like positive reappraisal interact with negative mood regulation personality traits at retrieval (Rusting & Dehart, 2000) and seems likely that the same could be true at encoding. It is also possible that the influence of emotion regulation strategies at encoding play a role in solidifying different personality traits. For instance, if individuals with approach motivations at encoding tend to subsequently remember greater levels of happiness (Levine, this issue), then possessing a database of more positive autobiographical experiences might lead those individuals to report higher levels of traits like self-esteem and extraversion.

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Levine notes that a tendency toward a positive bias in remembered emotions resulting from positive reappraisal “may contribute to reappraisers’ willingness to take on new challenges” (Levine, this issue, p. 2). This idea continues with the theme of the functionality of reconstruction of remembered emotions presented in Section 4.1.4 of our review (Holland & Kensinger, this issue) and in Levine’s earlier work (e.g., Levine, Safer & Lench, 2006). It also suggests that a failure to engage in positive reappraisal can be costly in terms of subjective well-being. A consistent tendency toward avoidance motivation at memory encoding that leads to an overestimation of remembered anxiety might play a role in the development of anxiety and other affective disorders. One example might be PTSD. As Rubin alludes to in his commentary, the reconstructive nature of past emotions, including those associated with a traumatic event, can be quite problematic from a diagnostic standpoint (see also Robinson & Clore, 2002). In addition to the time lapse between traumatic experience and PTSD diagnosis, the reported emotions associated with traumatic experience might be further influenced by the emotion regulation goals present during the encoding and retrieval of a traumatic event. Patients with PTSD experience deficits in emotion regulation and increases in experiential avoidance (similar to suppression) following a traumatic event (e.g., Plumb, Orsillo & Luterek, 2004); it has been suggested that these factors might also be vulnerabilities leading to the development of PTSD in the event of a traumatic experience (Ozer et al., 2003). Although a more extreme circumstance than the types of emotional experiences Levine and colleagues have studied, one can imagine that if avoidance goals are perpetually active at encoding in a subset of individuals who experience traumatic events, those individuals may later overestimate the amount of anxiety experienced when the event is retrieved. This greater attention to peak negative intensity at encoding and later overestimation of experienced negative affect and failure to engage in reappraisal strategies could increase the likelihood of a diagnosis of PTSD.

Levine discusses the potential importance of encoded and remembered peak emotional intensity of events. Rubin also discusses the potential role of experienced intensity in PTSD. A common point that can be drawn from both commentaries is the importance in teasing apart the physiological arousal associated with an event from the subjective evaluation of that arousal. Again, this evaluation may be linked to emotion regulation. As Rubin notes at the end of his commentary, different events can be equally highly arousing but subjectively evaluated as different emotional responses (e.g., fear vs. anger). An interesting point for future research will be to determine if there are dissociable effects of emotion regulation at encoding and/or retrieval on physiological arousal and on subjective intensity. It is possible that emotion regulation goals at encoding can lead the emotional details of events with similar levels of physiological arousal to be subjectively encoded and retrieved differently. Once again, these goals might have a reciprocal relationship with personality development and play a role in the development of affective disorders, including PTSD.

References

- Conway MA. Memory and the self, *Journal of Memory and Language*. 2005; 53:594–628.
- Dillon DG, Ritchey M, Johnson BD, LaBar KS. Dissociable effects of conscious emotion regulation strategies on explicit and implicit memory. *Emotion*. 2007; 7:354–365. [PubMed: 17516813]
- Levine, LJ.; Safer, MA.; Lench, HC. Remembering and misremembering emotions. In: Sanna, LJ.; Chang, EC., editors. *Judgments Over Time: The Interplay of Thoughts, Feelings, and Behaviors*. Oxford University Press; New York: 2006. p. 271-290.
- Ozer EJ, Best SR, Lipsey TL, Weiss DS. Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin*. 2003; 129:52–73. [PubMed: 12555794]
- Plumb JC, Orsillo SM, Luterek JA. A preliminary test of the role of experiential avoidance in post-event functioning. *Journal of Behavioral Therapy and Experimental Psychiatry*. 2004; 35:245–257.

- Richards JM, Gross JJ. Composure at any cost? The cognitive consequences of emotion suppression. *Personality and Social Psychology Bulletin*. 1999; 25:1033–1044.
- Richards JM, Gross JJ. Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology*. 2000; 79:410–424. [PubMed: 10981843]
- Richards JM, Gross JJ. Personality and emotional memory: How regulating emotion impairs memory for emotional events. *Journal of Research in Personality*. 2006; 40:631–651.
- Robinson MD, Clore GL. Belief and Feeling: Evidence for an accessibility model of emotional self-report. *Psychological Bulletin*. 2002; 128:934–960. [PubMed: 12405138]
- Rusting CL, DeHart T. Retrieving positive memories to regulate negative mood: Consequences for mood-congruent memory. *Journal of Personality and Social Psychology*. 2000; 78:737–752. [PubMed: 10794377]