

Imagination

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Introduction

There is little dispute that imagination, or the ability to produce internal perception-like representations from memory in the absence of corresponding sensory input, has been hugely advantageous for the human species: it provides the capacity to plan and prepare for the future (Bulley, Redshaw, and Suddendorf 2020), engage in problem-solving, decision-making and goal-setting (Suddendorf and Corballis 2007), support identity (Rathbone, Conway, and Moulin 2011), and serve social and communicative functions (Mahr and Csibra 2018; Mar and Oatley 2008), among other adaptive functions. Historically, however, less attention has been given to the way the adaptive functions of imagination (and its source memory) contribute to psychological wellbeing (though see van Mulukom and Clasen 2021). The articles under review here may be particularly informative in this regard.

Schacter, Daniel Lawrence. 2021. "The Seven Sins of Memory: An Update." *Memory*:1-6.
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While it has long been known that memory is prone to all kinds of errors, twenty years ago Schacter synthesized these memory errors and biases in an overview called "the seven sins of memory" (Schacter 1999; 2002). Key to this framework is the idea that these "sins" demonstrated important contributions to the adaptive functioning of memory. Underlying this proposal is the idea that memory is a constructive rather than reproductive system: By

not storing memory details as inflexible parts of structured events, memories can be used to flexibly generate novel, imagined future or counterfactual events; important adaptive processes. In this article, Schacter updates his framework with experimental research of the past twenty years, discussing the forgetting (transience, absent-mindedness, and blocking), distortion (misattribution, suggestibility, and bias), as well as persistence (intrusive remembering) that takes place in memory.

Gamble, Beau, Lynette Tippett, David Moreau, and Donna Rose Addis. 2021. "The Futures We Want: How Goal-Directed Imagination Relates to Mental Health." *Clinical Psychological Science* 9 (4): 732-51. doi:10.1177/2167702620986096.

A fundamental part of psychological well-being is setting and pursuing personal goals through, for example, associations of positive affect and purpose in life; and dysfunctions in goal-setting and pursuit are associated with lower psychological well-being, including depression and depressive symptoms. Imagination plays a central role in successful goal-setting and pursuit through planning and preparing, the imagination and visualization of required steps and ultimate goal attainment, and the contextualization of the goals within one's life. In their study, Gamble et al. assess goal-directed imagination and its links to mental health in detail, examining goal process variables (including attainability, sense of control, expected difficulty, and resulting emotion in achieving one's goals) and imagination variables (such as valence, clarity, vividness, and detail, and their correlations).

Montijn, Nicole, Lotte Gerritsen, and Iris Engelhard. 2021. "Forgetting the Future: Emotion Improves Memory for Imagined Future Events in Healthy Individuals but Not Individuals With Anxiety." *Psychological Science* 32 (4): 587-97. doi:10.1177/0956797620972491.

In order for imagination to continuously successfully support goal maintenance and updating (see Gamble, Tippett, and Addis 2021), memories of these imaginings need to be retained accurately. Their memorability is affected by emotionality: Emotional events tend to be remembered better than neutral events. Moreover, negative affect fades faster than positive affect in healthy individuals (i.e., fading-affect bias). Montijn et al. investigate the link

between memories of imagined future events in individuals with anxiety, who tend to view the future in an overly negative way. They find, as expected, that individuals with low anxiety remember emotional imagined future events better than neutral ones. Individuals with high anxiety on the other hand did not show an enhanced recall effect for emotional events, regardless of valence, and demonstrated less memory specificity. This lack of emotional facilitation of memory suggests that the adaptive value of future thinking may be lower for individuals with anxiety, by negatively affecting the motivational power of imagined future events (to approach or avoid) and hence effective goal maintenance and updating.

Rahman, Nadia, and Adam Brown. 2021. "Mental Time Travel in Posttraumatic Stress Disorder: Current Gaps and Future Directions." *Frontiers in Psychology* 12:534. doi: 10.3389/fpsyg.2021.624707.

The reduced specificity of memories is not only a feature of anxiety disorder (see Montijn, Gerritsen, and Engelhard 2021), but also of post-traumatic stress disorder (PTSD), which is associated with overgeneral memory. It appears, however, that, contrary to individuals with anxiety, individuals with PTSD are better able to recall (voluntary and involuntary) emotional memories, in particular stressful memories. This is associated with the greater centrality of traumatic experiences to self-identity, whereas their nontraumatic memories show reduced continuity between past self and present self. Greater self-continuity is associated with reduced impulsivity and positive health outcomes—possibly through a continuous self-narrative supporting goal maintenance. This research indicates that as a result of alterations in mental time travel—whether recalling past memories or imagining future events—self-identity may be one of the core affected areas in PTSD, rendering it a potentially important area of focus for therapeutic interventions, in particular those targeting self-narrative.

Conclusions

Imagination has a range of adaptive functions. The evolutionary science of imagination has traditionally focused on what these functions may be and how they might work, with less attention to effects on psychological wellbeing. The recent research presented here suggests that disruptions of imagination, or the ability to represent people, places, and objects from memory in the absence of present sensory input, are associated with concomitant disruptions

in the adaptive functions of imagination—an effect which is associated with poorer psychological health and psychological disorders. Understanding this connection can not only shed light on our understanding of the adaptive functions of imagination and memory but also support therapeutic interventions.

Works Cited

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