

# Neuroscience Hacks to Enhance Learning Agility in Leaders

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### **Abstract**

To help organizations find and nurture leaders to be prepared for the complexity and multiplicity of challenges, Lombardo and Eichinger (2000) developed the framework characterized as learning agility. Their research, along with other colleagues (De Meuse, 2022; De Meuse et al., 2011) have typically identified five dimensions (observable behaviors) to learning agility: mental agility, people agility, change agility, results agility, and self-awareness. Although in the early stages of research, there is a promising body of evidence showing learning agility as a significant predictor of identifying potential leaders, leader performance, and leader success (Burke & Smith, 2019; De Meuse, 2019). This article summarizes the current conceptualization of learning agility, provides a brief neuroscience lens, and identifies associated key brain structures involved in enhancing learning agility. Specific evidence-based neuroscience “hacks” for practitioners are introduced to enhance each of those five more popularly cited dimensions of learning agility.

**Keywords:** learning agility, goal setting, memory, learning, neuroscience

Table 1

*Summary of Learning Agility Factors, Hacks, and Associated Brain Regions*

Learning Agility Factors	Hack	Brain Region	Example References
Mental Agility	Identify and Label Emotions	Ventral Lateral Prefrontal Cortex; Amygdala; Hypothalamic-pituitary-adrenal (HPA); Pre-Frontal Cortex; Sympathetic Nervous System (SNS)	Kircanski et al., 2012; Torre & Lieberman, 2018; Tabibnia & Radecki, 2018
	Encourage Physically Active Micro-breaks	Dorsal Attention Network (DAN); Default Mode Network (DMN); Striatal Dopamine Receptors; Task-Positive Network (TPN)	Oakley & Sejnowski, 2018; Kim et al., 2021; Bosch et al., 2018; Tabibnia, 2020; Boyatzis & Jack, 2018; Bloomstrand & Engvall, 2020; White et al., 2019; Nowack, 2017b
People Agility	Foster and Enhance Empathy	Insula; amygdala; para-cingulate cortex; neurophysiological pathways	Morrison et al., 2004; Eisenberger et al., 2003; Choi & Kim, 2021; Boyatzis & Jack, 2018; Goleman, 2013; Nowack & Zak, 2020; Böckler et al., 2018; Nook et al., 2016; Nowack & Zak, 2021
	Encourage Getting Adequate Sleep	Amygdala	Bettie et al., 2015; Killgore et al., 2007; Williams et al., 2013; Goldstein & Walker, 2014; Nowack, 2017a; Ong et al., 2015; Yoo et al., 2007
Change Agility	Facilitate Cognitive Hardiness	Amygdala, HPA; Anatomic Nervous System; Medial Prefrontal Cortex (MPFC); Mesostriatal Reward Network; Striatum; DMN;	Nowack & Niemiowski, 2021; Bartone, 1999; Kobasa, 1979; Infurna & Jayawickreme, 2019; Tabibnia 2020; Kraft & Pressman, 2012; Seligman et al., 2005; Nowack, 2017; Dweck & Yeager, 2019; Yeager et al., 2019; Alimujiang et al., 2019; Kaczmarek et al., 2015
	Normalize the Behavior of Quitting (some) Goals	C-Reactive Protein; Cortisol	Duckworth et al., 2007; Credé et al., 2016; Holding et al., 2021; Wrosch et al., 2013; Wrosch et al., 2003; Wrosch et al., 2007; Miller & Wrosch, 2007
Results Agility	Visualize Results to Enhance Skills and Performance	Frontal Cortex; DMN; Motor Cortex; Hippocampus; Neuroplasticity; Neurogenesis	Skottnik & Linden, 2019; Driskell et al., 1994; Munzert et al., 2009; Kappes & Morewedge, 2016; Boyatzis & Jack, 2018; Pascual-Leone et

			al., 2005; Woollett et al., 2009; Lally et al., 2009
	Foster Successful Goal Setting and Goal Striving	Ventral Striatum; Ventromedial Pre-Frontal Cortex (vmPFC); Mesostriatal Reward Network; TPN; Doral Anterior Cingulate Cortex; Parietal Cortex; Temporoparietal Junction	Berkman, 2018; Nowack, 2017b; Tabibnia, 2020; Bonezzi et al., 2011; Gollwitzer & Sheeran, 2006
Self-Awareness	Facilitate Staying in the “Now Moment”	Sympathetic-Adrenal-Medullary (SAM); HPA; mPFC; Gray Matter; Hippocampus; Parasympathetic Nervous System (PNS)	Tabibnia, 2020; McDonald & Mott, 2017; Hölzel et al., 2011; Csikszentmihályi, 1999; Nakamura & Csikszentmihályi, 2009
	Disclose and Express Emotions	Limbic System; PFC; PNS	Pennebaker, 1997; Saldanha & Barclay, 2021; Bourassa et al., 2017; Mund & Mitte, 2012
	Clarifying a Future-focused and Ideal Self	Cortisol; Ambulatory Blood Pressure; PNS; DMN; vmPFC; TPN; SNS	Nowack, 2009; Bratton et al., 2021; Dierdorff & Rubin, 2015; Krén & Séllei, 202; Dickerson & Kemeny, 2004; Lehman & Conley, 2010; Nash et al., 2018; Chen et al., 2008; Gnepp et al., 2020; Boyatzis & Jack, 2018; Schroeder & Fishbach, 2015; Touré-Tillery, & Fishbach, 2011; Boyatzis et al., 2015