

Evidence behind the principles

- 1  **Learning aids survival. Sources:** Damasio & Carvalho 2013; Barrett 2017; Sterling & Eyer 1988 (allostasis); Kool et al. 2010 (effort avoidance).
Next: A study showing cognition fails, not just misfires, when affective signals are silenced.
- 2  **Emotion is part of thinking. Sources:** Immordino-Yang & Damasio 2007 (patients with emotional-region damage reason well but choose badly in real life).
Next: A larger patient sample, and a direct test of the authors' own knowledge-transfer hypothesis.
- 3  **Arousal tags memory, not mattering alone. Sources:** McGaugh 2004; Tyng et al. 2017; Harp & Mayer 1998 (seductive details).
Next: Hormone levels during a real lesson linked to what's remembered weeks later, not just in the lab.
- 4  **Recall rebuilds memory. Sources:** Bartlett 1932; Mau et al. 2020 (memory updating); Nader et al. 2000 (rats); Schiller et al. 2010, Sevenster et al. 2013 (human fear memory); Dewa et al. 2025 (mice).
Next: A human study updating a neutral memory's feeling at recall, outside fear-conditioning, replicated across labs.
- 5  **The brain is part of the body. Sources:** Damasio & Carvalho 2013; Vogel & Schwabe 2016, via Tyng et al. (mild acute stress can help learning; excessive or chronic stress impairs).
Next: A study manipulating interoceptive awareness directly, to see whether reasoning quality tracks it, not just reported stress.
- 6  **We react to what we notice. Sources:** Menon & Uddin 2010 (salience network); Immordino-Yang & Damasio 2007; variation theory (Moore-Anderson).
Next: A classroom trial of varied-one-thing teaching against a matched control, tracking what's remembered and why.
- 7  **Learning tips between focus and reflection. Sources:** Immordino-Yang 2016; Goulden et al. 2014 (salience network drives switching).
Next: Tracking how often pupils cycle between the two states over years, and whether that predicts growth.
- 8  **New cares build on existing cares or challenge. Sources:** Shackleton-Jones 2019; Immordino-Yang ("caring cascades"); van Kesteren et al. 2012, 2014; Hidi & Renninger 2006; Dikker et al. 2017 (12 students); Barrett 2017.
Next: Tracking which pupils' new interests trace to a person or a surprise, at a larger scale than Dikker's 12 students.
- 9  **Purpose makes hard things worth doing. Sources:** Immordino-Yang & Knecht 2020; Yeager et al. 2014 (randomised purpose intervention, 2,000+ students); Antalek et al. 2025 (DfE-commissioned review: autonomy, task value).
Next: A trial isolating audience from purpose, to see which one does the work.
- 10  **Meaning is a web of associated experiences. Sources:** Davis, Sumara & Luce-Kapler 2015 (webs of association, not packed meanings); Pask 1975/76 (Conversation Theory: understanding as agreement, tested through teachback); Barrett 2017 (concepts as affective).
Next: Evidence that webs triggered in dialogue carry feeling, not just fact, and that teachback holds beyond tutoring.
- 11  **Stories organise memory. Sources:** Bower & Clark 1969 (word lists, about sevenfold); Mar et al. 2021 (meta-analysis: stories recalled better than essays); Dahlstrom 2014 (stories judged on feeling true).
Next: A replication of the sevenfold figure using classroom-length material, not word lists.
- 12  **Goal versus becoming. Sources:** Affective Learning Lab White Paper 2025; Gotlieb et al. 2024 (65 adolescents; transcendent thinking predicted later identity and life satisfaction); Kundrak et al. 2026 (see 13).
Next: An intervention that raises reflective thinking and tracks the same outcomes in adults.
- 13  **Teachers' view of development. Sources:** Kundrak et al. 2026 (40 secondary teachers; higher observer-rated practice, $r(38) = .47$, whatever their years of experience).
Next: Replication in a larger, representative sample, and a study that shifts narrative to see whether practice follows.
- 14  **Experience first, within reach. Sources:** Shackleton-Jones 2019; Sinha & Kapur 2021 (problem-solving first: better concepts and transfer); Roediger & Karpicke 2006; Kalyuga et al. 2003 (expertise reversal: worked examples help those with little prior knowledge, hinder those with more); Lyons & Beilock 2012, Arnsten 2009 (why: threat and stress impair the same working memory a raw problem draws on).
Next: A workplace L&D trial, and a direct test of whether the boundary runs through threat appraisal rather than raw information load.
- 15  **Transfer needs matching feeling. Sources:** Tulving & Thomson 1973 (encoding specificity); Godden & Baddeley 1975 (context-dependent recall, divers); Shackleton-Jones (practice recreating a real reaction, not a safe simulation).
Next: A study isolating emotional intensity from physical realism directly, to test whether the reaction, not the setting, carries practice into the real moment.
- 16  **Expertise. Sources:** Helm, McCormick & Reyna 2018 (fewer, more meaningful distinctions; framing bias); Bilalić, McLeod & Gobet 2008 (familiar solutions block better ones).
Next: Measuring arousal at the moment experts catch an anomaly, to confirm the reading as affective.