



Learn Like A Genius

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Using Brain Science for Accelerated Skill Development

Contextual Interference

- The Power Law of Practice (Newell, Allen, and Rosenbloom)
 - Research shows what most of us have experienced. Most progress is made during the initial stages then progress slows, sometime to a halt (plateau) for a while, and the last stages take a long time.
- “The Strategy Specific Nature of Improvement: The Power Law Applies by Strategy in Task,” (Delaney, Reder, Staszewski, & Ritter, 1998).
 - Varied repetition; the power law can be reset so that initial fast gains occur again by working on the same material in new ways.

Several authors have shown similar effects of strategy changes on young children’s arithmetic. For example, Siegler and Jenkins (1989) used concurrent verbal protocols and videos of young children who knew how to add using a simple counting-from-one rule. After 11 weeks of practice, almost all of the children had learned a more efficient rule that involved counting up from the larger addend rather than counting up from one. Children using this more sophisticated counting rule were faster at solving the problems because they had many fewer operations to perform to produce the answers. In summary, several studies in the domain of arithmetic problem solving indicate that strategy shifts occur along with improvements in solution times. (p. 2)

- A brain imaging study (Song, Buch, & Cohen, 2011) identified that practice under these types of random conditions produces activity in regions connecting the sensorimotor cortex to part of the brain consistent with increased training (posterior putamen) *early in the training process*.
- Take Ben Franklin and writing. He learned to be a great man of letters through an ingeniously designed set of varied repetition.
- This is present in all high efficiency/high level teaching and coaching.
- Don’t just try these once or twice. Don’t give up on new ideas too soon. Some of these will work better than others in certain situations. After you begin using them for a while that you will be able to identify the strategy needed for specific circumstances when necessary. In any case, doing any of this will work much better than doing none.
- Daniel Coyle, (2012) *The Little Book of Talent*.
 - Great ideas for the practical application of strategy changes applicable to any domain.

- Delaney, P. F., Reder, L. M., Staszewski, J. J., & Ritter, F.E. (1998). The strategy-specific nature of improvement: The power law applies by strategy within task. *Psychological Science*, 9(1), 1-7.
- Newell, A., & Rosenbloom, P. S.cn. (1981). Mechanisms of skill acquisition and the law of practice. In J.R. Anderson (Ed.), *Cognitive skills and their acquisition* (pp. 1-55). Hillsdale, NJ: L Erlbam.
- Song, S., Sharma, N., Buch, E. R., & Cohen, L. G. (2012). White matter microstructural correlates of superior long-term skill gained implicitly under randomized practice. *Cerebral Cortex*, 22(7), 1671-1677.