

QUICK SUMMARY:

Benedict Carey's *How We Learn: The Surprising Truth About When, Where, and Why it Happens* (Random House, 2014)

Carey's book gathers recent research in psychology, neuroscience, and learning theory – especially its most counter-intuitive tidbits – to offer teachers an accessible work of pop pedagogy. He notes how learning happens all the time, across the span of a life – not just when we're concentrating at our study desk. Ideally then, learning should not be seen as a chore, or come structured as a cram session, but instead as something that's a part of everyday living.

While we cannot control such things as our past education, parental types, where we grew up, etc., the one thing we can control is *how* we learn (220). His suggestion for “how” we should learn involves abandoning our traditional belief in deep concentration, in favor of a more flexible practice: “Let go of what you feel you should be doing, all that repetitive, overscheduled, driven, focused ritual. Let go, and watch how the presumed enemies of learning – ignorance, distraction, interruption, restlessness, even quitting – can work in your favor” (222).

BASIC THEORY

- Learning happens best when driven by wonder and curiosity – not fear or envy.
- The goal in our classes is to challenge students to make learning a bigger part of their daily lives. We should get them to cultivate a deeper *habit* of curiosity, not thinking of it in terms of completing isolated tasks, but for the business of life itself.
- We can do this by “tuning” students' perception to a subject: make them start seeing it everywhere in their daily lives. “*Chance feeds the tuned mind*” (142).
- Forgetting is also indispensable to learning; we should credit the supreme role forgetfulness plays in understanding. We have to teach students how to tune out/forget a great deal of noise so they can better tune in to the signal.

RETENTION

- Every memory has two dimensions: storage strength and retrieval strength. No memory is ever lost; many just have a low retrieval strength. One solution: “desirable difficulty”: the harder you work to retrieve a memory, the greater the storage and retrieval strength. If a teacher adds a desirable difficulty to a task, students will remember it longer.
- In contrast, many students do poorly at tasks due to the “fluency illusion”: “the belief that because facts or formulas or arguments are easy to remember *right now*, they'll remain that way tomorrow or the next day (82). Desirable difficulty helps overcome the illusion of fluency, as does awareness of ignorance.
- “Distributive learning”: taking frequent breaks from learning – spacing out the learning – also helps long-term learning and retention. For example, learning done in one three-hour block will be forgotten more quickly than one-hour learning spaced thrice across a week.
- Use tests as a *study technique* – not just for measurement. Each test itself is an additional study session for a student. Indeed, we should think of these not as “tests” but as a “retrieval practice.”
- Carey suggests we should give students a test the first week that's the same caliber as the course's final exam. Have students grade it together in class, training them what strong and weak answers look like. Put students in the role of having to teach/explain to each other the difference between strong and weak answers. (Having students not only absorb a technique but also teach it reinforces it exponentially).

PROBLEM SOLVING

- Insight occurs across a number of steps: preparation, incubation, illumination, and verification. Some tasks require the accumulations involved in percolation, as well.
- The creativity fostered by percolation means we should start large projects early, and stop when we're stuck (feeling confident that stopping will actually help).
- Varied practice, not just repetitive practice, works best in the long run for both motor and verbal learning.
- “Interleaving” is a useful form of varied practice: “The mixing of items, skills, or concepts during practice over the longer term, seems to help us not only see the distinctions between them but also to achieve a clearer grasp of each one individually. The hardest part is abandoning our primal faith in repetition” (164). So too, we should teach subjects not in blocks but in a mixed jumble.
- The subconscious is also a power for learning we should tap. This includes “perceptual learning” – or learning without thinking – which is automatic, self-correcting, fun.
- Sleep is not an annihilation of consciousness: sleep *is* learning. It improves retention and comprehension of things studied the day before. “I think of sleep as learning with my eyes closed” (212).
- Each of the five stages of sleep helps us consolidate information in a different way. For example, the first half of a night's slumber is when deep sleep happens – best for aiding vocabulary retention, names, etc.; the shallower latter half of a night's sleep is most important for coordinating motor skills and doing creative thinking.

This skeletal overview provides a glimpse of Carey's ideas, but a reading of his book's full examples, anecdotes, visuals, and explanations could help flesh out the logic of the findings, helping you imagine some ways you might shape your pedagogy around its implications.

-Lars Erik Larson, UP English Dept., 2015