

Summary

By the time I hit 10th grade, I'd lived in 10 different places . I flunked my way through elementary, middle, and high school math and science . I enlisted in the Army right out of high school to learn a language . I ended up working out on Soviet trawlers up on the Bering Sea .

I was doing all these adventures and seeing these new perspectives but somehow they were always external . I thought, you know, I'd look sometimes at what they were doing and it looked like hieroglyphics to me . I mean, the world's evolving. Language and culture are important but math and science and technology are important too .

When I got out of the military at age 26, I decided to try and change my brain. It wasn't easy. But if I knew then what I know now about how to learn, I could have learned much more easily and much more effectively. So several years ago, as I began trying to answer that student's question, how did I change my mind? I began reaching out to top professors from around the world.

The brain is enormously complex, but we can simplify its operation into two fundamentally different modes . The first mode is what I'll call the focus mode, and the second mode is a relaxed set of neural states . When you're learning, you're going back and forth between these two different modes.

When you're learning, you're often thinking tightly as you're focusing on something . It involves thoughts you're somewhat familiar with, perhaps historical patterns or you're familiar with the multiplication table . So what if the thought you're thinking is actually a new thought, a new concept or a new technique that you've never thought of before? Look at how far apart those rubber bumpers are from one another .

Salvador Dolly was one of the most brilliant surrealist painters of the 20th century . He was the very definition of a wild and crazy guy. Dolly used to do when he was ki a thought, it takes off and it can range very widely .

Edison used to like to relax in a chair with ball bearings in his hand and he'd relax away kind of thinking about a problem loosely that he was trying to solve related to his inventions . He'd relax so much that he'd fall asleep, the keys would fall from his hands, the clatter would wake him up and off he'd go, he'd take those ideas from the diffuse mode over to the focus mode or he could use them for his painting .

When you're sitting down to solve a new problem or analyze a new idea, even if millions of other people have thought the same thoughts or solve the same problems, for you it's just as creative as it was for famous people like Dolly and Edison and you want to use some of these creative approaches . What seems to happen when you procrastinate is this, you look at something you'd really rather not do and you actually feel a physical pain in the part .

The Pomodoro technique has it turns out all you need to do is you get a timer, any timer will do . And then you just take it and set it for 25 minutes and make sure everything else is turned off . Anybody can do 25 minutes virtually . And when you're done, you do something fun .

Students sometimes make the mistake of thinking that some of their absolute best traits are their worst traits . The Pomodoro is designed to enhance students' ability to have focused attention . Relaxation is also an important part of the learning process .

Some students compare themselves to other students and say, you know, I'm really slow by comparison. I mean, these other students, they're like race car drivers. But think of yourself as a hiker. A hiker has a completely different experience. In many ways, your experiences are deeper

and more profound and you don't jump to conclusions .

There is something called illusions of competence in learning, which means you can be spinning your wheels because you're not using effective study techniques . The trade-offs, in many cases, are well worth it. You gain solid mastery of what you're studying .

When you do a homework problem, never just work at once and put it away . Mix them up. Study them in different places. Work that test yourself. Never just sing a song once and think you know that song .

Learning is truly important, but only when combined with practice and repetition in a variety of circumstances can you truly gain mastery over what you are learning . You just follow your passions, broaden your passions and your life will be enriched beyond measure .

Quotes

Action Items