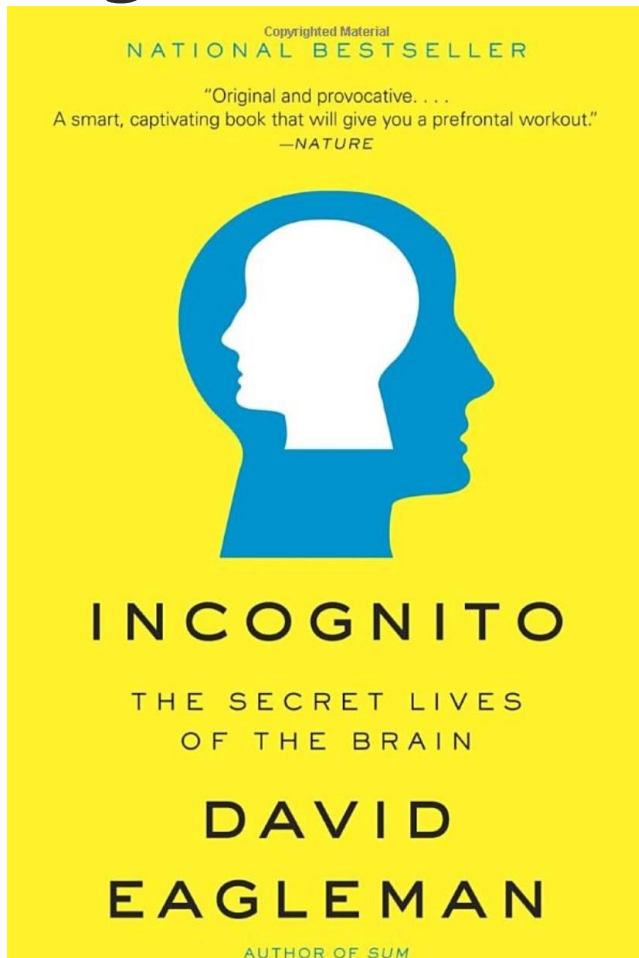


# Incognito by David Eagleman Book Summary



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- Your brains is built of cells called neurons and glia.
- Each cell sends electrical pulses to other cells.
- A typical neuron makes about 10,000 connections to other neurons.
- There are more connections in one cubic centimeter of the brain than there are stars in the Milky Way.
- Thoughts don't seem like physical things. They don't seem like they exist in a tangible form, but that's exactly what is going on. The physical structure of the brain determines the thoughts that flow from it.
- Men in a study voted pictures of women with dilated pupils as more attractive than those without.
- Consciousness is the smallest player of our mind. Most of our brain operates in a hidden mode.
- Your conscious mind is like a newspaper. It delivers headlines but rarely show you what's going on behind the scenes.
- When you say, "I just got an idea!" You are actually referencing all sorts of work your brain has been doing behind the scenes for minutes, days, or months.
- "In each of us there is another who we do not know." -Carl Jung
- First of all, you have to realize that conscious thought should NOT be involved in most decisions and actions. If you had to decide every damn thing you would never get anything done.
- Conscious awareness takes about 0.5 seconds. Hitting a baseball takes 0.4 seconds. It's literally impossible to consciously hit a baseball. Your brain makes the choice to hit and swing with unconscious information.
- Bruno was burned to death with an iron mask on his face to prevent him from speaking eloquently and firing up the crowd. Interesting story about the power of ideas.
- There is a concept that a conscious idea is actually a collection of signals your brain picks up that all point in the same direction. Once the signal becomes strong enough, it becomes a conscious thought. If you brain gets a signal that points one way and another pointing a different way, then

they sort of cancel one another out. It's like the brain needs enough unconscious votes before it generates a conscious thought.

- I like the concept of your mind as an iceberg. Conscious thought is just the visible tip. Unconscious thought is the mass beneath the water.
- The only way society functions is by groups of people consciously focusing on things. Whether I'm on a plane or not, I never think about pre-flight procedures, how much gas is in the plane, whether the landing gear is working well, and so on. (By the way, if you're on a plane right now—my apologies.) but I don't need to think about those things because someone else is consciously focused on them. This is how we build well-functioning teams and societies. We are all running on autopilot in nearly every area of life, but each of us has the capacity to be consciously focused on a few things. Divide those areas of focus up in smart ways and you get a really effective team.
- We are astoundingly poor observers of our own experience. (Reminds me of the gorilla video experiment. This is called “change blindness.”)
- One-third of the human brain is allocated to vision.
- It's interesting to note: your vision is simply a cone of vision where you point your eyes. We all live our lives by viewing only the world of vision that is inside this little cone... without even realizing it.
- The brain is organized like a marketplace, not an assembly line. Even tasks that are historically depicted at a straight line (vision, for example) are actually the result of a network of inputs (vision is impacted not just by light, but also by sounds, etc.). This means that the entire world as you know it is not a simple series of cause and effect relationships. Rather, there are many tiny causes that build into some final effect. There are many bits of information that impact vision. (If this is true, then there are many bits of information that impact behavior.)
- Chicken sexing is really hard, but the best in the world are in Japan. Male and female chicks look almost exactly the same at 1 day old. They trained

new chicken sexers by trial and error feedback ... Even though they couldn't explain how they did it. It's unconsciously learned.

- There is a really cool research test covered in chapter 3 that helps identify your internal biases. Are you biased toward certain religions, genders, races, body types, etc? It could be very interesting to take this, uncover your hidden biases, and then take active steps to reduce those biases.
- People tend to love reflections of themselves in others and on products. This is called “implicit egotism.” We like people who share our birthdays, have names similar to our, and so on.
- People named Denise or Dennis are disproportionately likely to be dentists.
- The mere exposure effect proves that our brains tend to like things that we are exposed to often. Similarly, we tend to associate two things with one another if we hear that pairing often. (This reminds me of people who say they have “great networks” over and over. Eventually, you associate the two things together and you're like “That guy is a great networker! He has tons of amazing contacts.” Mere exposure effect at work — and with hustle on that guys part it can become a reality too.)
- It can be a very good idea to “trust your gut” because a variety of studies have shown that your unconscious mind knows the correct decision before your conscious mind does.
- We make decisions consciously and then begin to automate them and follow them unconsciously.
- Humans have an incredible ability to learn and, with enough practice, mindlessly automate almost any skill.
- We are designed and hard-wired to like certain animals (humans), foods (fruits, veggies), and even thoughts. For example, we only see a small portion of the light spectrum (visible light and not infrared, for example). Our biology determines our reality.
- We accept the reality presented to us. And this reality is constructed by our brains, not merely interpreted by our brains.
- Reality is far more subjective than we suppose.

- Social behavior is wired into our brains. We are born with a tendency for social behavior.
- We are least aware of what our mind does best. Our instincts are often blind to us. They are burned down so deep into our genetic code that we don't even notice them.
- William James said we have more instincts than other animals, not less. And this is why we are flexible thinkers.
- We often assume instinct is low level thinking, but in fact it has millions of years of evolution built into it.
- The benefit of instinct is speed and automatic behavior. The cost is failure to notice them.
- We are unable to see the instincts that drove our behavior. They are so critical, they are subconscious.
- The more simple something seems, the more neural circuitry there usually is behind it.
- Research shows that women are deemed most beautiful by men and women at the peak of their menstrual cycle (10 days before menses). These changes in a female's appearance are incredibly subtle, but they only need to be enough to trigger the unconscious realization by partners to work. It's not quite clear what the tip offs are (ears and breasts become more symmetrical, for example).
- Women are particularly sensitive to other women's cycles. Perhaps due to competition?
- Researchers found that strippers earned more at the peak of their cycle (\$68/hr average) than when menstrating (\$35/hr average).
- The human mind runs on conflict. There are competing beliefs within your unconscious mind that are all battling for the single output of your conscious behavior.
- Reason wants one thing. Emotion wants another. But they both think they have the right way of solving the problems they face.

- The brain is made of competing subsystems. For example, system one and system two. System one is automatic and heuristic. System two is conscious and analytical.
- The neuroanatomy of your brain maps roughly with system one and system two.
- Rational cognition involves external events. Emotional cognition is about your internal state.
- Emotion (or lack of emotion) often tips the scales of our behavior.
- Kahneman and Tversky's famous studies on discounting (\$100 now vs \$110 in one week compared to \$100 in 52 weeks vs \$110 in 53 weeks) were investigated by neuroscientists. They found that immediate payoffs activated the emotional centers of the brain (impulsive behavior) while long-term rewards activated areas of higher cognition (rational behavior).
- Your behavior is simply the end result of the battles between short and long-term desires.
- Some philosophers refer to commitment devices as Ulysses Contracts after the famous story about Ulysses and the Sirens.
- Our brain is a highly overlapping and redundant system. That is, various parts of the brain can accomplish similar tasks.
- Possible countermeasure against Alzheimers: Cognitive Reserve. This is a term scientists use to describe why some people have brains that were ravaged by Alzheimers but never showed symptoms. By challenging their brain and staying mentally active, these people developed multiple pathways for solving the same problems. Alzheimers might prevent one approach, but you still have other pathways. This cognitive reserve counteracted the Alzheimers symptoms. When part of the brain degrades it was not even missed because of alternative solutions.
- Brains seek patterns. In many ways, our brains are wired to create meaning from meaningless data.
- Dreams illustrate our skills at generating a narrative from unrelated pieces of information.

- Research by Pennebaker: studies on rape victims have shown that not discussing your problems (keeping secrets) might lead to more harm than the event itself.
- Biology and brain research has revealed that instead of asking, “What's the best way to solve that problem?” We should ask, “Are there multiple, overlapping ways to solve that problem?”
- Who you have the probability to be starts at conception. For example, the Y chromosome leads to an increase in criminal behavior of more than 800 percent. The majority of prisoners carry these genes as well as 98.4 percent of inmates on death row. If you are male, you are predisposed to violence.
- When an accident happens with animal handlers (a lion attacks a tamer, for example), we often refer to the fact that it is an animal. What were you expecting an animal to do? But humans are animals too. And yet, we often assume that people are rational beings that would not resort to animalistic behavior. We assume that humans have free will. That assumption may be wrong.
- Given the current state of research nobody can find a way around the lack of free will. If free will exists, then it must appear somewhere in the brain. But there are no free sections of the brain. Every section of the brain is connected to other parts of the brain.
- Research by Lipset: ran the famous study on free will which sparked the idea that our conscious mind was the last one to know what we are doing.
- According to the author, it doesn't matter whether or not we have free will.
- Acts cannot be separated from our biology.
- Societies will always need to get bad actors off the streets. A lack of free will does not mean there is no need for our justice system.
- Our perceptions and behaviors are controlled by hidden, neurobiological factors.
- There is no distinction between “his biology” and “him.” They are one in the same.

- Research by Steven Laconte and Pearl Chu: you look at a picture of chocolate cake. A screen displays a vertical bar that shows the areas of brain activity present during your craving. Then, you try various strategies to make the bar go down. When it does, you are effectively decreasing the activity of the brain that causes cravings. This “pre-frontal workout” helps you strengthen your circuitry to combat cravings.
- The complex web of genetics and environment constructs the trajectory of human life.
- The conscious mind is not the one driving the boat.
- We are the sum total of our neurobiology. What we think of as “him” or “her” is really the average of that person's neurobiological chemicals (and resulting behaviors) over time. The personalities we think of as ourselves are time averaged versions of our neurobiology.
- Huntington's disease is the result of a change to a single gene, but it is an outlier. Most genetic diseases are the result of subtle changes and interactions across many genes. (So even our DNA is the result of many small changes.)
- The contributions of the genome to our behavior can only be understood in the context of interactions with the environment.
- Research by Avshalom Caspi: they looked at gene-environment interactions and depression and found a bit of a link.
- Environmental effects can multiply the impact of biology and genes. Our behavior is both nature and nurture.
- Although our biology underpins everything about us, we cannot reduce the human experience to a collection of molecules and atoms. Why? Because of the concept of emergence. Just as the ability to fly emerges from pieces of metal in a plane, the ability to think emerges from our atoms. And we don't yet understand how this beautiful mystery works.