A microscopic image of neurons, showing cell bodies and branching processes, rendered in shades of blue and white. The image is positioned on the left side of the cover, with a white vertical band on the right.

Practical NeuroWisdom

Surprise!

Surprise!
The Neurological
Spark to Personal
Transformation

by Michael Rousell, PhD

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The Neurological Spark to Personal Transformation

Michael Rousell, PhD



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This book is dedicated to "Every Child Matters."

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Introduction

*Moments that change us happen to us, not by us,
during a surprise event.*

Cindy used to believe her slow test-taking indicated a lack of intelligence, but that changed instantly. While Cindy anxiously finished a test, the librarian surprised her by naming her slowness as “attentive deliberation that shows grit.” She now writes her tests slowly, with confidence. After all, she’s got grit. The comment surprised Cindy, giving her a burst of the motivator neurotransmitter dopamine and creating a window for the formation of a new belief. Now when Cindy writes tests, her instincts prompt her to go slowly, with attentive deliberation, and to feel proud because it confirms her grit.

This event dramatically changed Cindy’s belief about herself and her ability: a transformative event.

We all experience events like these throughout our lives, and many of them go unnoticed. They appear as serendipitous events. Why leave so many of our most formative moments to chance when we can create them?

I studied transformative events, moments that change us, for over three decades. One day, while pouring over my vast collection of stories, looking for patterns, I experienced a revelation: Surprise played the role of catalyst for most of these events. Here’s the key: Moments that change us happen to us, not by us, during a surprise event.

*When we recall surprise-triggered transformative
moments, we remember them as life-altering
moments, not surprise events.*

The neurological event of surprise is the essential spark for instantly constructing or transforming a belief.

Do This

Before you read further, take a moment and think of several surprises in your life. Make a list of 10 or more. Name it *My Surprise List*. You'll use this list later.

Whenever I tell someone that I study surprise, they usually reply with, "Like getting surprised at a party?" "An unexpected visit from an old friend?" or "A surprise event, like a news story?" I tell them, "Not those kinds of surprises. While surprising, those events didn't change you at a personal level."

We use surprise when we give an unexpected gift, turn up unexpectedly, or delight in sharing exciting news. We think we know it well. But our everyday understandings are like the proverbial tip of the iceberg. They miss the nuances and complexities that make it a powerful tool, ripe for strategic use to create formative moments, to trigger inspirational mindsets.

When I ask people to tell me a story of a surprise in their lives, I rarely get a story about a surprise that changed a belief about themselves. We don't tend to see surprise as a trigger for personal transformation. So, I ask them to tell me about an event that changed how they think about themselves, a formative moment. When I ask it this way, I often get a story that illustrates surprise as the initial stimulus. We remember transformative moments like Cindy's, if we remember them at all, as life-altering moments, not surprise events.

Do This

Take a moment now and think back to moments of personal transformation and list 5-10 events that profoundly affected your life. They can be positive or negative. I'll wager that many, if not all, formed during a surprise. That's what surprises do. A surprise is a belief-revision reflex.

Call this list: *My Personal Transformation Events*. Now, look at the events you cited and note how surprise played a role in those experiences.

This eBook has three sections. Section one teaches you about the neuroscience of surprise. Section two explores those who use it intentionally. Section three delivers a model for using it strategically to enrich others' lives.

Learning the neuroscience of surprise is NeuroWisdom. Learning how to use it strategically is Practical NeuroWisdom. Practice the exercises and strategies in this eBook to learn how to craft moments of surprise to create richer lives for your children, students, athletes, employees, clients, and patients.



1 The NeuroScience of Surprise

We are hardwired to make sense of our environment so that it can become a safe and predictable place. Learning instantly, when surprised, kept us alive. Surprise happens to all of us, with widespread effects, but we rarely notice because the instant learning is, well, instant.

A surprise is a neurological error signal. It means that your expectations, how you understand the world and feel secure in it, suddenly don't work. In our evolutionary past, a big surprise often meant immense opportunity or imminent danger. Alert! Am I safe? Is this an opportunity? Those who stopped to think didn't make it to the gene pool. The mental act of discerning slowed reaction time. Those that stopped to deliberate during critical moments often perished, along with the propensity to ponder when surprised. Evolution favored those who learned instantly. As a result, we developed a disposition to bypass thinking and learn instantly when surprised, as if in secret. Accordingly, evolution hardwired us to revise our beliefs instantly during a moment of surprise.

A surprise is an error signal recognized by the brain as "phasic dopamine." It has two phases. Phase one works like this: Alert! Warning! Your belief suddenly doesn't work! Adapt! Phase one lasts a few milliseconds and tells us to stop what we're doing and pay close attention. Phase two is long-lasting and tells us to learn quickly. Why? Those early ancestors who thought about big surprises—a tiger in the bushes—often perished. The brain abhors the mental state of not knowing what to do and eagerly accepts the first explanation that solves the surprise.

While surprises in today's relatively safe environments seem less acute, the neurological and cognitive mechanisms formed millennia ago still operate today.

Let's look at a simple illustration of surprise to examine the components. Imagine that you wake up to see a monkey on your lawn. Surprise! Is it a prank, an illusion, a prop for a movie set, or are you still dreaming? The monkey moves away before you can confirm your sighting. You run outside to see if it lingers in the neighborhood. Did it leave tracks? Are your friends laughing in the bushes? Is there a movie set? Nothing. The sighting remains on your mind all day. You find yourself glancing at news reports to see if others shared your sighting or if a monkey escaped from a traveling circus. During the evening news, you smile as you watch the reporter describe a police raid on an illegal exotic animal home near your neighborhood. The incursion accidentally released a monkey, a python, and a jackal. Whew. I'm not crazy after all.

You verified your surprise by looking for and finding evidence. But that's not at all what happens when you have a surprise to your self-concept, the constellation of beliefs you hold about yourself.

Let's look at a surprise to your self-concept to see how they differ. Your supervisor comments on "your uncanny ability to capture the essence of complex issues." Surprise! You didn't think you had this "uncanny ability." You now find that you pride yourself on this aptitude and see it as a signature feature of your personality. You don't instinctively question this new belief. Not only that, but this new belief about yourself also drives a cognitive disposition to find or even create evidence to support it. You now see your "uncanny ability" everywhere you look.

Do This

Take a moment now and look at your two lists: *My Surprise List* and *My Personal Transformation Events*. Put an "I" beside those that changed or formed an internal belief about your self-concept. Put an "E" beside those that changed or formed an external belief about how you see or experience the world. The "I" beliefs are those that make us who we are. We enrich lives when we use surprise to cultivate productive "I" beliefs in others.

For my work, I dichotomize beliefs into two categories: internal and external. I use the term internal to name beliefs we hold about ourselves, what we commonly call our self-concept. I use the term external to name beliefs we hold about anything other than those about ourselves. For example, you probably believe amphibians don't fly. That's an external belief. One day you find yourself surprised by a soaring frog. You will check it out to see if it was real, a prank, or your

imagination. Remember, verification for internal beliefs works differently. And this minor distinction produces profound effects.

If the supervisor's comment about your "uncanny ability," surprised you, an internal belief, your brain will attempt to verify it. It does this by searching your entire personal history of experiences, like a private Google Search. This takes mere milliseconds. It happens so fast, it bypasses your relatively slower conscious awareness. Inevitably, this instinctive search finds several examples that work to confirm your new belief. Suddenly, this new belief becomes the lens through which you see yourself. If asked by someone when you first developed this "uncanny ability," you might not refer to your boss's comment. As far as you know, you've always had this aptitude, but your boss was just the first one to notice it

Most of our formative moments fly under our conscious radar. It's only those few that make it to consciousness that gives us a glimpse of what happens during a surprise event.



Using Surprise

Do This

Take a moment now and think of times you've used surprise intentionally. If nothing comes to mind, think of times others used it. Beside each item, write your intent: Was it to accentuate an emotion, to frighten, to create a sense of wonder, to catch off guard, to startle, to impress, to delight, or something else?

Most of us understand that surprises magnify the emotion that follows. A surprise gift always seems more exciting than one that is expected. The downside is equally amplified. A surprise disappointment stings more intensely too. Anticipated setbacks don't carry that penetrating bite that comes with a surprise disappointment.

While most of us use surprise intuitively, performers and professionals in media recognize its power and use it methodically.

Professor Jeffrey Ely from Northwestern University noted the following about the use of surprise in cinema: "We view the construction and the development of suspense and surprise and other aspects of entertainment as basically optimally economizing on a scarce resource, which is the ability to change someone's beliefs."

Think about some movie trailers you've recently seen and notice how they set up surprises to induce curiosity. The dopamine from the surprise motivates us to solve our curiosity, to watch the movie. We also do this intuitively whenever we say to someone, "You'll never guess what happened at the park yesterday." We set up the expectation of a surprise, hoping to motivate (raise dopamine) the listener to follow your story.

Here's a list of professional uses of surprise.

- Comedians use surprise to set up the punch line. Are people born with photographic memories, or does it take time to develop?
- Magicians depend on it. They intentionally set up expectations in order to violate them. You don't expect to see a pigeon emerge from a puff of smoke.
- Moviemakers use it to transform the viewers' beliefs. Darth Vader tells Luke Skywalker, "No, I am your father."
- News anchors give surprise teasers to keep you watching after commercial breaks. "You might think dogs are a man's best friend until you meet this cat. Stay tuned after the break."
- Our favorite commercials often use surprise to engage us. Two entranced boys watch as a glamorous supermodel pulls a Pepsi out of a vending machine. One boy says, "Is that a great new Pepsi can or what?"
- It's even the basis of some forms of psychotherapy. In exposure therapy, therapists carefully expose patients to conditions with which they have an abnormal fear (e.g., introducing a therapy dog to someone with a dog phobia). The surprise of surviving the event creates a new and more functional belief.
- The police, military, and criminals use surprise to distract their foes.

These professional uses illustrate a variety of methods to change "external" beliefs. But our goal is to use surprise as a catalyst for transformative moments. Those are "internal" beliefs. For example, Marine Corps General Charles Krulak intentionally instituted a training rule that instills the use of strategic surprise: "You can only compliment people on things that are unexpected." He trains his drill sergeants to tell the unfit kids that they did a good job running, and compliment shy people who take a leadership role.



Enriching Lives Through Surprise

In this section, you'll learn how to strategically elicit surprise moments. But that's just the window of influence opening. I'll also show you how to create effective linguistic structures to instill positive and productive mindsets.

I spoke at TEDxSalem in January 2019. I thought the talk went well. My only self-criticism was that I thought my pauses were too long. (Belief: I don't use pauses well.) Several months later, I read *Leading by Coaching* by Nick Marson, and I decided to email him. We conversed back and forth about our common ground, exchanging ideas about how to use the element of surprise in the world of business. At the end of one correspondence, he wrote a note at the bottom: "I look forward to reading your book, I think you are onto something! I liked your TED talk. You use silences well." Surprise! In that instant, I felt the neurological surge of dopamine and smiled. He turned my presumed deficit into a powerful asset. (My new belief: I use pauses effectively.) It became a lasting transformative moment and I now use my pauses strategically. I am, as I now see myself, the master of the pause.

This transformative moment took place consciously because I have surprise radar. You do now too. That means you can accept the positive ones, and if you receive a negative one, you can dismiss it.

We Can All Use Surprise Purposefully

Regardless of your roles in life, you can easily find or create opportunities to enrich the lives of others by giving them a surprise comment. Any time you refer to someone's presumed deficit in a new way that defines it as resourceful, the result generates a surprise, and that surprise can change a person's internal belief. Look for the underlying strengths in others, in what they see as presumed weaknesses. Labeling them as resourceful may trigger a surprise, producing a new productive belief.

Think of your own presumed deficits and you may even surprise yourself by seeing a supposed weakness as an asset. For example, I grew up with a reading disorder. As a result, I must read slowly, deliberately, and often reread passages. My compensation for a reading disorder generated greater comprehension. In fact, the research on dyslexia shows that those individuals often exhibit superior mental reasoning, produce more perceptive and creative possibilities in problem-solving, and display greater resiliency, empathy, and understanding.

What about you? What "problem" do you think you have that might actually be an aptitude?

Do This

Take a moment now and make a list of some of your presumed weaknesses. How did you compensate for them? Those are strengths.

Sparking Surprise: Do the Opposite

At eight years of age, Dave Matthews felt obsessed with music and sang all the time. A seemingly innocuous comment by his father triggered an idea that he might be able to do music rather than just appreciate it. While sitting at the dining table with his family, he deliberately disrupted the meal by annoying everyone with singing. His father turned to his mother and commented, "Look, he sings so well he can sing off-key." He expected admonishment, but this comment surprised him, filling him with pride. He stopped singing off-key and dinner proceeded. But since then, he thought, "Everything was different: I could sing." In his own words, he started thinking, "Maybe music isn't just something I like. Maybe it's what I am."

Dave expected admonishment but received praise. That surprised him, producing a new belief, a personal transformation. When someone expects one reaction, give the opposite. Learn to flip your responses: do the opposite of what's expected. That creates a window to insert a growth comment.

Sparking Surprise: Note What Others Miss

Your child tidies up without being asked, and you note her ability to act responsibly. Your employee asks a lot of questions, and you note his eagerness to thrive in competitive environments. Your athlete laughs at a mistake she made, and you note her eagerness to thrive in tough circumstances. If your comment surprises them, it triggers dopamine, increased motivation, and it may activate a new belief. At the least, affirmative statements like these underscore personal strengths, but you need a surprise to trigger a transformative moment. Remember: Whenever you notice something that others miss, you enhance your potential to trigger a surprise.

Do This

Think about those who you want to surprise and write their names on a sheet of paper. Then write some of their qualities and underlying assets they may be unaware of. What do they think are their presumed weaknesses, and how have they compensated for them? Now create a positive surprising comment and find the right moment to tell them.

Maximizing Your Comment

Now that you know how to trigger a surprise, you need a method to deliver your comment with the greatest effect. For example: Brian taught a body mechanics class in a college massage program. One of his students continually disrupted the class by pulling other students' attention from the instruction. One day he found an opportunity to surprise the unruly student. He said, "The way you engage the class really draws in the participation of the entire group." He dropped it off in a completely matter-of-fact tone and immediately went on with the rest of the lesson. Brian reported, "Immediately, this student deepened her class participation. She became one of the most attentive students and she even got upset when other classmates made a joke or attempted to derail the lesson."

I call this style of intervention a CERS: Cause Effect Resource Statement:

- State a CAUSE
- Identify its EFFECT
- Make it RESOURCE-ful
- Use a simple STATEMENT

This is Brian's CERS: *"The way you engage the class really draws in the participation of the entire group."*

Statements such as these work because they are phrased in the positive and drive the recipient to find supporting evidence. The CERS links a cause, "the way you engage the class" to an effect, "draws in the participation," creating a personal resource for the recipient. While this comment took hold immediately, some CERSs work like seeds that grow to mighty oaks.

Caution: Your goal is to enrich lives. If you choose to use surprise to control or manipulate, you're doomed to failure. A CERS, delivered during a surprise, works because of authentic thoughtfulness.

Try This Formula

1. Identify a skill, ability, or potential that lies inherent in your observation. In the example above, Brian noted she is good at engaging others. The CAUSE
2. Determine a positive outcome. How can she use this skill productively? She can draw in others' attention. The EFFECT
3. Link them together with a strong verb. "The way you engage the class really draws in the participation of the entire group." The RESOURCE STATEMENT.

A CERS works to underscore a personal resource. If delivered as a surprise, it also forms an instant, self-affirming belief.

Critical Point: Avoid delivering your CERS as praise. Praise can sound phony, while declarative statements carry conviction.

However, transformative comments don't need to be delivered as a CERS. This method illustrates the elements at play that increase the likelihood of crafting a defining moment.



A Final Word

The next time you find yourself with an opportunity to inspire someone, to trigger a new belief that releases their potential, ask yourself, “How can I surprise this person so that they see themselves anew?” Their reaction may surprise you and you might both have a transformative experience!

About the Author

Michael Rousell, PhD, studied life-changing events for over three decades and established his expertise by writing the internationally successful book ***Sudden Influence: How Spontaneous Events Shape Our Lives*** (2007).

His pioneering work draws on research from a wide variety of brain sciences that show when, how, and why we instantly form new beliefs.

Rousell is a teacher, psychologist, and professor emeritus at Southern Oregon University. He lives in Edmonton, Alberta, Canada.

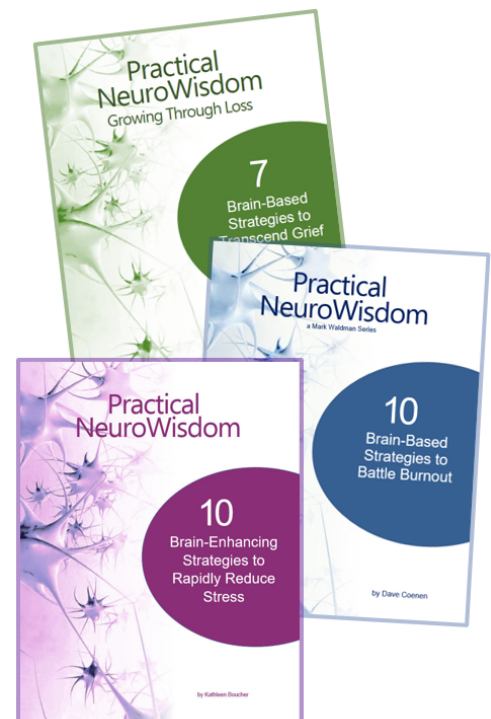


About the Series

The Practical NeuroWisdom series provides brain-based, evidence-based neuroscience to help solve real-world problems and improve lives. It provides proven steps and strategies based on the latest neuroscience.

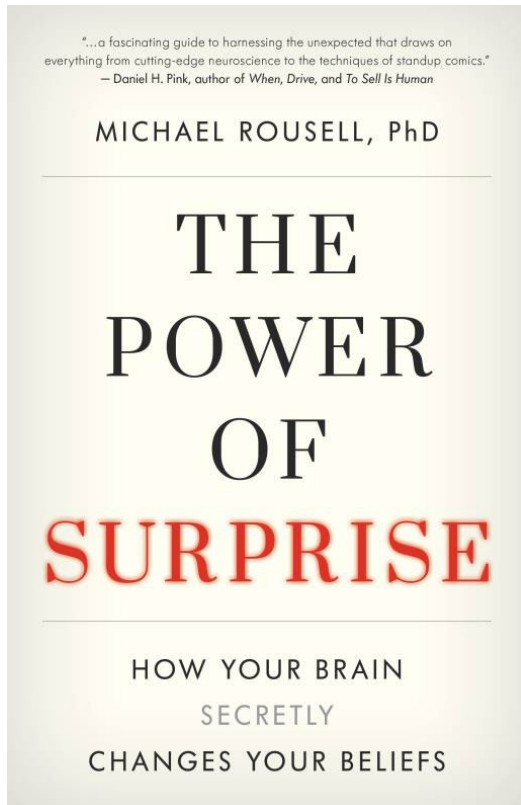
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Random events transform us. After studying formative events, moments that define us, for over three decades, Michael Rousell discovered that most of them took place during a spark of surprise. This breakthrough launched a fascinating journey from neuroscience to stand-up comedy. Rousell draws on research from a wide variety of brain science disciplines (cognition, motivation, neuroscience, psychology, artificial intelligence, persuasion, evolution, and learning), then examines those who already use surprise strategically (comedians, film directors, entertainers, magicians, and novelists). This examination illustrates the hidden, yet critical features inherent in surprise, while demystifying the complexities.

Surprise evolved as a mechanism to instantly change our beliefs. Rousell shows how surprising events produce invisible influence because they open a window to spontaneous belief change with no warning or conscious awareness. You'll see how seemingly minor features of surprise create profound differences and can be used to strategically enrich lives, create positive mindsets, and maximize influence.

"Fascinating read chock full of lots of truly novel information and ideas. A must-read for anyone interested in enriching their lives and finding new ways to expand their mind."

—Andrew Newberg, MD
best-selling author of *Why We Believe What We Believe*.