WIRED TO GROW 2.0

Harness the Power of Brain Science to Learn and Master Any Skill

Britt Andreatta, PhD

Author of *The Neuroscience of Learning*, *Wired to Resist*, *Wired to Connect*, and *Leading with Emotional Intelligence*

Discover the science-based secrets for fulfilling your potential by unlocking the power of your brain.

"Britt is masterful in bridging pioneering content with practical application using vulnerable stories from her own leadership experiences. She doesn't share what she's learned; she shares what she's learning. As you read, you will be invited into your own personal and authentic learning journey, rooted in rich and relevant data, and framed in a model that cultivates growth…for you and your organization. *Wired to Grow* is leadership gold."

LV Hanson, Senior Culture Strategist, Procore

"With *Wired to Grow* Dr. Andreatta has created a simple tool anyone can use to create real change in oneself or in others. It's required reading for those who want to use their minds to achieve results."

Chérie Carter-Scott, PhD, MCC, *NY Times* bestselling author of *If Life Is a Game, These Are the Rules: Ten Rules for Being Human*

"*Wired to Grow* is a fantastic book for anyone in the teaching game. It shows how anyone can change their old habits to new ones! Dr. Andreatta hit a home run."

Michael Ewing, President, Professional Ski Instructors of America, Northern Rocky Mountain Division

We are biologically wired to learn: whether we're simply trying to survive or reaching to fulfill our potential. ***Wired to Grow*** contains the keys to leveraging our natural neurological wiring to help unlock the fullest expression of who we are—to become or develop into something more. This fully revised and expanded second edition, now packed with more than double the original information, draws from the most recent neuroscience research and includes two new sections on creating a growth culture of learning and delivering learning to others. This powerful guide positively transforms lives, habits, and organizations.

Dr. Britt Andreatta is an internationally recognized thought leader who creates brain science-based solutions for today's challenges. She draws on her unique background in leadership, neuroscience, psychology, and education to unlock the best in people and organizations. She has over 25 years of experience consulting with executives from all types of organizations. Learn more at: www.BrittAndreatta.com.

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Britt Andreatta, PhD

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For Chris and Kiana.
You are my heart and soul. You help me learn and grow every day. I am the luckiest person on the planet to get to spend this life with you.

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INTRODUCTION

"When you know better, you do better."
Maya Angelou, poet and author, *I Know Why the Caged Bird Sings*

So, I was wrong. Well, not wrong exactly but some things I wrote in the first edition of this book have shifted so dramatically that they are now out of date. I have written two books since the first edition of *Wired to Grow* and, frankly, I got better at it as I went. So, it felt like a good time to update—but honestly, I thought I would dig into the research and find a handful of things to rework for the revision. Not so. Neuroscience has come far in the past five years. Many more researchers are looking at learning, memory, and behavior change. New tools and big data are shifting what scientists know about the brain, and memory research has undergone radical transformation due to some groundbreaking studies. And medical doctors are leveraging recent findings in neuroscience to create new treatments that are producing astonishing results.

You might not know this, but the rule for a second edition of a book is that at least 20 percent must change. Well, you're getting a whole new book because this is not only a complete rewrite of the first edition, but I have added 50 percent more content and revised my Three Phase Model of Learning™ as well.

In addition to the science, and perhaps because of it, the learning industry has changed significantly too. New technologies have made learning much more accessible. Thanks to smart phones, people all around the world are following their interests, developing their skills, and learning from peers and experts, many regardless of their circumstances, education, or income. Technology has also made learning more scalable to large groups of people and also more impactful. This has enlivened a new learning hunger in people of every age. Deloitte's *2019 Global Human Capital Trends* report, a study done with 10,000 participants from 119 countries, found that "people now rate the 'opportunity to learn' as among their top reasons for taking a job," and that "the No. 1 reason people quit their jobs is the 'inability to learn and grow.'" This has forced organizations to prioritize learning and, in fact, it tops their list of top-10 trends, along with leadership development and reskilling the current workforce for new kinds of work and jobs. Learning has expanded far beyond childhood classrooms to become a lifelong journey on a path to becoming our best selves.

Learning is the most powerful and natural process in the world. It's at the heart of any transformation we have made or will ever make both as

individuals and a society. I am not talking about education or training but the process of learning: how we start at one level of awareness, understanding, or skill and shift to a different—and better—level. We are biologically wired to learn. Our survival depends on our ability to learn from our environment and experiences. And therefore, intrinsically, several aspects of our central and peripheral nervous system are dedicated to the learning process.

Thousands of years ago, when all humans were living in tribes and subsisting off the land, our ancestors who survived were the ones who learned how to recognize when predators were nearby, to know which foods were poisonous, and to read signs of hostility in others. Today, our survival instinct still drives much of our learning but the context is vastly different. Instead of learning how to forage for food, we must successfully navigate our work environments. Survival is still the goal, since we use our paychecks to buy food, water, and shelter. But rather than learning to build fires and huts, we now need to know how to drive a car and use a computer.

Socially, we still need to learn how to read signs of hostility in others, as well as kindness, curiosity, and a host of other complex emotions, the process known as emotional intelligence. While that need hasn't changed, technology has connected the world, so we now need to do it beyond the familiarity of a shared language, culture, or geographic region. And we might even use emotional intelligence to understand words on a monitor, a voice on a device, or a face on a two-dimensional screen.

In addition to being the key to our survival, learning is also the path to fulfilling our potential—our capacity to become or develop into something more. Within each of us is unrealized ability waiting to blossom into the fullest expression of who we are. As individuals and as a species, we yearn to realize the highest and best version of ourselves. It's in our DNA, the strands of which even visually model the journey of an ever-upward climb. It's about transforming ourselves across the course of our lifetime.

And now, these advances in neuroscience have helped us identify the most effective way to learn. Instead of stumbling along, we have the ability to maximize our learning abilities, allowing us to more intentionally shape our growth and development. Transformative learning is a three-dimensional approach to learning that drives real behavior change. This means a person's understanding shifts through experiences and information about the "why" of things (psychological); their belief systems irrevocably shift through epiphanies, flashes of insight, and "aha!" moments (convictional); and their actions shift through observation, application, experimentation, and practice (behavioral). We'll learn more about how this fits in the bigger picture in section V, but for now just know that each dimension of

transformative learning helps create and groove neural pathways and habits of the desired behaviors in yourself or others.

This revised and expanded edition of *Wired to Grow: Harness the Power of Brain Science to Learn and Master Any Skill* is designed to help you fully unlock your potential, incorporating recent discoveries in neuroscience to give you new ways to maximize your ability to learn and grow. You can apply this material to your own life immediately, starting today. If you have a role where you help others learn and grow, you will also gain new tools for unlocking their potential and becoming a more effective manager, parent, leader, educator, or health care worker.

This book is organized into six sections:

I. We'll begin by looking at the big developments of the last five years in the neuroscience of learning.
II. Next, we'll dive into the new findings about memory (there are nine types!) and how the type of memory determines how you set up learning.
III. We'll explore new research about skills, habits, and behavior change.
IV. Next, we'll look at how to set up learning to maximize its effectiveness from the start.
V. We'll turn our attention to the latest brain-based best practices in learning design and delivery.
VI. We'll end with specific tips and strategies for creating a growth culture of learning in your organizations.

My Research Process

This book focuses on new developments since 2014 and, boy, there have been a lot of them. As a learning professional seeking cutting-edge information in learning and development, I have immersed myself in neuroscience research, which has forever changed how I approach learning design and delivery. Sadly, there is currently no centralized place to look for how brain science might inform learning professionals, so I began by diving deep into the latest studies.

I first focused on neuroscience, reading journals like *Neuron, The Journal of Neuroscience, Trends in Neuroscience and Education, Social Cognitive and Affective Neuroscience*, and *The Year in Cognitive Neuroscience*. Inevitably, these studies led me to other disciplines and recent studies in biology, psychology, business, and education. I also reached out and interviewed thought leaders in the field, like Dr. Mike Miller at the DYNS lab at the University of California, a coeditor of *The Year in Cognitive Neuroscience,* and Dr. Robert Clark, the

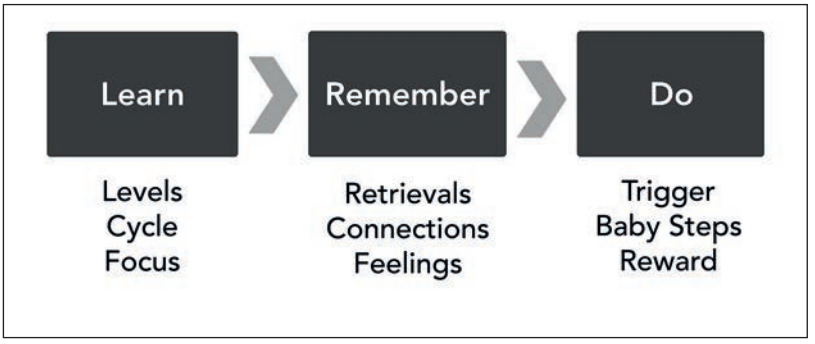
co-author of *Behavioral Neuroscience of Learning and Memory*. I read books, watched TED talks, and listened to podcasts. Inevitably, key themes emerged as I connected dots between studies, disciplines, and scientists that are rather siloed from each other.

Another important part of my research process is mapping what scientists find in their labs to issues that impact today's workplaces. I leverage research by data giants like Gallup, Deloitte, and McKinsey as well as professional associations like the Association for Talent Development (ATD) and the Society for Human Resource Management (SHRM). To be clear, I am not a neuroscientist; my PhD is in education, leadership, and organizations, and I have done my own research on the science of success. Because I am an active practitioner, designing and delivering learning experiences out in the field, I can see where lab studies do and do not translate to how people experience learning in the real world.

Some of the studies confirmed things I had found through trial and error long ago; others completely shifted how I approach my craft. What I found not only changed how I design and deliver learning for others but also how I approach my own transformation. Now that I know and truly understand the neuroscience of learning, I have unlocked more of my own potential and the potential of participants in my sessions.

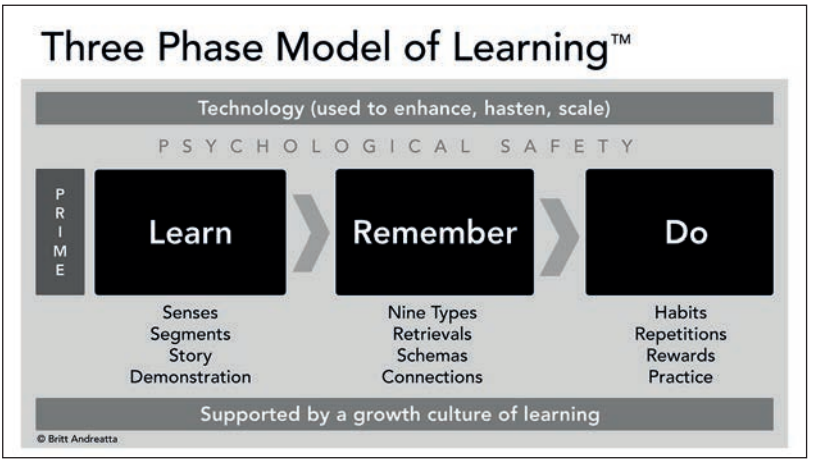
In addition, I used this research to build several new brain science–based training programs that are proving to be exceptionally effective in all kinds of organizations and industries. If you want to learn more, visit BrittAndreatta.com/Training.

In the first edition, I introduced my Three Phase Model of Learning and just five years ago, it looked like this:



The first (and now outdated) version of the Three Phase Model of Learning

Enriched by new research and data, the revised model looks like this:



The new version of the model

It still includes the core phases of Learn, Remember, Do, but the elements within them have shifted. And in addition to the critical component of fostering psychological safety, this new version explores the importance of properly priming for learning, as well as technology's role in aiding learning, all of which rest upon a growth culture of learning.

I am eager to share with you my exciting discoveries on the many new developments in the neuroscience of learning. So, let's take a journey together. I'd like to introduce you to the fascinating miracle that happens inside you every day: learning. Once you understand this brain-based process, you'll be able to use it more effectively and efficiently in your own life. You'll also have the keys to help others learn better and faster.

Let's get started!

Take a Learning Journey

Before I wrote this book, I taught this content through workshops, keynote presentations at conferences and corporations, and in online courses. In a live presentation, I model these concepts so participants get the most out of the experience. I'd like to replicate that for you here, so before you read on, pick something that you'd like to learn. It could be something you are

currently learning, or something you want to learn in the near future. It could be a new professional skill, like public speaking or mastering unfamiliar software. Or it could be something personal like playing an instrument, speaking a new language, or dancing the tango.

The only requirement: it should be truly meaningful to you. As you work through the book, apply each concept to this thing you want to learn—your learning goal—and by the end you will have a robust and exciting plan to help you realize your potential in this area. To help, I created a free downloadable PDF for you to print and fill out as you explore each concept (www.BrittAndreatta.com/Wired-to-Grow).

Tip: If you really want to maximize your experience, find a partner to share with. As you will discover in chapter 13, social learning actually boosts long-term retention. So, find a friend interested in chatting with you about what you learn in this book and your progress on your learning goal. Perhaps they might want to take this journey with you, comparing notes as they learn something new themselves.

19. Harness the Habenula to Learn from Failure

Another powerful brain structure plays a role in how we learn and build new skills and habits: the habenula. Only recently has imaging technology allowed scientists to truly see and study the habenula, which is located deep in the center of our brain, near the thalamus. The habenula is responsible for helping us avoid future failures, so we make better decisions and take better actions, by creating chemical guardrails that moderate our behavior.

Our brain naturally releases dopamine and serotonin, the "feel-good" chemicals, when we do something right. This is part of the brain's reward system. You probably feel it when you accomplish a task or receive praise for a job well done. However, when we make a poor choice that does not lead to a reward, the habenula restricts the flow of those chemicals, cutting off the drip, so to speak, making us feel bad.

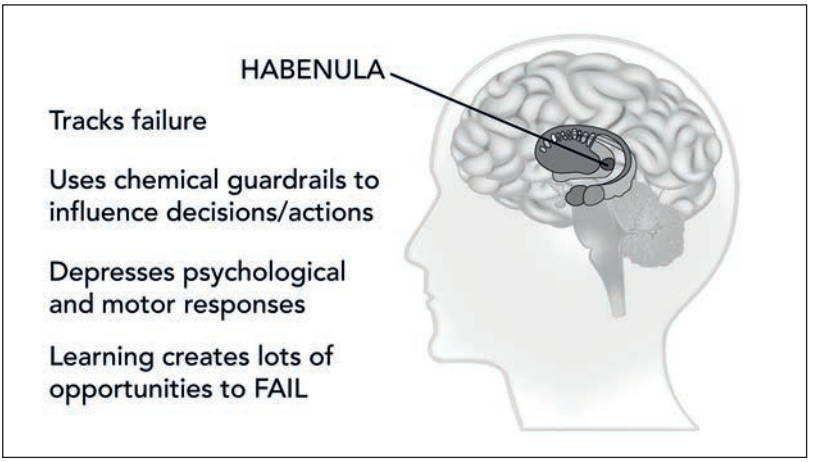
The habenula's role is quite important to the survival of our species. In our hunter-gatherer days, it would help us repeat good choices like going back to a trail that led to a food source (reward) and making us uncomfortable about the trail that didn't have food. It's almost like a chemical game of "warmer/colder" guiding us toward and away from good choices.

In our modern world, it still helps us repeat successful behaviors like returning to a restaurant where we had a good meal or approaching a new work project the way you approached your last successful one. Scientists have also discovered that the habenula is hyperactive in people with severe depression, over-restricting their serotonin and dopamine so that they feel bad all the time.

But the habenula does more than help us repeat behaviors that will bring rewards. It also helps us avoid punishment. According to Dr. Okihide Hikosaka, at the National Institutes of Health Laboratory of Sensorimotor Research, "Failing to obtain a reward is disappointing and disheartening, but to be punished may be worse." Studies have shown that the habenula is also very active when we approach a task where we have received a punishment. In fact, it suppresses both our motivation and our physical movements through the sensorimotor cortex of our brain. In other words, it's more difficult to make our body do the behavior. Talk about a double whammy! You can't get excited to do it but even if you managed to psych yourself up, your body won't get on board. If you ever find yourself thinking, *I just can't seem to make myself do it*, you're probably caught in this cycle.

Stress exacerbates this whole process. The body of a person under sustained, uncontrollable stress will produce various immune responses, such as increasing inflammatory chemicals. The body treats the stress as a physical

threat and responds like it would to bacteria or virus, such as the flu, including suppressing motivation and motor movements. In other words, you feel tired all the time, with little energy or desire to get things done.



The habenula tracks our failure to influence future choices

When we're physically sick, this response helps us to get better. It forces us to rest, saving energy so our immune system can overcome the illness and return us to health. But in situations of sustained stress, it creates depression and lethargy that can go on and on.

An unhealthy combination of stress and the habenula's natural function to avoid failure can unintentionally create conditions that lead to "learned helplessness." Psychologist Dr. Martin Seligman, founder of the positive psychology movement, first identified this concept while conducting experiments with dogs that were being classically conditioned by receiving a mild shock, a form of punishment, when they heard a bell. Once that conditioning was in place, he put the dogs in a room where they had freedom to move away from the source of the shock. But what happened? They laid down and gave up.

Seligman's research, and many subsequent studies, have shown that enough negative experiences condition us to expect failure, and we just give up and stop trying. Many psychologists have identified learned helplessness in all kinds of situations: people who cannot leave an abusive relationship, students who no longer try to succeed in a challenging subject, people with health problems who continue to make the same unhealthy choices. In the work setting, learned helplessness can affect people and teams.

If conditions have been bad enough for long enough, change won't necessarily overcome the learned helplessness, either. We reach a point

where we just can't motivate ourselves emotionally or physically to try anymore, even when there is a glimmer of hope. Many times, I have seen situations where a good solution has been implemented, like a poor leader is replaced or more resources are provided, but the attitudes of the people involved don't adjust accordingly.

Failure as an adult can also trigger some of our most painful memories of childhood failure and shame. As Dr. Brené Brown, an internationally recognized scholar on the effects of shame, describes in her book *Daring Greatly*, "childhood experiences of shame change who we are, how we think about ourselves, and our sense of self-worth." Most often, children are shamed by parents and teachers when they make mistakes at home and at school.

Sadly, shaming doesn't stop when we grow up. I have seen managers attempt to "motivate" their employees by publicly shaming them. And coworkers may use shaming as a defensive technique when they're feeling vulnerable. Dr. Brown's research goes on to show the profound and negative impacts of shaming in the workplace and how it harms creativity, innovation, collaboration, and productivity. If failure is combined with shame, the negative feelings will completely suppress both the motivation and willingness to try again.

The reality is that failure is part of learning. It's part of how we wire our brains to do new things and how we improve over time. So if it's not okay to fail, then it's not okay to learn. How you treat failure is as much, if not more, important than how you treat learning. I have gone into organizations that claim to have a positive culture that supports learning but whose leaders and managers in reality engage in "shame and blame" techniques whenever an employee makes a mistake. The habenula is going to track that and biologically move people to take few risks and cover up errors. This obviously leads to an organization that it not improving nor innovating. So, what is the antidote to this? It's called psychological safety and we'll cover it next.