

## New Meaning to a “Mind of Its Own”

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When choosing to read a book labeled as a New York Times Bestseller, a reader can expect to find more than an ordinary, commonplace piece of writing. *The Brain That Changes Itself*, by Norman Doidge, M.D., is a New York Times bestseller and based on the similarly titled documentary featured on PBS. Given its mainstream praise and acceptance, the book appears to have effectively caught the attention of more than a few bookworms. Highlighting recent and upcoming methods and discoveries from the forefront of brain science, Doidge explains how the human brain may not be the hardwired machine we recently understood it to be. The topic itself is so critical to the understanding of human nature that it is hard to imagine any reader finding these novel insights to be dull. Doidge sorts through all the jargon so a reader with any background gains a VIP ticket to access the excitement of discoveries brain scientists are currently unfolding. His thesis hones in on the emerging evidence that our brains are not hardwired with an unchangeable form; rather, the human brain is plastic and alterations are made as easily as changes can be made in one's environment.

The content of the book is divided into eleven chapters, each with a particular topic; two appendices; notes and references; and finally an index. Starting in the first chapter the reader is placed into the compelling situation of “Cheryl”, who suffers from the feeling that she is perpetually falling. She cannot stand still without collapsing, and feels as though she is teetering on the edge of a high precipice. And even when Cheryl is flat on the floor, the unsettled feeling persists. Doidge often reverts to this story-like format, introducing a specific physiological or psychological case that has been labeled by traditionalists as a permanent and irreversible condition. The reader earnestly hopes for any solution to the subject's – in this case, Cheryl's – problem. A sense of powerful relief arrives for Cheryl and the reader as Doidge describes a new development by Bach-y-Rita that uses electrodes on the tongue to provide a new neural path for sensation – a discovery that alleviates Cheryl's chronic, unsettled perceptions. Her life is dynamically transformed. This format of presentation provides the background for understanding the power of brain plasticity and brings forth real life implications for the work done by each mentioned scientist. This layout does justice for research relating to brain plasticity as the reader directly feels the reality of lives changing for the better.

Doidge shares that up until the very recent findings presented in the book, traditional views supported that our brains were neatly organized into compartments responsible for distinct functions. Yet the reader is slowly convinced, in the way the entire scientific community was slowly convinced, that there is indeed the capacity for constant structural change in the living brain. The reader meets Merzenich, one bold scientist who used monkeys to show that areas of the brain previously mapped for one area of sensation can be hijacked by other sensations if the former is not used. Brain scans show that either we “use it or lose it” in a very physical way. New therapeutic methods for Obsessive Compulsive Disorder (OCD) also target brain plasticity, strengthening the mental power of those with OCD to overcome their persistent thoughts and actions.

Successful psychotherapies correspond to changes in the firing of three distinct brain regions implicated in the disorder.

These physically observable changes cross frontiers that traditionalists would otherwise never bother to cross. Paralyzed patients who do not respond to conventional therapy are assumed to have no hope of improvement and often remain with the same level of functioning for the rest of their lives. Dr. Taub refused to believe the paralyzed brain wiring was permanent. Instead, Taub understands that the unused map areas of the brain must be retargeted. This constraint induced, or CI, therapy targets rewiring of unused map areas; and, after some weeks of therapy, people triumphantly begin to reuse parts of their body over which they had no control for years.

Seeing is believing, and other therapies grounded in plasticity have been developed to rewire a number of habits and lifestyles. Years of unhealthy relationship patterns are revived into more agreeable ones. Porn addicts can turn from their ways and actively rewire a brain that takes back the power to spend each hour of the day as the person chooses, once again enjoying the ones they love. The pain associated with phantom limbs has been reversed by rewiring neural circuits as well, allowing those to escape the plague of pain in a body part no longer connected to the body. The implications of brain plasticity are real: They apply to real life tragedies and chronic struggles, making the topic no small matter.

Subtlety and directly, Doidge suggests that a deeper understanding of plasticity will empower all humans in the time to come. Targeting the characteristics of brain plasticity can benefit everyone and would allow even the brightest people to sharpen their mental functions, increasing cognitive speed and efficiency. Barbara Arrowsmith Young, a previously learning-disabled woman, developed a method to improve her brainpower and overcome outstanding challenges, as well as a way to share this training with dozens of learning-disabled children who now excel in learning. By targeting and inducing plastic changes within distinct cognitive circuits, Barbara overcame traditional viewpoints and discovered a therapy that traditionalists with above-average learning abilities could never even conceive. In writing *The Brain That Changes Itself*, Doidge successfully identified a newly emerging topic and jumped to thoroughly explore it by meeting individual researchers and reading countless pieces of literature to gain a concrete understanding. He combined the broad topics that support neuroplasticity, analyzed them, and managed to combine it all within a reasonable length and in an easy to read format. Perhaps the breadth of conditions highlighted in the book contributed to its popularity in the media and the rate at which it sold from store shelves. This work was no small feat, and I believe Doidge's efforts have been met with a pleasing reception. He worked to collectively present current scientific discoveries in a language appropriate for any reader. And, as a result, he has enriched the many that get hold of the book – touching countless lives. Whether readers seek out ways to improve their day-to-day lives or search for a step in overcoming a long time battle, this work will change lives. Falling into the hands of humans directed by ever changing brains, this book will surely lead to continued research and support on the topic of brain plasticity.