

The Woman Who Changed Her Brain: And Other Inspiring Stories of Pioneering Brain Transformation

reviewed by Amy S. Thiessen · November 09, 2012

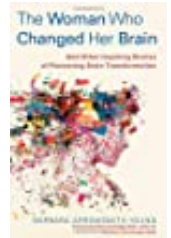
Title: The Woman Who Changed Her Brain: And Other Inspiring Stories of Pioneering Brain Transformation

Author(s): Barbara Arrowsmith Young

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In the last fifteen years, our understanding of how the brain works has been completely revolutionized by evidence of neuroplasticity. Prior to the early 1980's, the prevailing belief was that the brain structure was fixed early in childhood and could not be adjusted or modified. Most of this belief came from working with patients who had severe injury or trauma to the brain. Medical scientists could ascertain the location of different functions of the brain based on the presenting disabilities and functions after injury. Railroad spikes through foreheads, bullet wounds, and other harrowing events guided our understanding of neurology.

However, in the late 1970's and early 1980's new imaging techniques began to give scientists and doctors pictures of working brains before and after trauma. CAT scans and MRI's gave doctors the first pictures of intact nervous systems in living individuals.

General structures could be observed and measured. As technology advanced, PET scans and fMRI's were able to show changes in brain function as humans thought, processed stimuli, and, most importantly, learned new information. It was revealed that the brain is constantly changing and evolving according to the demands placed on it. The age of neuroplasticity had begun.

No longer is the brain considered a "hard-wired" organ. It is truly "plastic" and capable of great change—just as the cartoon character Plastic Man was able to stretch and bend his limbs to save the day. Changes in cortical function and size have been observed on fMRI scans following treatments for chronic pain, acquisition of new language, and recovery from injury. The power of the human nervous system is to maximize our potential as humans given the demands of our environment.

Neuroscience holds great promise in that it offers insight into the differences between us and the different ways that each of us thinks, learns, processes information, and responds emotionally—all of which are determined in no small part by the singular makeup of our brains. And with an understanding of the plastic nature of the brain, we can harness this property to positively change its functioning (p. 36).

Unfortunately, as the educator Barbara Arrowhead-Young knew, not everyone is born with the brain ready to maximize their human potential. Many otherwise very intelligent individuals struggle with specific areas of learning and brain dysfunction that render them unable to excel in the academic and work environments. In her book *The Woman Who Changed Her Brain*, Barbara Arrowsmith-Young describes not only her educational approach to treating learning disability using the concepts of neuroplasticity, but also her own journey of growing up with significant learning disabilities.

Many books that involve personal journey and struggle become bogged down and meander through the personal story. On the contrary, Arrowsmith-Young used her own experiences and those of her students as a jumping off point to meld science and special education as she developed curriculum in her institute in Toronto, Canada. This book uses this personal story to emphasize how the principles of neuroplasticity can be applied to help individuals change their brain function to become better learners. The personal autobiography is only a reflection of the passion she has for helping students avoid the pain and struggle she knows they have on a daily basis.

Many in medical school struggle to grasp the concepts of cortical function and how discreet areas interact and affect each other. Arrowsmith-Young was able to avoid overwhelming the reader by organizing her book into small, concise chapters that revolved around specific functions of the brain. While each of these functions is located in a specific area and has complex connections

with other cortical areas, Arrowsmith-Young gave the reader only the information needed to recognize and address the learning dysfunction that the area produces. While this sounds like a simplistic approach, the author's research, referencing, and understanding of brain function and the notation and reference sections of the book augmented each chapter for more study if desired. The result was a manageable understanding of overall cortical function and dysfunction.

As both a health care provider and an educator, I read this book from both perspectives. For the reader with a background in neurology, the case studies do seem simplistic. Lasting deficits that students may have were not discussed. Nor were strategies given for students who still may have significant functional deficits even after completing the 12-24 month program. The true interaction of many association areas of the brain are poorly understood by even the most advanced researcher, and the magic of cognitive and neural retraining was, as expected, always a happy ending in the case studies presented. Especially with older students and adults, I was left wondering how their overall function is years later. Even for herself, Arrowsmith-Young expresses some possible life-long effects of her struggles.

What is not so easily shed is the worldview that defined me for so much of my life. Inside me there remains that little girl, frightened by the world and terrified that she does not understand it. Even now, with my better brain and my ability to reason, this deficit's emotional legacy remains (p. 44).

Long term follow-up and study of these students would be an excellent area for Arrowsmith-Young to continue her research.

Unlike many authors of traditional research, Arrowsmith-Young shares her approach and practical information freely with the reader. Links to her references, specific testing tools, and even some of the basic exercises of her curriculum are all included in the text. Of course, her institute offers teacher training and partnerships with schools for implementation of the program. But selling her product was not the intent of the book. Arrowsmith-Young obviously wrote the book as a mission of outreach, not commercialism. In her words: "My hope is that a greater understanding of how these problems affect people's lives will encourage tolerance, understanding, and, perhaps, most important, compassion."

Because every dysfunction is given its own chapter (fourteen in all), the table of contents appears daunting. The chapters are fairly concise, so this ends up not being a problem for the reader. It is also easy to find one's way around the text when rereading or referencing it. Several of the dysfunctions appear very similar and use the same (or identical) students for the case studies. This made it difficult for me to know the differences in two of the visual processing disorders. The length of several case studies could have been shortened since they all ended with happy, fully functional adults, children, and families.

Arrowsmith-Young began the book with her own early childhood. While this gave me the impression the book was not going to be so scientifically based, her choice of order does make sense. By allowing readers to connect with her personal story, Arrowsmith-Young is able to draw in readers from all backgrounds, regardless of their previous exposure to neurology or special education. Throughout most of the book, she was able to balance her personal story with the larger message of the text. Her personal story also allowed her to introduce the dynamics of the entire family of a child with learning disabilities. In this way, the holistic approach of the Arrowsmith School was addressed, and several of the case studies were of entire families struggling with managing communication and learning impairments.

Nicholas was distraught, but so were his parents. Would he ever marry? Not likely. Hold down a job? 'I don't know if he could have been a dishwasher,' said Theresa. 'He couldn't stick with anything. He couldn't do step one, step two, step three.' Without language as a tool, he could not guide his actions (p. 84).

Admittedly, I love the feel of pages in my hand when I read a book, but because of price and portability, I read this book on a tablet device. This increased my access to it; however, it made utilizing the references and diagrams difficult and cumbersome. They were all placed at the end of the book and I had difficulty moving to them and back to the correct place in the text. Also, the pictures and pictorial diagrams were all placed at the end of the book. Again, I did not use them as they were intended because of this change in format. The explosion of access to literature in electronic format is amazing, but authors should be cautioned that the use of their book may significantly change from the print. Balancing the increase audience access with these barriers is ultimately the responsibility of the author although the publisher will have input into these decisions. Also, I am unable to loan or share this book with my colleagues and friends and access to the publication may end up and be *more* limited in the long run.

The Woman Who Changed Her Brain is not a definitive reference of cortical function and neuroplasticity. Nor is it a how-to manual for special education teachers. It is an introduction of how to blend the science of neuroplasticity and special education to understand and guide individuals into a way of thinking that helps them succeed academically and professionally. For anyone who wonders how to reach the "twisted and gifted" children that beat to the rhythm of their own drums, this book is a good place to start figuring out what might (or might not) be going on somewhere on the cortex of their brains.

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