

## BOOK REVIEW

### **The Talent Code: Greatness Isn't Born. It's Grown. Here's How**

**Author: Daniel Coyle**

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For those in the teaching profession, we have faced a most enduring psychological debate: nature or nurture. Think of those world famous scientists, like Elbert Einstein, or world champions e.g. Olympic gold medalists in all kinds of sports, and music geniuses like Mozart, just to name a few, and ask yourself are these individuals born genetically equipped with special kinds of genes or it is more a result of their practice or learning? In short, are highly talented or high-IQ individuals made or born?

This book by Daniel Coyle provides a clear answer to this centuries old debate: as the title states, "Greatness isn't born. It's grown". Since the time of Thomas Hobbes and John Lock in the 17<sup>th</sup> century, the British philosophers have emphasized the role of experience in behavior development. And we can easily see behaviorism is still influential to a certain extent among teaching practitioners especially those in primary schools. Also, more recent research is inclined toward the role of the environment. Yet, the argument is still far from settled. It is the readers' choice to choose whether they want to be inspired

by this book and prove it for themselves.

The Talent Code is also a how-to book. Coyle unpacks "the code of genius" by drawing on recent brain research on myelin and first hand research from his travels to nine world leading training camps, as he called "hotbeds" from baseball and basketball fields to a music academy. He identifies three key elements of giftedness development: (1) **Deep practice**, (2) **Ignition**, and (3) **Master coaching**.

#### **Deep practice**

With true respect to Andres Ericsson who coined the term "deliberate practice" as the key to world class performance (Ericsson, 1996), Coyle equates his 'deep practice' to 'deliberate practice' but merely explained in different way through myelin's function in the brain. According to Coyle, deep practice creates a circuit in the brain and when engaged in deep practice for a lengthy period, the myelin forms thick layers of insulation by wrapping around the nerve fiber. These myelin layers allow the transportation of information to the brain much faster and with more intensity than ordinary sig-

nals which in turn produces more circuits. To him, it has to be deep practice to produce such circuits. Deep practice, in essence, is a practice that is focused enough to identify what section(s) of the practice went wrong and correct them one by one until the performer reaches an expert level of performance.

Coyle provides clear principles of how myelin works and gives convincing, relevant research and fascinating anecdotes. For example, Einstein's brain was studied by a prominent female neurologist Prof. Dr. Marian Diamond who performed a comprehensive analysis of both the right and left sides of Einstein's brain. Her findings were astonishing: in terms of neurons, Einstein's brain was not different from eleven other control brains. But, in terms of myelin-supporting cells, Einstein's brain had twice as many.

According to Coyle, deep practice results in the growth of myelin in the brain. And the more myelin grows; the faster, better, and higher the quality of the performance. The right type of practice yields a new layer of myelin – the insulation that wraps around nerve fibers. The more layers, the more insulation, the faster and better the brain gets the information and sends back signals. Consequently, the good news is that myelin is not fixed. It grows. The more you do the right kind of practice, or 'deep practice', the more myelin grows. And the better you are at that particular skill.

### **Ignition**

Everyone needs a push to start doing something. But what separates high achiev-

ers from the rest? It is a higher commitment—or passion—that counts. In one example, Coyle talks about McPherson's investigation on music lessons (pp.102-4). The mystery is why certain children progress quickly at music lessons and others don't. McPherson undertook a long-term study of 157 randomly selected music students. After the first 9 months of lessons the children were of mixed skills, which is typical. Skill was scattered along a bell curve. He then interviewed them and came up with three categories: short term commitment, medium-term commitment, and long-term commitment. Then he plotted a graph (p.104). He was stunned. With the same amount of practice, the long-term commitment group outperformed the short-term commitment group by 400 percent. In short, to be an expert on something, it takes time.

Ignition is not aptitude. It is commitment. It is self-efficacy in which a person perceives capabilities for learning or performance in him or herself. It is 'can do' attitude. Coyle cited Carol Dweck's famous studies on fixed mindset and growth mindset. Over time, Dweck and her colleagues reached the conclusion that there were two distinct patterns of responses to challenging situations. Some students believe that intelligence is a fixed attribute. They believe they have a certain amount and that is it. They cannot really do anything about it. Other students see intelligence as a changeable attribute, something that can grow and strengthened overtime. These students think the more effort they put in, the more they will learn. In her study, the two groups of students were given different verbal feedbacks. The first group was

praised for intelligence, e.g. “you are so smart you can do this test”.

The second group was praised for effort, e.g. “I can see that you have put a lot of effort into this. And that helps you do it much better. Great job!” Results? The first group avoided difficult tests as they did not want to look bad while the second group tried harder and did not give up (pp.135-137).

### **Master coaching**

Like Andres Ericsson, Coyle also sees the role of the teacher, trainer, or coach as a key and essential element in skill development. To move up to the expert level, one needs a master teacher rather than being self-taught. But what makes great teachers different from others? In this section, Coyle observes that the great coaches and great trainers he found at hotbeds were not super heroes who “know a special something that most of us don’t”. Rather, “the teachers and coaches I met were quiet, even reserved. They were mostly older; many had been teaching 30 or 40 years...They had an extraordinary sensitivity to the person they were teaching, customizing each message to each student's personality”.

Coyle concludes; great teaching is a skill like any other. He cited Ron Gallimore, now a professor emeritus at UCLA, describes, “Great teachers focus on what the student is saying or doing, and are able, by being *so focused and by their deep knowledge of the subject matter, to see and recognize the inarticulate stumbling, fumbling effort of the student who’s reaching toward mastery, and then connect to them with a*

*targeted message*”. (p.177)

### **It Takes All Three to Be Great**

Any one of these elements alone would not be enough to achieve greatness. It takes all three: deep practice, ignition, and master coaching. As Coyle explained, deep practice will produce a brain circuit. By 'deep practice, he means targeted, mistake-focused practice (p.34). Talent also needs passion and persistence. Without commitment, no one would continue with energy and time. The forty to fifty wraps of myelin around the nerve fiber that are needed clearly demonstrates the biological requirement of talent development (p.43). And lastly, with a great coach or skillful teacher to observe closely and be able to spot the mistakes and give the right instructions to correct them, the individual will continually improve his or her performance to a higher level. Without great teachers, one could hardly find their own mistakes and thus hardly knows what is wrong with their performance. This explains why some people spend ten years doing something yet never get close to expert performance.

### **Writing Style of the Book**

Written in a journalist style, the book is easy to read and full of anecdotal stories that are insightful and inspiring. Coyle also draws on some interesting research related to learning. KIPP and KEEP are two interesting examples. Just as interesting as Dweck’s research, KIPP is the Knowledge Is Power Program for low income schools initiated by Feinberg and Levin (pp.139-143). With college as the main goal for

learners, they implemented conservative old fashioned hard work – longer school days (from 7:30 to 5), shorter summer vacations, uniforms, and clear system of punishment and rewards – under the slogan of “Work Hard, Be Nice”. When the program was initiated, 53 percent of the students passed the state English and math tests, by 1999, three years after launching, KIPP students scored higher than any other public schools in their districts (p.142). The KEEP project is equally fascinating. You can find out more about the secret of this successful reading program for poor children in Honolulu from this book. How the two KEEP leaders, Gallimore and Tharp, carefully observed a great basketball coach named Wooden at UCLA. For months they observed and recorded to find out that of 2,326 discrete acts of teaching, only 6.9 percent were compliment, 6.6 were expressions of displeasure and 75 percent were pure instruction (p.168). No long lectures, the coach hardly spoke longer than 20 seconds and his comments were short, punctuated, and he ran an intense practice of 5-15 minutes drills during which he uttered a rapid stream of comments all along. Learned from the basketball coaching techniques, Gallimore and Tharp applied these in their KEEP school and slowly, steadily it worked. In 1993 KEEP project received Grawemeyer Award, one of education’s highest honors (p.171).

### **Some Plus and Minus Points of the Book**

The author spent much space talking about myelin. The plus side is it adds to brain research in that for centuries neurologists focused primarily on neurons and syn-

apses. The role of myelin is probably first discussed in depth for the general public in this book. The role myelin plays in human skill building is a significant shift in brain research.

A drawback of this extensive treatment, however, is that since the majority of readers are probably teachers, coaches, and other individuals inspired to improve themselves, the extensive devotion to myelin’s role could be less helpful than other components discussed. For non-neuroscientists, we would look for tips that contain conscious, self-aware, and controllable elements, rather than such a strong emphasis on the physiological details of brain structure.

### **Who Should Read this Book?**

Dispite these slight drawbacks, the book is recommended for teachers, educators, parents, coaches, as well as students and everyone of us who wish to improve ourselves in our chosen field. Reading this book may lead us to several other good books on self-efficacy such as *Talent Is Overrated: What Really Separates World-Class Performers from Everybody Else* by Geoff Colvin (2008); *Think Smart: A Neuroscientist’s Prescription for Improving Your Brain’s Performance* by Richard Restak (2009); and *The Road to Excellent: The Acquisition of Expert Performance in the Arts and Sciences, Sports, and Games* edited by Andres Ericsson (1996). It is Ericsson who coined the term, “deliberate practice” and concludes with the famous “10,000-hour, 10-year rule” for achieving world-class, expert performance.

Coyle quotes Ericsson with respect in

his book where he equates his ‘deep practice’ to Ericsson’s deliberate practice. In an attempt to answer the classic debate of nature or nurture, this book advocates nurture and gives hope to all of us in the sense that everyone can learn and excel if we do the right kind of practice, have long-term commitment, and seek to work with a good teacher. For teachers in the age of Education for All, isn’t this a healthy attitude to use as you work with your learners? For teachers at all education levels, Daniel Coyle’s **The Talent Code** should be both informative and inspiring.