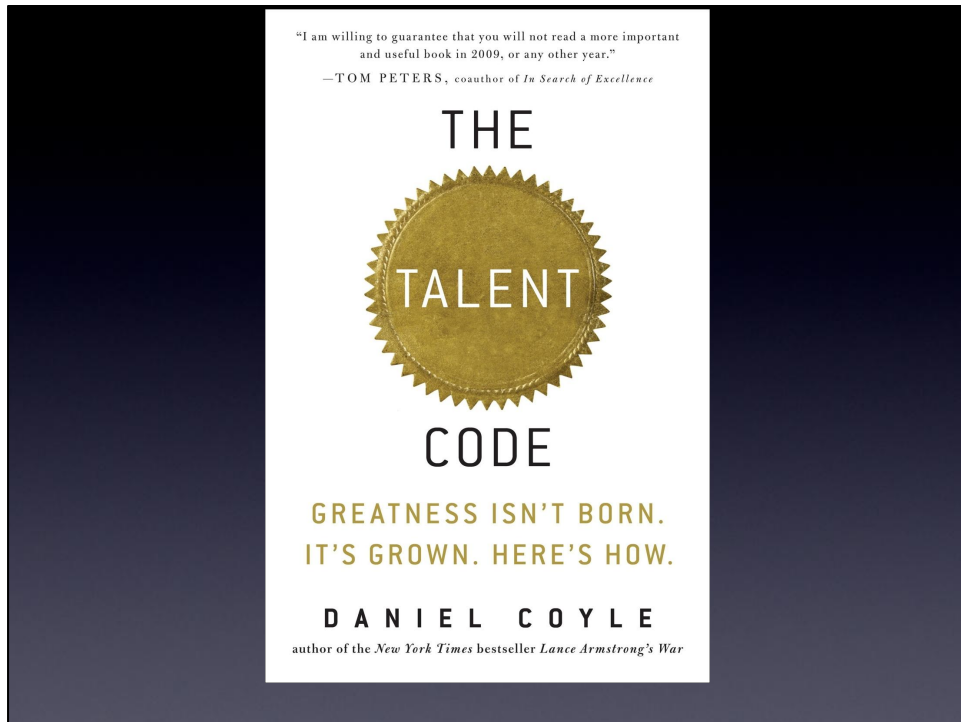


Florida Music Educators Association  
Friday, January 14 - 2022

Unlocking the Talent Code



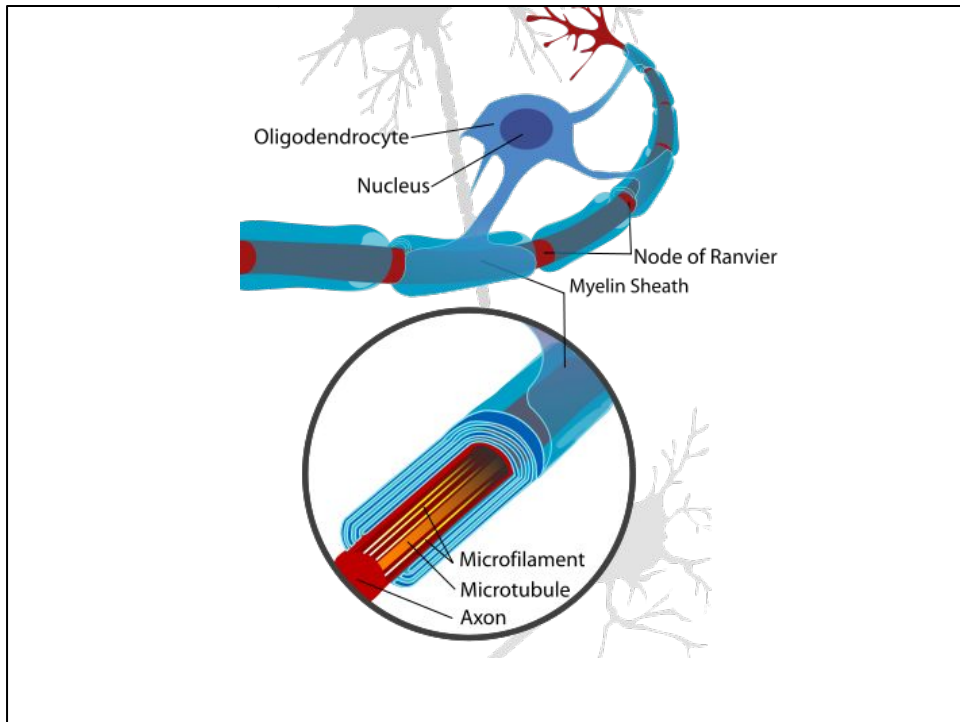
## The Talent Code: Daniel Coyle

- How does a penniless Russian tennis club with one indoor court create more top-twenty women players than the entire United States?
- How does a humble storefront music school in Dallas, Texas produce Jessica Simpson, Demi Lovato and a succession of pop music phenoms? (Linda Septian - Septian Entertainment Group in Carrollton, TX. Over 14,000 artists trained)
- The first baseball players from the tiny island of the Dominican Republic arrived in the major leagues in the 1950's; they now account for one

- of every nine big league players.
- The first South Korean woman golfer won an LPGA tournament in 1998; now there are forty-five on the LPGA Tour, including 8 of the top money winners.
- How did the artists in Florence (population 70,000) produce an explosion of genius that has never been seen before or since?
- It leaves us with questions like this: where does this extraordinary talent come from? How did it grow?
- These talent hotbeds have tapped into a neurological mechanism in which certain patterns of targeted practice build skill. Without realizing it, they have entered a zone of accelerated learning, that while it can't quite be bottled, can be accessed by those who know how. In short – they've cracked the Talent Code.
- THE TALENT CODE IS BUILT ON REVOLUTIONARY SCIENTIFIC DISCOVERIES INVOLVING A NEURAL INSULATOR CALLED MYELIN(1).
- **What is Myelin and why is it important?**

Every human skill, whether it's playing baseball or

playing Bach, is created by chains of nerve fibers carrying a tiny electrical impulse – basically, a signal traveling through a circuit. Myelin’s vital role is to wrap those nerve fibers the same way a rubber insulation wraps (2) a copper wire, making the signal STRONGER and FASTER by preventing the electrical impulses from leaking out. When we fire our circuits in the right way – when we practice swinging that bat or playing that note – our myelin responds by wrapping layers of insulation around that neural circuit, each new layer adding a bit more skill and speed. The thicker the myelin gets, the better it insulates, and the faster and more accurate our movements and thoughts become.



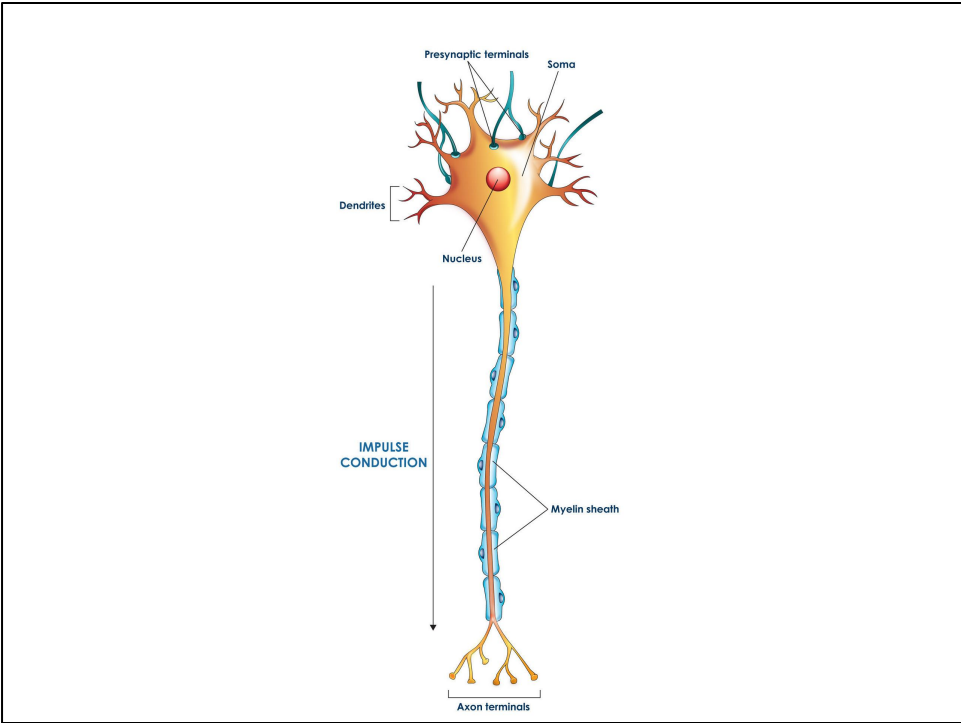
Myelin is important because it provides us with a vivid new model for understanding skill:

SKILL IS A CELLULAR INSULATION THAT WRAPS NEURAL CIRCUITS AND THAT GROWS IN RESPONSE TO CERTAIN SIGNALS.

These talent hotbeds we've mentioned all operate on the same principles of action – no matter how different they may appear to us.

Dr. George Bartzokis, a UCLA neurologist and myelin researcher, put it, “All skills, all language, all music, all movements, are made of living circuits,

and all circuits grow according to certain rules.”  
Basically, Acquiring skill is the honing of neural circuitry by wrapping the right neural circuits with myelin(3).

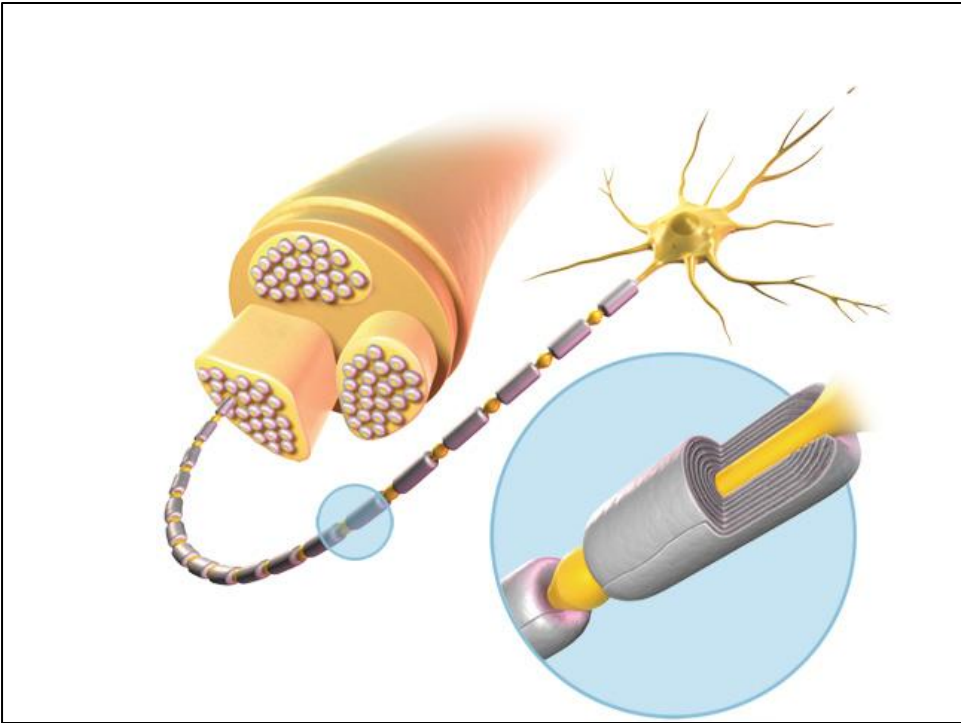


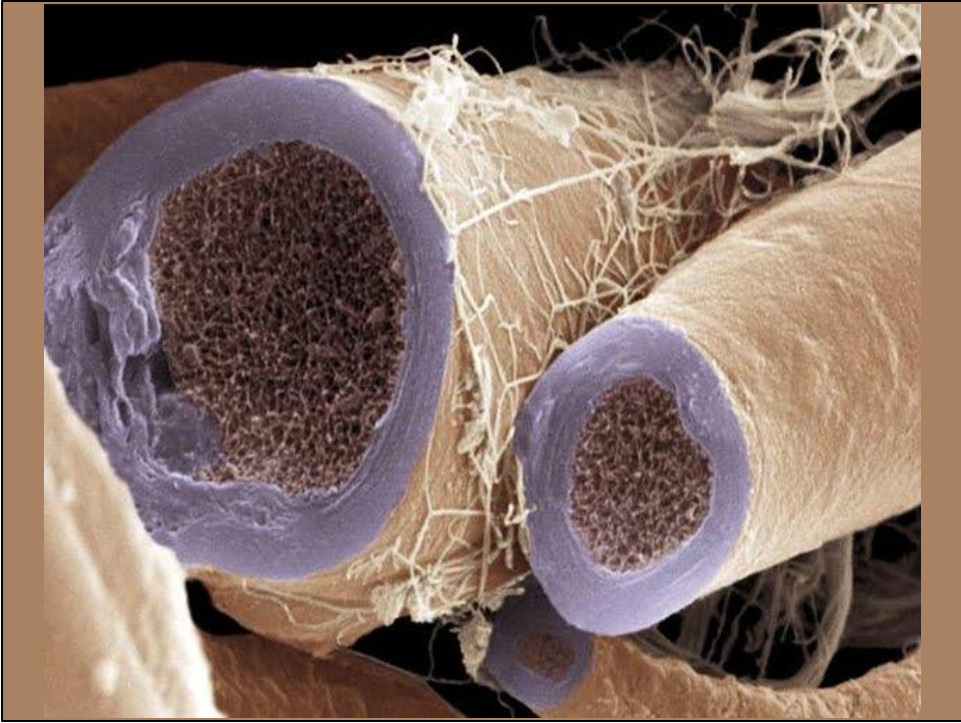


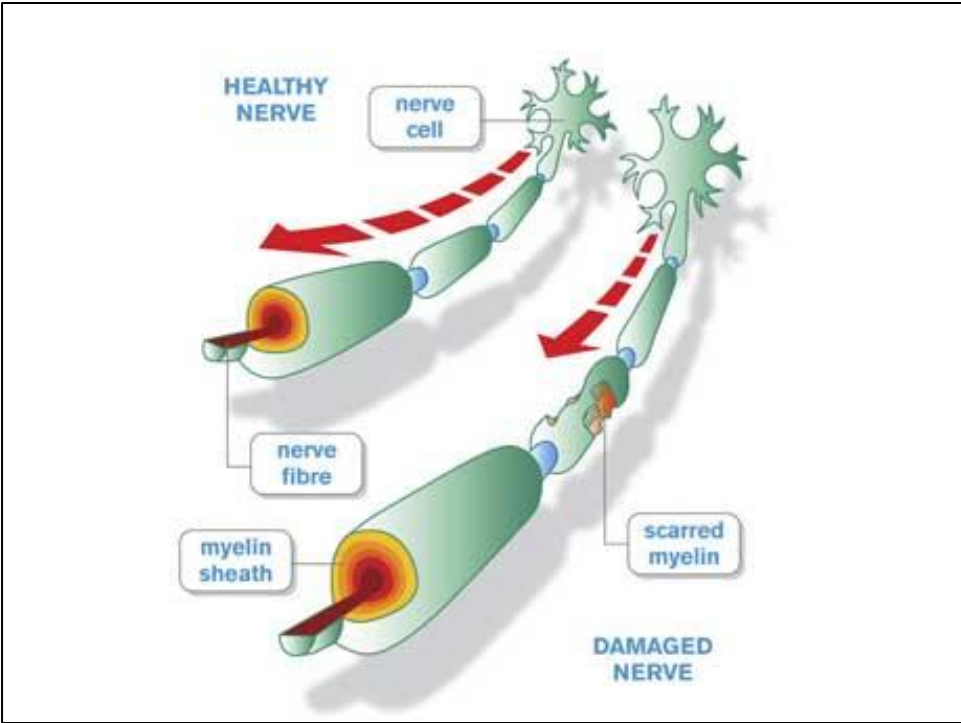
Dr. Douglas Fields  
Director of the Neurobiology Lab  
Bethesda, Maryland

Dr. Douglas Fields Director of the Neurobiology Lab in Bethesda, Md wrote a 2006 paper in the journal *Neuron*, Support cells called oligodendrocytes sense the nerve firing and respond by wrapping more myelin on the fiber that fires. The more the nerve fires, the more myelin wraps around it. The more myelin wraps around it, the faster the signals travel, increasing velocities up to one hundred times over signals sent through an uninsulated fiber.









# Jacqueline du Pré 1945 - 1987



A darker, more vivid way to appreciate myelin's role in skill development is to consider diseases that attack myelin. British cellist Jacqueline du Pré mysteriously lost her ability to perform at age 28 and was diagnosed with multiple sclerosis eight months later. Such diseases are quite literally the opposite of acquiring skill, as they destroy myelin while leaving the connections between neurons mostly intact.

*Talent* in its strictest sense: the possession of repeatable skills that don't depend on physical size (sorry jockeys, NBA stars and NFL Linemen)



## The Word Talent

The word *talent* can be vague and loaded with slippery overtones about potential, particularly when it comes to young people - research shows that being a prodigy is an unreliable indicator of long-term success. In the interest of clarity, we will define *talent* in its strictest sense: The possession of repeatable skills that don't depend on **physical size (4)** (sorry Jockeys, NBA stars and NFL linemen)

## Developing our Classrooms into Talent Hotbeds Requires 3 things:

- Deep Practice
- Ignition
- Master Coaching

DEVELOPING OUR CLASSROOMS INTO MAJOR TALENT HOTBEDS REQUIRES THREE THINGS:

1. Deep Practice
2. Ignition
3. Master Coaching(5)

# • Deep Practice

## Deep Practice

There is a slow fitful struggle that must take place in order for the mind to make progress in building myelin coated circuits. Some of the world's best "deep practicers" experience the same thing while learning.

1. They slam to a halt much like a herd of deer suddenly encountering a hillside coated with ice.
2. They think carefully before taking each step.
3. Making progress becomes a matter of small failures – a rhythmic pattern of botches.

1. There is something else that is shared: a taut facial expression with an intense squint that somehow resembles Clint Eastwood.

When we see people practice effectively, we usually describe it with words like willpower or concentration or focus. But those words don't quite fit, because they don't capture the ice-climbing particularity of the event. The people inside the talent hotbeds are engaged in an activity that seems on the face of it, strange and surprising. They are seeking out the slippery hills. When people deep practice, they purposely operate on the edges of their **ability (6)**.



## Deep Practice is a strange concept for 2 reasons:

- It cuts against our intuition about talent. Our intuition tells us that practice relates to talent in the same way that a whetstone relates to a knife: It is vital but useless without a solid blade of so-called natural ability. Deep practice raises an intriguing possibility: that practice might be the way to forge the blade itself.

**DEEP PRACTICE (7)** could actually be the thing that forges our talent!

## Deep Practice is a strange concept for 2 reasons:

- It takes what we would normally try to avoid - namely, mistakes - and turns them into skills. To understand how deep practice works, it's first useful to consider the unexpected but crucial importance of errors in the learning process.

Seeking out our **MISTAKES(8)** actually becomes a skill of deep practice.

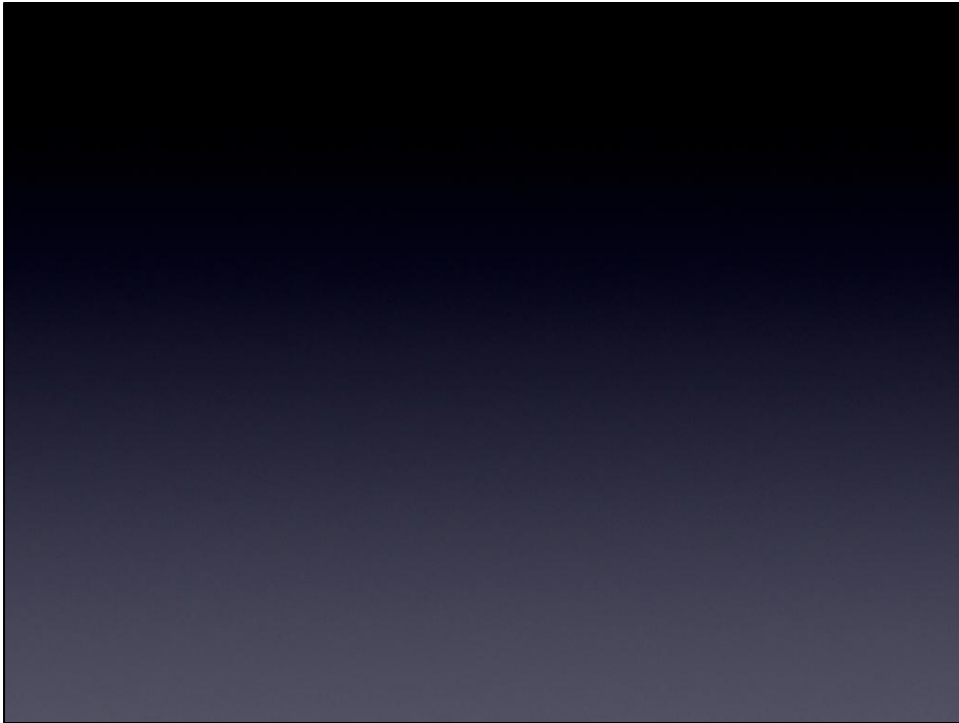
## List A

ocean / breeze  
leaf / tree  
sweet / sour  
movie / actress  
gasoline / engine  
high school / college  
turkey / stuffing  
fruit / vegetable  
computer / chip  
chair / couch

## List B

bread / b\_tter  
music / L\_rics  
sh\_e / sock  
phone / bo\_k  
chi\_s / salsa  
pen\_il / paper  
river / b\_at  
be\_r / wine  
television / rad\_o  
L\_nch / dinner

The best way to understand the concept of deep practice is to do it. Take a few seconds to look at the following lists; spend the same amount of time on each one. Now let's turn the page and try to remember as many of the word pairs as you can.



From which column do you remember the most words?

If you're like most people, it won't even be close: you will remember more of the words in column B, the ones that contained fragments. Studies show you'll remember three times as many! It's as if, in those few seconds, your memory skills suddenly sharpened. If this had been a test, your column B score would have been 300 percent higher!

Your IQ did not increase while you looked at column B. You didn't feel different. You weren't touched by genius (sorry). But when you encountered the words with blank spaces, something both

imperceptible and profound happened. You stopped. You stumbled ever so briefly, then figured it out. You experienced a microsecond of struggle, and that microsecond made all the difference. You didn't practice harder when you looked at column B. You practiced DEEPER.

Robert Bjork, Chair of psychology at UCLA said this: "We think of effortless performance as desirable, but it's really a terrible way to learn." Bjork also says , "the trick is to choose a goal just beyond your present abilities; to target the struggle. Thrashing blindly doesn't help. Reaching does."



## **Brazil's Secret Soccer Weapon**

Simon Clifford is an Englishman who, in the mid 90's, was fascinated by the supernatural skills of the Brazilian soccer players and decided to go to Brazil to see if he could find out how they developed these skills. Clifford had thus far gained all of his coaching experience at a catholic elementary school in the soccer non-hotbed of Leeds, England. In the summer of 1997 when Clifford was 26, he borrowed 8000 pounds from his teachers' union and set out for Brazil toting a backpack, video camera and a notebook full of phone numbers he'd cajoled from a Brazilian player he'd met.

Clifford ran into a strange game that he didn't expect. It resembled soccer, if soccer were played inside a phone booth and doped with amphetamines. The ball was half the size and weighed twice as much; it hardly bounced at all. The players trained, not on a vast expanse of grass field, but on basketball-court-sized patches of concrete, wooden floor and dirt. Each side, instead of having eleven players, had five or six. In its rhythm and blinding speed, the game resembled basketball or hockey more than soccer: it consisted of an intricate series of quick, controlled passes and nonstop end-to-end action. The game was called futebol de salao which means soccer in the room. Its modern name is called futsal. It became clear to Clifford that this was where the Brazilian skills were born.

In 1936 Brazilians codified the rules of the game and it spread like a virus, especially in Brazil's crowded cities. Brazil became obsessed with the game, in part because the game could be played anywhere (no small advantage in a nation where grass fields are rare). Futsal grew to command the passions of the Brazilian kids in the same way that pickup basketball commands the passions of

inner-city American kids.

Pele played futsal growing up!

Virtually every great Brazilian soccer player played futsal as a kid. The great Juninho, for instance, said he never kicked a full-size ball on grass until he was fourteen. Until he was twelve, Robinho spent half his training time playing futsal. Some of the famous Brazilian soccer tricks – the elastico move that Ronaldinho popularized, drawing the ball in and out like a yoyo originated in futsal. The toe-[ple gpa; that Ronaldo scored in the 2002 World cup? – Futsal moves like the d'espero, el barret, and vaselina? All came from futsal.

Another reason for their greatness lies in the math: Futsal players touch the ball far more often than soccer players – 6 time more often per minute, according to a Liverpool university study. The smaller, heavier ball demands and rewards more precise handling – as coaches point out, you can't get out of a tight spot simply by booting the ball downfield. Sharp passing is paramount: the game is all about looking for angles and spaces and working quick combinations with other players.



Ball control and vision are crucial, so that when futsal players play the full-size game, they feel as if they have acres of free space in which to operate.

**NO TIME PLUS NO SPACE EQUALS BETTER SKILLS.**

Futsal compresses soccer's essential skills into a small box; it places players inside the deep practice zone, making and correcting errors, constantly generating solutions to vivid problems. Players touching the ball 600 percent more often learn far faster, without realizing it, than they would in the vast bouncy expanse of the outdoor game.

After seeing Futsal, Simon Clifford returned to Leeds to found the International Confederation of Futebol de Salao in a spare room of his house. When the citizens of Leeds heard of Clifford's plan, they were mildly entertained. When they actually witnessed his school in action, they were in grave danger of laughing themselves to death at the spectacle: dozens of pale, pink-cheeked, thick-necked Yorkshire kids kicking around small, too-heavy balls, learning fancy tricks to the tune of samba music. It was a laugh, except for one detail – Clifford was right!

Four years later, Clifford's team of under-fourteens defeated the Scottish national team of the same age; it went on to beat the Irish national team as well. One of his Leeds kids, a defender named Micah Richards, now plays for the English national team. Clifford's Brazilian Soccer School has expanded to a dozen countries around the world. Clifford says more stars are on their way.

# A Deep Practice Example: Futebol de Salao (Futsal)



## Deep Practice Example:

### Brazilian Soccer

What is it about Brazilian soccer that seems to produce more transcendent stars than any other country? Stars like Pele, Zico, Socrates, Romario, Ronaldo, Juninho, Robinho, Ronaldinho, Kaka and others? Soccer fans from around the world have witnessed this same quintessential scene: A group of enemy players surround a Brazilian, leaving him no options, no space, no hope. Then there's a dance like blur of motion – a feint, a flick, a burst of speed and suddenly the Brazilian player is in the

clear, moving away from his now tangled opponents with all the casualness of a person stepping off a crowded bus. Each day Brazil accomplishes something extremely difficult and unlikely: in a game at which the entire world is feverishly competing, it continues to produce an unusually high percentage of the most skilled players.

You may think the conditions are ripe in Brazil: friendly climate, a deep passion for soccer, and a genetically diverse population of 190 million, 40 percent of whom are desperately poor and long to escape through “the beautiful game”. There is your factory for greatness.

In the 40’s and 50’s just about all of these things were in place – so why wasn’t Brazil tearing up the world soccer competitions then? It was all Hungary. It wasn’t until 1958 when the Brazilians fielded a brilliant team that featured an amazing 17 year old named Pele.

Pele was the trigger.

We will discuss all sorts of triggers later. There was

a particular way that Brazilians began training with during the 50's, They weren't even really aware of it, but they set deep practicing for soccer in motion and Pele was its first result.

After talking about Brazilian soccer so much, I thought I'd show you a fun video comparing Ronaldho's skills as a child and as a man. Playing FUTSAL!

## The Revolution of Myelin is built on 3 simple facts:

- Every human movement, thought or feeling is a precisely timed electrical signal traveling through a chain of neurons - a circuit of nerve fibers.
- Myelin is the insulation that wraps these nerve fibers and increases signal strength, speed and accuracy.
- The more we fire a particular circuit, the more myelin optimizes that circuit, and the stronger, faster and more fluent our movements and thoughts become.

• (9) Every human movement, thought or feeling is a precisely timed electrical signal traveling through a chain of neurons - a circuit of nerve fibers.

• (9) Myelin is the insulation that wraps these nerve fibers and increases signal strength, speed and accuracy.

• (9) The more we fire a particular circuit, the more myelin optimizes that circuit, and the stronger, faster and more fluent our movements and thoughts become. (9)

Skill is myelin insulation  
that wraps neural circuits  
and myelin grows  
according to certain  
signals. The story of skill  
and talent is the story of  
**MYELIN.**

**Q: Why is targeted, mistake-focused practice so effective?**

**A: Because the best way to build a good circuit is to fire it, attend to mistakes, then fire it again, over and over. Struggle is not an option: it's a biological requirement.**



Q: Why are passion and persistence key ingredients of talent?

A: Because wrapping myelin around a big circuit requires immense energy and time. If you don't love it, you'll never work hard enough to be great.

Q: Why are passion and persistence key ingredients of talent?

A: Because wrapping myelin around a big circuit requires immense energy and time. If you don't love it, you'll never work hard enough to be great. (10)

Q: What is the best way to get to Carnegie Hall?

A: Straight down Myelin Street.



Fredrik Ullen  
Concert pianist and Neuroscientist

**(YOUR WHITE MATTER VOLUME IS DIRECTLY RELATED TO HOW MUCH YOU PRACTICE.)**

Not only are scientists studying the breakdown of myelin to combat diseases like MS, but they are conducting studies to determine its production.

In 2005 Fredrik Ullen scanned the brains of concert pianists and found a directly proportional relationship between hours of practice and white matter!

In 2005 Fredrik Ullen discovered that white matter in the brains of concert pianists directly correlated to their hours of

practice!(11)



## Anders Ericsson The 10,000 Rule:

Every expert in every field is the result of around 10,000 hours of committed practice. (roughly a decade)

This is Anders Ericsson. He studied human expertise for decades and wrote the *Cambridge Handbook of Expertise and Expert Performance*. He summarized that every expert in every field is the result of around **ten thousand(12)** hours of committed practice (roughly a **decade**) (12.). **165 MINUTES A DAY FOR 10 YEARS! (2 HOURS, 45 MINUTES A DAY)**

So, we've seen how deep practice is all about constructing and insulating circuits, but practically speaking, what does that feel like? How do we know we're doing it?

Deep practice feels a bit like exploring a dark and unfamiliar room. You start slowly, you bump into furniture, stop, think, and start over again. Slowly, and a little painfully, you explore the space over and over, attending to errors, extending your reach into the room a bit farther each time, building a mental map until you can move through it quickly and intuitively.

In Talent hotbeds around the world: Deep practice takes place in three dimensions:

## 3 Deep Practice Techniques Found in Talent Hotbeds

- Look at the task as a whole
- Divide it into its smallest chunks
- Play with time

Look at the task as a whole - as one big chunk, the mega circuit. (Listen to the piece you are about to learn, absorb it fully and compare different artist's recordings) Talk about what happens when I guest conduct and ask who has listened to the piece. Tell the story of Quinn Mosier and piano.

Divide it into the smallest possible chunks. Describe the chunking that used to take place in order to memorize a piano piece for Pat Reas.

**Meadowmount School of Music** in upstate New York is the super chunker of all deep practice

places. It is located five hours north of Manhattan in the green quilt of the Adirondack Mountains. Founded by renowned violin teacher Ivan Galamian who chose the site for the same reason New York State builds most of its prisons in that area: It's remote, inexpensive, and extremely quiet. (Galamian had first settled on the camp in nearby Elizabethtown but deemed the local girls to be too distractingly beautiful, a point he underlined by marrying one.)

3 deep practice techniques found in talent hotbeds:

- 1) Look at the task as a whole,
- 2) divide it into its smallest chunks,
- 3) play with time. (13)



# Meadowmount School of Music



The Meadowmount School of Music, founded in 1944 by Ivan Galamian, is a 7-week summer school in the town of Lewis in Upstate New York for accomplished young violinists, cellists, violists, and pianists training for professional careers in music.

## Practice Cabin at Meadowmount



The original camp comprised a few cabins and an old house that had no electricity, no running water, and no television or telephone service.



Meadowmount, however, is better defined by the camp's storied alumni (Yo-Yo Ma, Pinchas Zukerman, Joshua Bell, and Itzhak Perlman) and, at its core, by a simple equation that has become the school's de facto motto: in seven weeks, most students will learn a year's worth of material, an increase of about 500 percent in learning speed. Among the students, this acceleration is well known but only dimly understood. So it is often spoken about as if it were some kind of snowboarding trick.

### **(SUPER CHUNKING)**

These feats are routine at Meadowmount, in part

because the teachers take the idea of chunking to its extreme. Students scissor each measure of their music into small squares. These squares are stuffed into envelopes and pulled out in random order. They go on to break those squares into smaller fragments by altering rhythms forcing the linkage of notes at a quicker pace within the slow practice. They are continually breaking a skill into its component pieces (circuits). Memorize those pieces individually, then link them together in progressively larger groupings (new, interconnected circuits).

## 3 Deep Practice Techniques Found in Talent Hotbeds

- Look at the task as a whole
- Divide it into its smallest chunks
- Play with time.

The third area was: “Play with Time.” slow the action down then speed it up to learn the inner architecture.

At Meadowmount jagged bursts of notes are stretched into whale sounds. One teacher has a rule of thumb: if a passerby can recognize the song being played, it's not being practiced correctly. New students are surprised at the seemingly glacial pace - it's three or five times slower than they've ever gone. But when they're finished, they have learned to play the page perfectly a feat that would otherwise have taken them a week or two of shallower practice.

# Why go slow?

- going slow allows you to attend more closely to errors, creating a higher degree of precision with each firing.
- going slow helps the person practicing develop something even more important: a working perception of the skill's internal blueprints

Why does slowing down work so well? The myelin model offers two reasons.

First, going slow allows you to attend more closely to errors, creating a higher degree of precision with each firing - and when it comes to growing myelin, precision is everything.

Second, going slow helps the person practicing develop something even more important: a working perception of the skill's internal blueprints - the shape and rhythm of the interlocking skill circuits. (TELL MY STORY OF PETRUSHKA)

# Repeat It



Another aspect of playing with time is to REPEAT IT.

The great pianist Horowitz, said: “If I miss practice for a day, I know it. If I don’t practice for 2 days, my wife knows it. If I don’t practice for 3 days, the whole world knows it. “

Repetition is invaluable and irreplaceable. Deep practice, however, doesn’t obey the same math. Spending more time is effective - but only if you’re still in the sweet spot at the edge of your capabilities, attentively building and honing circuits.

There also seems to be a universal limit for how much deep practice human beings can do in a day. Ericsson’s research shows that most world-class experts practice between three and five hours a day, no matter what skill they pursue.(14)

The basic idea is that when you depart the deep-practice zone, you might as well quit.



# Feel It



Skye Carman  
Former Meadowmount Instructor  
Former Concert Master • Holland Symphony

## **(LEARN TO FEEL IT - FEEL A MISTAKE**

### **COMING ON)**

Skye Carman teaches a course at Meadowmount called “How to Practice”. She asks, “how many of you practice five or more hours a day?” Four raised their hands. Skye shook her head in disbelief. “Good for you. I could have never done that, not in a million billion years. See, I hate to practice! *Hate, hate, hate!* So what I did, I forced myself to make it as productive as it could be. So here’s what I want to know. What’s the first thing you do when you

practice?”

They stared at her uncomprehendingly.

“Tune, Play some Bach,” a tall boy said finally. “I guess.”.

“hmmmm,” Skye said, raising her eyebrow, illuminating their lack of strategy. “Let me see. I’ll bet you all just...play! I’ll bet you tune, pick up a piece you like, and start fooling with it. Like picking up a ball.” They nodded. She had them nailed.

“That’s crazy!” she said, flinging her arms in the air. “Do you think athletes do that? Do you think they just fool around? You guys have to realize this is top sport. You ARE athletes. Your playing field is a few inches long, but it still is your field. You need to find a place to stand, know where you are. First, tune your instrument. THEN tune your ear.”

The point, Skye explained, is to get a balance point where you can sense the errors when they come. To avoid the mistakes, first you have to feel them immediately.

“If you hear a string out of tune, it should BOTHER you,” Skye told them. “It should bother you a LOT. That’s what you need to feel. What you’re really practicing is concentration. It’s a

feeling. So now we're going to practice that feeling".

They closed their eyes, and she played an open string. Then she twisted a tuning peg a fraction of a millimeter, and the sound changed. Their smooth brows wrinkled, and their expressions turned irritated, faintly hungry for her to fix it. Skye smiled "There," she said quietly. "Remember that."

# • Ignition

## **THE SECOND ELEMENT OF THE TALENT CODE - Ignition**

Growing skill, as we've seen, requires deep practice. But deep practice isn't a piece of cake: it requires energy, passion and commitment. In a word, it requires motivational fuel, the second element of the talent code.

Ignition and deep practice work together to produce skill in exactly the same way that a gas tank combines with an engine to produce velocity in a car. Ignition supplies the energy, while deep practice translates that energy over time into forward progress, a.k.a. wraps of myelin.

I would like to give you some IGNITION points that started hotbeds of talent around the world:

### **South Korean Golfers**

May 18, 1998, when a 20 year old named Se Ri Pak won the McDonald's LPGA Championship and became a national icon. Flash forward 10 years later, and Pak's country women had essentially colonized the LPGA Tour, with 45 players

who collectively won about one-third of all the LPGA events. (Ericsson's 10,000 hours or 10 year rule sound interesting here)

### **Russian Tennis Players**

Summer of 1998 17 year old Anna Kournikova reached the Wimbledon semifinals and, thanks to her supermodel looks, gained the status of the world's most downloaded athlete. By 2004, Russian women were showing up regularly in major finals; by 2007 they occupied five of the top ten rankings and twelve of the top fifty.

### **Roger Bannister**

On a blustery day in May 1954, a skinny Oxford medical student named Roger Bannister became the first person to run a mile in less than four minutes. This is a milestone in sports history, but perhaps less well known is what happened in the weeks after Bannister's feat: Jon Landy from Australia also broke the 4 minute barrier. The next season a few more runners did too. Then they started breaking it in droves. Within three years no fewer than seventeen runners had matched the greatest sporting accomplishment of the twentieth century.

## **THIS IS HOW IGNITION WORKS. WHERE DEEP PRACTICE IS A COOL, CONSCIOUS ACT, IGNITION IS A HOT, MYSTERIOUS BURST, AN AWAKENING.**

Where deep practice is all about staggering-baby steps, ignition is about the set of **signals(15)** and subconscious forces that create our identity; the moments that lead us to say *That is who I want to be!*

All of these things I have just described to you are TRIGGERS. These are the trigger that set off a huge outpouring of energy, emotion and effort to what it is we want to become.

Basically triggers tell us that IF YOU WANT THAT, YOU BETTER

## GET BUSY. IF YOU WANT TO BELONG - IT'S TIME TO START(16).

Another type of trigger that can cause us to expend vast amounts of energy is the **primal cue (17)**. Each one of us has a built in desire to live and thrive. If our primal desires are tapped, huge amounts of energy are expended. A good example of the amazingly accomplished group of world leaders who have lost a parent during early childhood. What is the signal that losing a parent would send? YOU'D BETTER WORK HARD, YOU'RE NOT SAFE.

Julius Caesar, Napoleon, 15 British Prime Ministers, Washington, Jefferson, Lincoln, Lenin, Hitler, Gandhi, Stalin, Bill Clinton, Newton, Copernicus, Darwin, Dante, Michelangelo, Bach, Handel, Dostoyevsky, Keats, Byron, Emerson, William Wordsworth, Nietzsche, Twain.

You could look at it this way:

1. Talent requires deep practice
2. Deep practice requires vast amounts of energy
3. Primal cues trigger huge outpourings of energy.

What Primal Cue do you think would result if a child is born into a large family and is late in the birth order? I better keep up with my brothers and sisters!

# World Record Holders Men's 100 meter dash

Usain Bolt (2nd of 3 children)

Asafa Powell (6th of 6)

Justin Gatlin (4th of 4)

Maurice Greene (4th of 4)

Dovovan Bailey (3rd of 3)

Leroy Burrell (4th of 5)

Carl Lewis (3rd of 4)

Leroy Burrell (4th of 5)

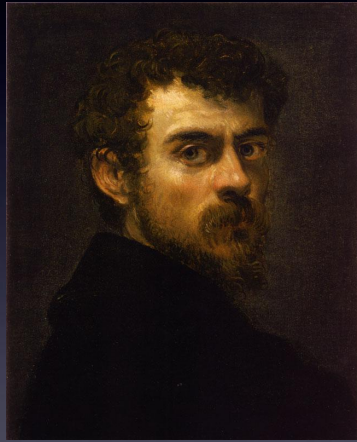
Carl Lewis (3rd of 4)

Calvin Smith (6th of 8)

Look at this amazing list of the top ten world record holders in the men's one hundred meter dash:

Also, If you looked at the list of top all-time NFL running backs in rushing yardage - they score an average birth rank of 3.2 out of families with 4.4 kids.

# The Sistine Chapel Effect



Michelangelo

I want to talk now about the Sistine Chapel Effect . We've just discussed triggers and primal cues, but there has to be more than just a cue or trigger to sustain a talent hotbed. Talent hotbeds possess more than a single primal cue. They contain complex collections of signals - people, images, and ideas - that keep ignition going for the weeks, months, and years that skill-growing requires. Talent hotbeds are to primal cues what Las Vegas is to neon signs, flashing with the kind of signals that keep motivation burning.

So the **Sistine Chapel Effect (18)** is when we have an atmosphere of continual triggers and primal cues.

Consider the sights that a young Michelangelo would have encountered in a single afternoon in Florence. In a half-hour's stroll he could have visited the workshops of a dozen great artists. These were not quiet studios: to the contrary, they were beehives overseen by a master and a hustling team of journeymen and apprentices, competing for commissions, filling orders, making



plans, testing new techniques. He could have encountered Donatello's Saint Mark statue, Ghiberti's Gates of Paradise, the works of painters from his boss Ghirlandaio through Masaccio, Giotto, and Cimabue - the greatest hits of architecture, painting, and sculpture, All of them were concentrated within a few blocks; all of them were simply part of the landscape of everyday life; and all flashed signals that added up to one energizing message: BETTER GET BUSY.

Ignition not only happens by environmental cues around us, but it happens with language. Language that affirms the value of effort and slow progress rather than innate talent or intelligence is language that can act as a motivational cue.

True Motivation Lies in **feedback(19)** - not just praise. In all of the talent hotbeds that Daniel Coyle visited , praise was not a constant but was given only when it was earned. Motivation does not increase with increased levels of praise but often with dips!

When we use the term motivational language, we are generally referring to language that speaks of hopes, dreams, and affirmations (You are the best!). This kind of language - let's call it high motivation - has its roll. But the message from many of the talent hotbeds is clear: high motivation is not the kind of language that ignites people. What works is precisely the opposite: not reaching up but reaching down, speaking to the ground-level effort, affirming the struggle. Phrases like "Wow, you really tried hard", or "Good Job" motivate far better than empty praise.

Explain why I give no live tests

From the myelin point of view, this conclusion makes sense. Praising effort works because it reflects biological reality. The truth is, skill circuits are not easy to build; deep practice requires serious effort and passionate work. The truth is, when you are starting out,

you do not “play” tennis; you struggle and fight and pay attention and slowly get better. The truth is, we learn in staggering-baby steps. Effort-based language works because it speaks directly to the core of the learning experience, and when it comes to ignition, there’s nothing more powerful.

TALK ABOUT THE MIDDLE SCHOOL EXPERIENCE AND  
MIDDLE SCHOOL EARS AT THIS POINT.

# • Master Coaching

Before we discuss who master coaches are - let's discuss who they aren't. When most of us think of a master coach, we think of a Great Leader, a person of steadfast vision, battle-tested savvy, and commanding eloquence. Like a ship's captain, or a preacher on the pulpit, their core ability lies in knowing a special something that the rest of us don't, and sharing that special knowledge with us in a motivating way. In this way of thinking, the skills of legendary football coach Vince Lombardi are not appreciably different from those of General George Patton or Queen Elizabeth I. But when the talent hotbeds were visited, most of the time, there were no Lombardis or Pattons or Queen Elizabeths found.

Many teachers and coaches of the talent hotbeds were quiet, even reserved. They were mostly older; many had been teaching thirty or forty years. They possessed the same sort of gaze: steady, deep, unblinking. They listened far more than they talked. They seemed allergic to giving pep talks or inspiring speeches; they spent most of their time offering small, targeted, highly specific **adjustments(20)**. They had an extraordinary sensitivity to the person they were

teaching, customizing each message to each student's personality. After meeting a dozen of these people, Coyle started to suspect that they were all secretly related. They were talent whisperers. They were people like Hans Jensen.

# Hans Jensen



Hans Jensen is a cello teacher who lives in Chicago and is also on the faculty at Meadowmount. Even amidst an all-star faculty, he is regarded as special. Melissa Kraut, who teaches at the Cleveland Institute of Music, describes him as “the most brilliant cello teacher on the planet.”

Jensen is a rangy, ebullient fiftyish Dane with large round glasses, from behind which he regards the world with the voracious gaze of a scuba diver. Daniel Coyle found him in one of Meadowmount’s practice cabins, with his gaze aimed at eighteen-year-old Sang Yhee, who was playing a Dvorak concerto. Sang’s playing was miraculous: fast, clean, note-perfect. But Jensen was not satisfied. He stood a few inches away as the student played, waving his arms and talking to Sang in his thick Danish accent. It looked as if Jensen were performing some kind of exorcism.

“Now! Now!” he shouted. “There is only now! You gotta go wahhhh, like a turbine. You gotta do it, man, and you gotta do it now.”

Sang played furiously, his hand flashing up and down the neck of the cello.

Jensen leaned in closer. "I see it in your eyes-you say, 'O crap, I have to do it.' So don't think. Do it! NOW!:"

Sang closed his eyes and played.

"Yah! Yah!" Jensen shouted. "GO! GO!"

Sang ended the piece and leaned back woozily, as if he had just stepped off a carnival ride.

"There," Jensen said. "That is where you have to go with this." Sang thanked Jensen, packed up his cello, and departed as Whitney Delphos, the next student, stepped forward. Delphos was twenty years old from Houston, and wore a pink Lacoste shirt with the collar turned up. She had arrived in time to see the end of Sang's lesson and now took her seat, grasping the neck of her instrument, sweating lightly. Jensen put her at ease, leaning back in his chair, smiling broadly.

"Howdy," he said disarmingly.

Delphos smiled and seemed to relax a little. Jensen asked her to play and he listened quietly as she dove into a Bach concerto. Delphos was shakier than Sang. She smudged a few notes, lost the rhythm of a fast passage, and generally seemed to be wrestling with the instrument. She glanced warily at Jensen as she played, expecting him to launch into another arm-waving, shouting exhibition as he had with Sang.

But Jensen didn't. After thirty seconds he placed a gentle hand on her bow, stilling it. He leaned in, as if he were about to whisper a state secret.

"You must sink it," he said. "Sink it?" Delphos was mystified.

Jensen tapped his bald head, and she understood. “Sink,” he repeated. (SINK means think in Jensen’s Danish accent.) “Sink the whole piece. When you sink it, it is ten times better. People practice too much, moving the bow. You must practice up here!” He pointed again to his head. “You must sink! This is the vitamin. It doesn’t taste good. But it’s good for you.”

Delphos set down her bow, closed her eyes, and as instructed, imagined her way through sections of her concerto. When she was finished, her eyes opened again, Jensen said, “you used vibrato when you imagined playing that last section, didn’t you?” Delphos’s jaw dropped. “How did you know?” Jensen smiled. “I sometimes freak people out,” he said. “They sink I have ESP.”

Jensen has a long list of professional qualifications. He studied at Juilliard with renowned teachers Leonard Rose and Channing Robbins; he’s soloed with the Copenhagen Symphony and won the Artist International Competition. His knowledge of classical cello music is second to none. But what we’re seeing here has nothing to do with Jensen’s qualifications and everything to do with his mysterious ESP - specifically, his skill at sensing the student’s needs and instantly producing the right signal to meet those needs.

Jensen did not know Sang and Delphos before they stepped into the room. He didn’t need to. The examination, diagnosis, and prescription all happened within seconds. Sang needed more emotion, so Jensen turned into a hyped-up cheerleader; Delphos needed a learning strategy, so Jensen turned into a Zen master. He didn’t only tell them what to do: he became what they should do, communicating the goal with gesture, tone, rhythm, and gaze. The signals were targeted, concise, unmissable, and accurate.

Master coaches aren’t like heads of state. They aren’t like captains who steer us across the unmarked sea, or preachers on a pulpit, ringing out the good news. Their personality - their core skill circuit - is to be more like farmers: careful, deliberate cultivators of myelin, like Hans Jensen. They’re down-to-earth and disciplined. They

possess vast, deep frame works of knowledge, which they apply to the steady, incremental work of growing skill circuits, which they ultimately don't control.





## The Meadowmount Experience

Show an example of Hans at 6'41"



## John Wooden

John Wooden, famed basketball coach of the UCLA Bruins led the team to 10 national championships - is considered one of the greatest teacher/coaches ever.

Two scientist (Gallimore and Tharp) studied Wooden's practices for a season and came up with this data:

# 2,326 Acts of Teaching

- 6.9% Compliments
- 6.6% Expressions of displeasure
- 75% pure information
- Demonstrations rarely took longer than 3 seconds to deliver.

2,326 discrete acts of teaching. of these acts, 6.9% were compliments, 6.6% percent were expressions of displeasure. 75% were pure information. The majority of information rarely took longer than 3 seconds to deliver, but were of such clarity that they left an image in the player's memory.

The information didn't slow down the practice; to the contrary, Wooden combined it with something he called "mental and emotional conditioning," which basically amounted to everyone running harder than they did in games . ALL THE TIME.

Gradually a picture came into focus: what made Wooden a great coach wasn't praise, wasn't denunciation, and certainly wasn't pep talks. His skill resided in the Gatling-gun rattle of targeted information he fired at his players. This, not that. Here, not there. His words and gestures served as short, sharp impulses that showed his players the correct way to do something. He was seeing and fixing errors. He was honing circuits. He was a virtuoso of deep practice.

# 4 Virtues of a Master Teacher

- Capacity to take it deeper
- Perceptiveness
- The GPS Reflex
- Theatrical Honesty

## 4 Virtues of a Master Teacher:(21)

### The capacity to take it deeper

Most of the coaches and teachers in the talent hotbeds are older. More than half, that Coyle met, were in their sixties or seventies. All had spent decades, usually several, intensively learning how to coach. This is not a coincidence; in fact, it's a prerequisite, because it builds the neural superstructure that is the most essential part of their skills - their MATRIX.

A master teacher's MATRIX is a word for the vast grid of task-specific knowledge that distinguishes the best teachers and allows them to creatively and effectively respond to a student's effort. A great teacher has the capacity to always take it deeper, to see the learning the student is capable of and to go there. It keeps going deeper and deeper because the teacher can think about the material in so many different ways, and because there's an endless number of connections they can make." Or as I would put it: years of work go into myelinating a master coach's circuitry, which is a

mysterious amalgam of technical knowledge, strategy, experience and practiced instinct ready to be put to instant use to locate and understand where the students are and where they need to go. In short, the matrix is a master coach's killer application.

### **Perceptiveness**

The eyes are the giveaway. They are usually sharp and warm and are deployed in long, unblinking gazes. Several master coaches told me that they trained their eyes to be like cameras, and they all seem to share that same Panavision quality. Though the gaze can be friendly, it's not chiefly about friendship. It's about information. It's about figuring you out.

All students are not made the same and deserve specialized individual treatment that is best for each. Master teachers want to know about each student so that they can customize their communications to fit the larger patterns of a student's life. Master teachers approach new students with the curiosity of an investigative reporter. They seek details about their personal lives, finding out about all possible motivations. They constantly monitor the student's reactions to their coaching, checking whether their message is being absorbed. The coach delivers a chunk of information, then pauses and hawkeyes the listener as if watching the needle of a geiger counter.

### **The GPS Reflex**

"You gotta give them a lot of information," says Robert Lansdorp, a champion tennis coach. "You gotta shock 'em, then shock 'em some more."

SHOCK is an appropriate word. Most master coaches deliver their information to their students in a series of short, vivid, high-definition bursts. They never begin sentences with "Please, would you" or "Do you think" or "What about;" instead they speak in short imperatives. "Now do X" is the most common construction: the "you will" is implied. The directions aren't dictatorial in tone (usually) but are delivered in a way that sounds clinical and urgent,

as if they were being emitted by a particularly compelling GPS unit navigating through a maze of city streets: TURN LEFT, TURN RIGHT, GO STRAIGHT, ARRIVAL COMPLETE.

### **Theatrical Honesty**

Many coaches that Daniel Coyle met radiated a subtle theatrical air. They were theatrical in their reactions to student's efforts. It would be easy to conclude, from this pattern, that master coaches traffic in hokum. But the longer he saw them work, the more he saw that drama and character are tools master coaches use to reach the student with the truth about their performance. Moral honesty is at the core of the job description - character in the deeper sense of the word. Truly great teachers connect with students because of who they are as moral standards. There's an empathy, a selflessness, because you're not trying to tell the student something they know, but you're finding , in their effort, a place to make a real connection.

Theatrical honesty works best when teachers are performing their most essential myelinating role: pointing out errors.

*A teacher is one who makes himself progressively unnecessary.*

*- Thomas Carruthers*

With all that we have covered - I would like to leave you teachers with this one thought from Thomas Carruthers (An early 20th century educational theorist):

A teacher is one who makes himself progressively unnecessary(22)