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Why talent is overrated



The conventional wisdom about "natural" talent is a myth. The real path to great performance is a matter of choice.

By [Geoff Colvin](#), senior editor at large

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(Fortune Magazine) -- It is mid-1978, and we are inside the giant Procter & Gamble headquarters in Cincinnati, looking into a cubicle shared by a pair of 22-year-old men, fresh out of college. Their assignment is to sell Duncan Hines brownie mix, but they spend a lot of their time just rewriting memos. They are clearly smart - one has just graduated from Harvard, the other from Dartmouth - but that doesn't distinguish them from a slew of other new hires at P&G.

What does distinguish them from many of the young go-getters the company takes on each year is that neither man is particularly filled with ambition. Neither has any kind of career plan. Every afternoon they play waste-bin basketball with wadded-up memos. One of them later recalls, "We were voted the two guys probably least likely to succeed."

These two young men are of interest to us now for only one reason: They are Jeffrey Immelt and Steven Ballmer, who before age 50 would become CEOs of two of the world's most valuable corporations, General Electric ([GE](#), [Fortune 500](#)) and Microsoft ([MSFT](#), [Fortune 500](#)). Contrary to what any reasonable person would have expected when they were new recruits, they reached the apex of corporate achievement.

The obvious question is how. Was it talent? If so, it was a strange kind of talent that hadn't revealed itself in the first 22 years of their lives. Brains? The two were sharp but had shown

no evidence of being sharper than thousands of classmates or colleagues. Was it mountains of hard work? Certainly not up to that point. And yet something carried them to the heights of the business world.

Which leads to perhaps the most puzzling question, one that applies not just to Immelt and Ballmer but also to everyone: If that certain special something turns out not to be any of the things we usually think of, then what is it?

If we're all wrong about high achievement, that's a big problem. In particular, if we believe that people without a particular natural talent for some activity will never be competitive with those who possess that talent - meaning an inborn ability to do that specific thing easily and well - then we'll direct them away from that activity. We'll steer our kids away from art, tennis, economics, or Chinese because we think we've seen that they have no talent in those realms.

In business, managers often redirect people's careers based on slender evidence of what they've "got." Most insidiously, in our own lives we'll try something new and, finding that it doesn't come naturally to us, conclude that we have no talent for it, and so we never pursue it.

A number of researchers now argue that talent means nothing like what we think it means, if indeed it means anything at all. A few contend that the very existence of talent is not, as they carefully put it, supported by evidence. In studies of accomplished individuals, researchers have found few signs of precocious achievement before the individuals started intensive training. Similar findings have turned up in studies of musicians, tennis players, artists, swimmers, mathematicians, and others.

Such findings do not prove that talent doesn't exist. But they do suggest an intriguing possibility: that if it does, it may be irrelevant.

The concept of specific talents is especially troublesome in business. We all tend to assume that business giants must possess some special gift for what they do, but the evidence turns out to be extremely elusive. In fact, the overwhelming impression that comes from examining the lives of business greats is just the opposite - that they didn't seem to give any early indication of what they would become.

Jack Welch, named by Fortune as the 20th century's manager of the century, showed no particular inclination toward business, even into his mid-20s. With a Ph.D. in chemical engineering, approaching the real world at age 25, he still wasn't sure of his direction and interviewed for faculty jobs at Syracuse and West Virginia universities. He finally decided to accept an offer to work in a chemical development operation at General Electric.

Bill Gates, the world's richest human, is a more promising candidate for those who want to explain success through talent. He became fascinated by computers as a kid and says he

wrote his first piece of software at age 13; it was a program that played ticktacktoe. The problem is that nothing in his story suggests extraordinary abilities.

As he is the first to note, legions of kids were interested in the possibilities of computers in those days. What suggested that Gates would become the king of them all? The answer is, nothing in particular.

You might suppose that in the age of genomic research, there should no longer be any question about precisely what's innate and what isn't. Since talent is by definition innate, there should be a gene (or genes) for it. The difficulty is that scientists haven't yet figured out what each of our 20,000-plus genes does.

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All we can say for the moment is that no specific genes identifying particular talents have been found. It's possible that they will be; scientists could yet find the piano-playing gene or investing gene or accounting gene. But they haven't so far, and doing so could be a long shot. The most one could say is that if genes exert any influence, it would seem to be much less than the whole explanation for achieving the highest levels of performance.

So if specific, inborn talent doesn't explain high achievement, what does? Researchers have converged on an answer. It's something they call "deliberate practice," but watch out - it isn't what most of us think of as practice, nor does it boil down to a simplistic practice-makes-perfect explanation.

It isn't just hard work, either. Deliberate practice is a specific and unique kind of activity, neither work nor play. It's characterized by several elements that together form a powerful whole. The greatest performers have consistently combined these elements, sometimes just by luck.

But now that researchers have decoded the pattern, the path to top performance is becoming much more accessible. The elements of deliberate practice are each worth examining:

1) Deliberate practice is designed specifically to improve performance. The key word is "designed." The essence of deliberate practice is continually stretching an individual just beyond his or her current abilities. That may sound obvious, but most of us don't do it in the activities we think of as practice. At the driving range or at the piano, most of us are just doing what we've done before and hoping to maintain the level of performance that we

probably reached long ago.

By contrast, deliberate practice requires that one identify certain sharply defined elements of performance that need to be improved, and then work intently on them. Tiger Woods - intensely applying this principle, which is no secret among pro golfers - has been seen to drop golf balls into a sand trap and step on them, then practice shots from that near-impossible lie.

The great performers isolate remarkably specific aspects of what they do and focus on just those things until they're improved; then it's on to the next aspect. In most fields, years of study have produced a body of knowledge about how performance is developed and improved, and full-time teachers generally possess that knowledge.

At least in the early going, therefore, and sometimes long after, it's almost always necessary for a teacher to design the activity best suited to improve an individual's performance. It's striking how many great performers had fathers who started designing their practice activities at early ages; Tiger, Picasso, and Mozart are perfect examples.

So is the New York Giants' Super Bowl MVP quarterback, Eli Manning, whose father, Archie, was a successful NFL quarterback. Archie was always ready with instruction for Eli (and for his brother Peyton, Super Bowl-winning quarterback of the Indianapolis Colts). Eli always seemed clear that intense practice was key. According to a new biography, *Eli Manning: The Making of a Quarterback*, "Eli never bought into the gene theory."

In some fields, especially intellectual ones such as the arts, science, and business, people may eventually become skilled enough to design their own practice. But anyone who thinks he's outgrown the benefits of a teacher's help should at least question that view. There's a reason the world's best golfers still go to teachers.

2) Deliberate practice can be repeated a lot. High repetition is the most important difference between deliberate practice of a task and performing the task for real, when it counts. Tiger Woods may face that buried lie in the sand only two or three times in a season, and if those were his only opportunities to work on that shot, he'd blow it just as you and I do.

Repeating a specific activity over and over is what people usually mean by practice, yet it isn't especially effective. Two points distinguish deliberate practice from what most of us actually do. One is the choice of a properly demanding activity just beyond our current abilities. The other is the amount of repetition.

Top performers repeat their practice activities to stupefying extent. Ted Williams, baseball's greatest hitter, would practice hitting until his hands bled. Pete Maravich, whose college basketball records still stand after more than 30 years, would go to the gym when it opened in

the morning and shoot baskets until it closed at night.

3) Feedback on results is continuously available. Obvious, yet not nearly as simple as it might seem, especially when results require interpretation. You may think that your rehearsal of a job interview was flawless, but your opinion isn't what counts. Or you may believe you played that bar of the Brahms violin concerto perfectly, but can you really trust your own judgment? In many important situations, a teacher, coach, or mentor is vital for providing crucial feedback.

4) It's highly demanding mentally. Deliberate practice is above all an effort of focus and concentration. That is what makes it "deliberate," as distinct from the mindless playing of scales or hitting of tennis balls that most people engage in. Continually seeking exactly those elements of performance that are unsatisfactory and then trying one's hardest to make them better places enormous strains on anyone's mental abilities.

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The work is so great that it seems no one can sustain it for very long. Nathan Milstein, one of the 20th century's greatest violinists, was a student of the famous teacher Leopold Auer. As the story goes, Milstein asked Auer if he was practicing enough. Auer responded, "Practice with your fingers, and you need all day. Practice with your mind, and you will do as much in 1-1/2 hours." What Auer didn't add is that it's a good thing 1-1/2 hours are enough, because if you're truly practicing with your mind, you couldn't possibly keep it up all day.

5) It's hard. This follows inescapably from the other characteristics of deliberate practice, which could be described as a recipe for not having fun. Doing things we know how to do well is enjoyable, and that's exactly the opposite of what deliberate practice demands. Instead of doing what we're good at, we insistently seek out what we're not good at.

Then we identify the painful, difficult activities that will make us better and do those things over and over. After each repetition, we force ourselves to see - or get others to tell us - exactly what still isn't right so we can repeat the most painful and difficult parts of what we've just done. We continue that process until we're mentally exhausted.

If it seems a bit depressing that the most important thing you can do to improve performance is no fun, take consolation in this fact: It must be so. If the activities that lead to greatness were easy and fun, then everyone would do them and no one could distinguish the best from the rest.

The reality that deliberate practice is hard can even be seen as good news. It means that most people won't do it. So your willingness to do it will distinguish you all the more.

If you work in the careers where the concept of deliberate practice is most deeply entrenched - sports and music - you're probably thinking that the researchers have explained and elaborated on ideas that many people in your world have understood for a long time.

But if you're among the far more numerous people who make a living in business-related fields, you're probably thinking, This is absolutely nothing like work! In fact, life at most companies seems ingeniously designed to defeat all the principles of deliberate practice.

Most fundamentally, what we generally do at work is directly opposed to the first principle: It isn't designed by anyone to make us better at anything. Usually it isn't designed at all: We are just given an objective that's necessary to meeting the employer's goals and then expected to get on with it.

From the limited, short-term perspective of many employers, this is completely justified. We weren't hired so we could spend time improving our own abilities; we were hired to produce results. While deliberate practice demands that we push ourselves to the point where we break down and then develop a solution, in our business lives the cost of mistakes is often high. Every incentive urges us to stick with what's safe and reliable - which ensures that we won't improve.

Continuous feedback? At most companies that is a travesty, consisting of an annual performance review dreaded by the person delivering it and the one receiving it. Even if it's well done, it cannot be very effective. Telling someone what he did well or poorly on a task he completed 11 months ago is just not helpful.

You could say that work, like deliberate practice, is often mentally demanding and tiring. But that's typically not because of the intense focus and concentration involved. Rather, it's more often a result of long hours cranking out what we already know how to do. And if we're exhausted from that, the prospect of spending additional hours on genuine deliberate practice activities may seem too miserable to contemplate.

Bottom line, at most companies: The fundamentals of fostering great performance are mainly unrecognized or ignored. Of course that means the opportunities for achieving advantage by adopting the principles of great performance are huge. A few companies realize that. They embed mentoring and coaching in the culture, develop employees' careers through carefully chosen growth assignments, and increasingly put people through high-fidelity simulations, among other steps.

But maybe you don't work in one of these organizations, and maybe you're not in a position to change your company's culture and way of operating. How can you apply the principles of great performance on your own? The opportunities are far more available than we usually realize, even in environments where it's tough to take practice time away from real work.

Among them are well-established methods for practicing in the work itself. And they're all done in your head. Researchers call those activities self-regulation. To be most effective, it must be something you do before, during, and after the work activity itself.

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6) Before the work. Self-regulation begins with setting goals - not big, life-directing goals, but more immediate goals for what you're going to be doing today. In the research, the poorest performers don't set goals at all; they just slog through their work. Mediocre performers set goals that are general and are often focused on simply achieving a good outcome - win the order; get the new project proposal done. The best performers set goals that are not about the outcome but rather about the process of reaching the outcome.

For example, instead of just winning the order, their goal might be to focus especially hard on discerning the customer's unstated needs. You can see how this is strongly analogous to the first step of deliberate practice. The best performers are focused on how they could get better at some specific element of the work, just as a pianist may focus on improving a particular passage.

With a goal set, the next step is planning how to reach it. Again, the best performers make the most specific, technique-oriented plans. They're thinking exactly, not vaguely, of how to get where they're going. So if their goal is discerning the customer's unstated needs, their plan for achieving it on that day may be to listen for certain key words the customer might use, or to ask specific questions to bring out the customer's crucial issues.

7) During the work. The most important self-regulatory skill that top performers in every field use during their work is self-observation. For example, ordinary endurance runners in a race tend to think about anything other than what they're doing; it's painful, after all, and they want to take their minds off it. Elite runners, by contrast, focus intensely on themselves. Among other things, they count their breaths and simultaneously count their strides in order to maintain certain ratios.

Even in purely mental work, the best performers observe themselves closely. They are able to

monitor what is happening in their own minds and ask how it's going. Researchers call this metacognition - knowledge about your own knowledge, thinking about your own thinking. Top performers do this much more systematically than others do; it's an established part of their routine.

Metacognition is important because situations change as they play out. Apart from its role in finding opportunities for practice, it plays a valuable part in helping top performers adapt to changing conditions. When a customer raises a completely unexpected problem in a deal negotiation, an excellent businessperson can pause mentally and observe his own mental processes as if from outside: Have I fully understood what's really behind this objection? Am I angry? Am I being hijacked by my emotions? Do I need a different strategy here? What should it be?

8) After the work. Practice activities are worthless without useful feedback about the results. These must be self-evaluations; since the practice activities took place in our own minds, only we can know fully what we were attempting or judge how it turned out. Excellent performers judge themselves differently than most people do. They're more specific, just as they are when they set goals and strategies. Average performers are content to tell themselves that they did great or poorly or okay.

By contrast, the best performers judge themselves against a standard that's relevant for what they're trying to achieve. Sometimes they compare their performance with their own personal best; sometimes they compare it with the performance of competitors they're facing or expect to face; sometimes they compare it with the best known performance by anyone in the field.

Any of those can make sense; the key, as in all deliberate practice, is to choose a comparison that stretches you just beyond your current limits. Research confirms what common sense tells us, that too high a standard is discouraging and not very instructive, while too low a standard produces no advancement.

The final element of the post-work phase is affected by all the others and affects them in turn. You've been through some kind of work experience - a meeting with your team, a trading session, a quarterly budget review, a customer visit. You've evaluated how it went. Now, how do you respond?

Odds are strong that the experience wasn't perfect; in fact, parts of it may have been unpleasant. In those cases, excellent performers respond by adapting the way they act, while average performers respond by avoiding those situations in the future. That stands to reason. Since excellent performers went through a sharply different process from the beginning, they can make good guesses about how to adapt. That is, their ideas for how to perform better next time are likely to work. So it's hardly surprising that they are more likely than average performers to repeat the experience rather than avoid it.

But where does the cycle start? Why do certain people put themselves through the years of intensive daily work that eventually makes them world-class great? This is the deepest question about great performance, and the researchers do not offer us a complete answer. We've reached the point where we must proceed by looking in the only place we have left: within ourselves. The answers depend on your response to two basic questions: What do you really want? And what do you really believe?

What you want - really, deeply want - is fundamental because deliberate practice is an investment: The costs come now, the benefits later. The more you want something, the easier it will be for you to sustain the needed effort until the payoff starts to arrive. But if you're pursuing something that you don't truly want and are competing against others whose desire is deep, you can guess the outcome.

The second question is more profound. What do you really believe? Do you believe that you have a choice in this matter? Do you believe that if you do the work, and do it with intense focus for years on end, your performance will eventually reach the highest levels? If you believe that, then there's a chance you will do the work and achieve great performance. But if you believe that your performance is forever limited by your lack of a specific innate gift, then there's no chance at all that you will do the work. What you really believe about the source of great performance thus becomes the foundation of all you will ever achieve.

Such beliefs can be extremely deep-seated. Regardless of where our beliefs in this matter originated, however, we all have the opportunity to base them on the evidence of reality. The evidence offers no easy assurances. It shows that the price of top-level achievement is extraordinarily high. Maybe it's inevitable that not many people will choose to pay it. But the evidence shows also that by understanding how a few become great, all can become better.

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Is talent overrated?

Or, with the right training, can people be turned into prodigies?

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