For centuries talent was considered a gift from the gods. More recently it has been considered a gift from our genes. Now science is showing us a deeper and more useful truth: talent is a gift from our brains and their remarkable capacity to grow and learn.

This is a strange and surprising idea, because it cuts against our intuition. Most of us grow up being told that talent is the combination of genes, environment and hard work. The trouble with this well-worn formula is not that it is false, but rather that it is spectacularly vague. Thinking that talent is a combination of genes, environment and hard work is like thinking a Ferrari is a combination of steel, red paint and Italians. The recipe is accurate but it glosses over the vital step: the process of construction that transforms raw ingredients into the fluency, speed and accuracy that make up high performance. The brain is the engine for this process, specifically the neural circuits that comprise thoughts and actions.

For decades scientists assumed our brains to be fixed at birth. However, research has revealed that they are capable of building new and vastly improved circuitry through a combination of intensive practice and motivation. This connection is summarised in the Rule of 10,000 Hours, the amount of time performers in all domains (music, maths, sports, art) have been found to intensively practice to reach world-class status. The new formula goes something like this: passion plus intensive practice plus 10,000 hours equals high-speed neural broadband.

Science biographers have dug into the lives of top performers, brushing away myths to uncover shared patterns of practice and motivation. Mozart, long the poster child for innate talent, had been immersed in music from birth, trained for thousands of hours by his ambitious father (a composer) and fuelled by the family’s expectation of greatness. Mozart’s talent was indeed natural, not because of a divine twist of his genes, but because of the way his growing brain interacted with his one-off environment.

The argument naturally shifts to whether genes limit us to some pre-set maximum capacity. To be sure, limits would seem to apply to physical skills involving speed, etc. But when it comes to maths, music and other cognitive skills, the brain’s potential to grow and learn holds the advantage over genes, with each containing an astonishing 100 billion neurons.

The debate between genes and the brain follows a familiar historical pattern. Magical phenomena (such as the weather) are first presumed to be controlled by deterministic agents, then revealed to be the result of complex interactions. We are beginning to understand what principles created Mozart and other talented performers. The question now is whether we can exert leverage — in schools, families and social institutions — to use these principles to grow our brains and talents to their highest potential.

\[
\begin{align*}
\text{Fight Club: Is talent taught rather than innate?} \\
\text{YES} & \quad \text{says Daniel Coyle, author of The Talent Code} \\
\text{Vs} & \\
\text{NO} & \quad \text{says Ellen Winner, Professor of Psychology, Boston College}
\end{align*}
\]

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- Eurekazone

**YES**

Age that Ruth Lawrence achieved a first-class degree in maths at the University of Oxford

*Source: BBC*

**NO**

Age that Sergey Karjakin, from Ukraine, became the world’s youngest chess grandmaster

*Source: The Times*