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CHAPTER 3

WHAT IS BRILLIANCE?

“Potential is never set in stone; our capacity for curiosity and our thirst for knowledge and new skills should continue until our last day on Earth.”

—Peter Gamwell

When Boyan Slat went scuba diving during a vacation in Greece, he was surprised to see more plastic bags floating in the ocean than fish. Curious, he dug deeper into the issue of plastics pollution in our seas and found nobody was doing much about it—because there was an assumption that cleaning something as large as the ocean was impossible. The few ideas that had been floated would be prohibitively expensive, cause considerable ecological damage, and take thousands of years to complete (Theoceancleanup.com/milestones, 2021).

So Boyan questioned the assumptions and the assumptions on which the assumptions are based and designed the world’s first ocean plastics cleanup system. Soon after, he founded and became CEO of The Ocean Cleanup, a Dutch nonprofit foundation that develops advanced systems to rid the world’s oceans of plastics.

Seeing his innovation come to life has been a long journey, but a decade later, Boyan is indeed on his way to achieving what was once considered impossible. It took 273 models, six prototypes, several rounds of trial and error, and a team of scientists and engineers, but the U-shaped System 001, wryly called “Wilson,” was launched off the coast of San Francisco in 2018 (Morjaria, 2019).

Today, Boyan leads a team of ninety that continues to work on the foundation’s innovations, such as the Interceptor, and has also developed sunglasses made with recovered ocean plastic from the Great Pacific Garbage Patch. All proceeds from the designer shades are invested back into ocean-cleaning operations. It’s estimated that an area the size of twenty-four football fields in the Great Pacific Garbage Patch can be cleaned from the proceeds of just one pair.



Boyan Slat on the Interceptor.

Photo used with permission of ©The Ocean Cleanup.

Although Boyan Slat isn't yet the household name it deserves to be, you may have heard of his work. But what you probably didn't know is that when Boyan began this initiative he was just 16 years old, and it started as a high school science project where he was allowed to pursue something of personal interest to him. Now, his technology aims to remove 90 percent of floating ocean plastic by 2040, a boon for us all.

What Is Brilliance? And How Do We Know It When We See it?

The world has long been fascinated by individuals who are considered brilliant. Yet we've never been very good at pinning down how people become brilliant, how we recognize it, or even the best way to guide "giftedness" once we think we've figured out who has it.

No doubt we can all agree that Boyan Slat is a brilliant young man. He was also pursuing postsecondary education in aerospace engineering when he decided to devote himself fully to The Ocean Cleanup project. It's easy to point to him and say, "Yes, that's what brilliance looks like."

And there are other students whose brilliance shines through from a much earlier age. A recent example is Alena Analeigh. In 2021, Alena completed high school at the age of twelve and was accepted into Arizona State University, with a double major in astronomical and planetary science and chemistry. She's pursuing her dream of getting an engineering job with NASA to build rovers—something she became passionate about when she started playing with LEGO blocks as a preschooler (ABC7 Eyewitness News, 2021).

At the same time, Alena founded The Brown STEM Girl (www.thebrownstemgirl.com), a non-profit organization to support and educate girls of color around the world about the importance of science, technology, engineering, and math (STEM) and how to excel in it. In July of 2020, she even created an initiative to Send a Girl to College on her Facebook page, with a goal to raise ten thousand dollars for scholarships in ten days (facebook.com/thebrownstemgirl, 2021).

But brilliance is rarely so manifest or easy to spot during early childhood and the school years. This is especially true when, with so many competing priorities, teachers feel there are simply not enough hours in the day to truly get to know each individual student on a deep level.

And then, there are so many mysteries and anomalies surrounding human potential that it's simply not possible to predict who will succeed



Alena Analeigh, headed off to college at age 12.
Photo credit: D Lacy Photography.

or who won't with any real accuracy. This isn't due to a lack of effort, as studies have been conducted on the subject of human potential for centuries. The goal, we're told, is so that we can more effectively funnel resources toward nurturing a student's gifts or "fixing" them, as we think the case may be.

A person's "intelligence quotient" (IQ) and their brilliance are two vastly different things. Moreover, our current methods of trying to predict one's potential through testing can inadvertently stifle it instead.

In our opinion, this is not only unfair to students and society, but it puts an unfair burden on educators as well, as there isn't a single method to test human potential that isn't fraught with risks and errors.

Jane and I have been questioning some assumptions, and we've come to believe that a person's "intelligence quotient" (IQ) and their brilliance are two vastly different things. Moreover, our current methods of trying to predict one's potential through testing can inadvertently stifle it instead.

IQ Tests Don't Capture the Full Story

Brilliant people are often great at being innovative, at coming up with inventions and novel ideas. But we believe brilliance also shows up in less recognizable ways, as people become leaders, healers, or nurturers, for example. And we need to evoke that "brilliance" in every person, because when an individual is able to reveal their brilliance, the whole community benefits. We vehemently affirm throughout this book that you can have great brilliance no matter your IQ.

In schools, we currently seem to define *brilliance* as being intellectually gifted (those who score in the top 2 percent on IQ tests). It is true that those who achieve high scores on IQ tests have the potential to excel in learning in general. When it comes to helping gifted students get the resources they need, we're all for it.

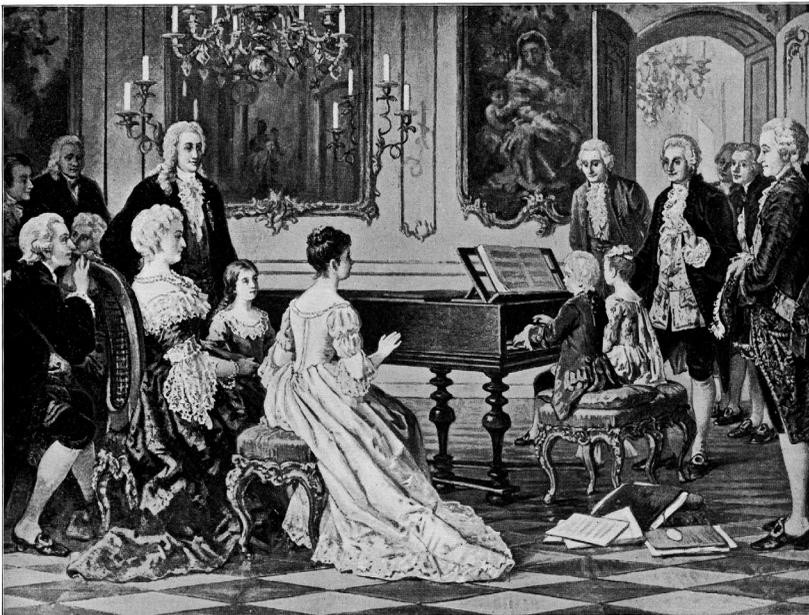
Where IQ tests fail us is that they're far less likely to predict the future potential or success of those who score below that 98 percent level. This is practically all of us, of course. Even Binet recognized how his IQ test couldn't recognize creativity, for example (Gadye, 2021).

- ▶ **We can't be one and done.** In some school boards, students are administered a single, standard IQ test in fourth grade. While this can help teachers see where more resources are needed, our opinion is that this single snapshot is too heavily relied upon to stream children into programming options. They can also influence how a student is perceived, starting at the tender age of nine. This is especially problematic when we consider that things like poverty, war, discrimination, and other environmental factors can have an impact on results (Oommen, 2014).

- ▶ **Two is not enough.** School IQ tests often measure only two things: language and math. Students whose gifts fall outside of these two subjects are often overlooked and their brilliance undervalued.
- ▶ **Too many seeds of brilliance never get the chance to flourish.** Consider that in Mozart's time, there would have been fifteen million people with genius-level IQs (those who would have scored within the top 2 percent on an IQ test). We know of Mozart's work (he was considered to have an extremely high IQ), but what of the millions of others who didn't have nurturing environments or the opportunity to pursue their dreams and be recognized for it?

Even Wolfgang Mozart's sister, Maria Anna Mozart, a gifted musician and composer in her own right, wasn't properly encouraged or recognized for her gifts due to her gender. Tragically, the music that she composed has since been lost to the world (Michon, 2018).

Jane and I have no doubt that at this very moment, there are vast numbers of innovative, imaginative, and passionate youngsters and adults in this world who aren't studying or working in the area where their true brilliance shines, because they were filtered out at an early age or never had the opportunity. And that's a great loss not only to them but also to the advancement of our entire civilization.



Maria Anna Mozart was a gifted composer, but she did not get the recognition she deserved due to her gender. Unfortunately, her music was lost to the world.

Source: [powerofforever/istock.com](https://www.istock.com/photo/powerofforever)

- ▶ **Students are more than just a number.** There are simply too many variables to human potential to nail down a student's life at a young age. We too often approach these test results as if we're born with a certain level of intelligence, nothing will change it, and therefore, we're slotted into a band of life and career choices within a hierarchical range. Yet there are countless examples of individuals who received low test scores in school and succeeded despite all odds.

Then there are those who accomplished great things much later in life. Julia Child didn't release her first cookbook until she was fifty. Rodney Dangerfield didn't get his acting career off the ground until he was forty-six. After Vera Wang's dream of becoming an Olympic figure skater was crushed, she took up fashion at the age of forty. Donald Fisher was forty years old with zero experience in the retail industry when he opened his first Gap store (Murphy, 2015).

There are situations in which everyone within a group seems to get swept up into a project, and each individual suddenly displays skills, talents, and growth that had not been evident before. We'll talk more about that in the next chapter.

We could go on, but our point is that few of these successes could have been predicted by an IQ test at the age of nine. This isn't to say that every person can learn to be anything they want to be. Learning our own limits, wisely changing our choices, and setting new courses is a lifelong rite of passage to wisdom as we grow. Teaching students how to meet setbacks with resilience and to continuously update and revise plans on their unique journey is a gift that will last them a lifetime.

- ▶ **Who gets to determine what success looks like?** We also need to question the assumption that there's a one-size-fits-all definition of what success looks like. Success is unique to each person. Not everyone aspires to be at the top of a corporate ladder. Abilities that enable people to pursue dreams of being a good cook, a good listener, one who is kind to others, who can build things with their hands, start a business, make people laugh, garden, innovate, or create thought-provoking artistry are just as valuable. IQ tests can no longer be the gold standard for determining potential.

We Propose a New Way to Look at Human Potential: Brilliance

An individual's potential is extremely complex, stemming not only from a mixture of nature and nurture but also from external factors that one may have little to no control over, such as being born into a prosperous

community or one impacted by poverty. There’s no doubt some have either far more barriers to overcome or more opportunities to get themselves aloft on their personal path to success. There’s also something within a person’s heart, a passion that often benefits from being nurtured and cultivated by someone influential to the individual. Without that positive influence, or even discouragement, that passion may fail to flourish. And Jane and I believe that potential is never set in stone; our capacity for curiosity and our thirst for knowledge and new skills should continue until our last day on Earth, making the availability of lifelong learning for all essential. So rather than put so much focus on IQ scores and test results, Jane and I propose we focus more on what we call “brilliance.”

Our definition of brilliance

We’ve crafted the following definition and three requirements for *brilliance*, which mirror our imperatives for healthy and innovative learning environments. (Although we’d love to hear your ideas, too!)

Brilliance is . . .

1. a unique passion or ability, too often hidden or stifled, that every individual possesses: when allowed to engage in their passion, people experience an intense sense of engagement, of “being in the zone” or “flow”;
2. that which takes a strength-based, innovative approach: an individual’s brilliance is driven by curiosity and creativity, with the focus on furthering knowledge or imagining “what could be” instead of “what is”;
3. what draws others in and invites the collaboration and sharing of different passions and abilities rather than filtering others out based on ability level or differing sets of knowledge or interests. Brilliance welcomes everybody and has a positive impact or influence on those involved.

Figure 3.1 How Brilliance Differs From IQ

IQ	Brilliance
2% of the population is considered to have “high IQ.”	Brilliance is possessed by every person.
IQ is determined and measured through a standardized test.	Does not require measurement, since everyone possesses it. The focus is on nurturing the seeds of brilliance within each person. While we can’t measure brilliance, we can see its impact when it’s been allowed to flourish in the environment.

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IQ	Brilliance
	<p>We can measure conditions in the environment that nurture people's seeds of brilliance. This is explained in Chapter 12: The But, But, But, But Chapter: Evaluation and Assessment.</p> <p>There is evidence that students who are engaged in healthy learning environments have better outcomes on average, including on standardized tests.</p>
<p>Is considered to be relatively fixed from birth. Encourages a fixed mindset.</p>	<p>Is considered to be influenced by numerous factors throughout life. Encourages a growth mindset.</p>
<p>Typically focuses on two primary abilities, language and math.</p> <p>The subject itself typically becomes the basis for the lesson plan.</p> <p>This creates a hierarchy in which math and language are viewed as more important than other subjects and are accordingly allotted more teaching time during the school day.</p>	<p>Recognizes infinite possibilities in all realms and subject matters.</p> <p>The student's passion or curiosity becomes the basis for the learning, and the curriculum is "baked into" real-life projects designed to pursue these interests.</p> <p>This creates a more fluid and flattened hierarchy of learning. While math and language are still considered to be key subjects, they are taught through interconnections with all subjects.</p>
<p>IQ scores put the potential of most students in a box: average scores lead to average expectations.</p> <p>Scores are objective and "fixed"; there's less encouragement or motivation to "go outside the lines."</p>	<p>Brilliance sees success as the ability to grow and pursue one's own area(s) of brilliance, with the ability to make choices and change direction along the journey.</p>
<p>Is at risk for inaccuracies. For example, students who have learning disabilities, who are having an off day, or are grappling with external factors may not test to their true ability.</p>	<p>Looks at the bigger picture of not only the student, but also their interconnectedness with the school, their parents, and the community over a significant period of time.</p>
<p>Scores help to determine which children could use more resources or more help.</p>	<p>Concept currently needs more acceptance to secure the resources and leadership buy-in needed to embed the conditions for healthy and innovative learning environments.</p>
<p>Scores are easy to analyze, making it an effective tool for aggregate data over time.</p>	<p>Is often hidden and difficult to measure or analyze; must overcome leadership reluctance to implement.</p>

We took a page from gemology

When we were trying to understand and demystify exactly what brilliance means to us, Jane and I came across an interesting metaphor from the science of gemology, which uses both the terms *brilliant* and *brilliance*.

In gemologists' vocabulary, a *brilliant* is not an adjective, but a noun—it's what they call a gemstone, particularly a diamond. Diamonds are considered to be very rare, just like the top 2 percent of the population who are defined as gifted (Clark & Shang, 2021).

But gemology also uses the term *brilliance*, which describes how a gemstone *shines* and *illuminates*. Since recognizing that every person has a seed of brilliance is the first imperative to building a healthy, innovative learning environment, we believe that helping every student discover their own brilliance—how they shine and illuminate for those within their spheres of influence—is a path to success and well-being, and to making the world a better place for all of us.

We all possess seeds of brilliance; the question is, how do we help students bring out the brilliance that lies within? To help every student and staff member find their passion and reach their true potential? To do that, we need to reimagine how we perceive and develop potential in all children and adults. Tests play a role, but they're simply not *enough* to help us understand and grow the true, full potential of a student. We need more, and our students deserve more.

It's okay that brilliance can't be measured

We live in a world that's enamored with measuring pretty much everything, from student test scores to how many people read an online story, to bottom-line profits. This is understandable in some ways. With increasingly limited budgets and demands for higher accountability and precise decision-making, we need to know which of our initiatives is having an impact and which aren't. This is why standardized testing is popular in so many parts of the world.

"Brilliance," by its very nature, can't be measured. An individual's seed of brilliance is not a test of something already learned but the potential for future growth that can have powerful influences if nurtured under the right conditions. The result is potentially infinite.

If we must measure something, our efforts would be better placed in assessing whether the three imperatives and four conditions of innovation are present in the environment, as well as the three characteristics of leadership, and to what degree. A high ranking should correlate well to increased innovation and well-being for teachers and students alike.

Chapter 12 provides an assessment tool for how to recognize whether the imperatives, conditions, and leadership characteristics that support brilliance have been allowed to flourish in the environment. If you have students who are comfortable questioning the answers rather than just answering the questions, you probably are well on your way to a healthy, brilliance-nurturing environment.

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Sympathetic resonance: The rippling beauty of brilliance

There's a harmonic phenomenon called sympathetic resonance, or sympathetic vibration, in which a passive string on a musical instrument will start to vibrate when it picks up external vibrations from a string that

is singing a harmonic likeness (Dawson & Medler, 2010). As both a musician and an educator, what fascinates me is that every object on Earth has a natural vibration frequency, a frequency at which it will start to vibrate in sympathy with the vibrations around it.

This metaphorical phenomenon comes to life in our interconnected systems, of which our educational system is but one. We can't expect a child's school experience to begin and end within our classroom walls; to start at age five and finish at age eighteen. Our students' experiences, and our own workday experiences for that matter, will resonate outward into our families and communities, and forward in time, as students go out into the world as adults. In other words, seeds of brilliance that are nurtured and allowed to flourish tend to "jump the garden"; what we do in our classrooms today will create an influence miles away and decades from now.

Each resonance can have a profound impact on these families, friends, and other groups, and in turn, the vibrations of those impacts will resonate even further afield, to other individuals and groups within these secondary spheres of influence, impacting more and more people, for better or for worse, as the ripples fan out.

We often hear the adage that we can't change the world, but we can change the life of one person. And considering sympathetic resonance, changing the life of one person can in turn change the world, or at least the lives of a lot more people than we initially realize. As teachers, we need to realize the power we hold within our hands, of the amazing, reverberating impacts we can have by bringing out the seed of brilliance in just one student. We have no way of controlling how far or how fast our own resonances will travel, but we can influence whether the sympathetic resonances we produce will give our students a voice and the harmony they need to soar.

You'll Discover Beautiful Examples of Brilliance

We need to recognize there is that seed of brilliance in everyone; just because we can't initially see it doesn't mean it's not there. We can't see a seed hidden in the ground, but we know that with enough water and sunlight it has the potential to turn into a thriving, fruitful tree.

It breaks my heart, for both the teacher and the parent, when parents have to say to a teacher, "You always look at what's wrong with our child and what he's not doing right. But at home, we see a different side of him. We see the brilliance in him. Why don't you see those things?" It's not that the teacher doesn't dearly want to do just that, but the constrictions of time allotments and other set priorities too often prevent them from doing so.

We seek to change that. In the following chapters, you'll see some intriguing examples that shine a brighter light on how we perceive and

nurture brilliance. This is our chance to start seeing those seeds of brilliance, those grains of magic in each and every one of our students and each of our employees, family members, and our community members.

CHAPTER 3

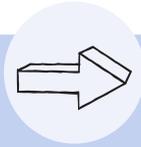
Key Takeaways

- ▶ We need to reimagine how we define, recognize, and nurture human potential: Replacing our heavy reliance on IQ tests with the concepts of “brilliance” and “seeds of brilliance” allows us to foster healthy learning environments where innovation, leadership, and new skills can emerge.
- ▶ Our definition of brilliance includes three primary characteristics: (1) Every person has seeds of brilliance, although they can often be hidden or lie dormant due to an environment that prohibits them from flourishing. (2) A person’s brilliance may lie in any type of subject matter or ability, beyond what is usually assessed in traditional school structures. (3) A person’s brilliance cannot be tested or measured.
- ▶ As teachers, we have the power to transform a child (or colleague) and in turn transform the world: Using the three imperatives and four conditions, we can create learning environments in which a child’s seed of brilliance can emerge and create a sympathetic resonance and ripple effect that spreads out into the community and beyond.

Reflective Questions



1. As a leader, what is your seed of brilliance? How do you recognize the seeds of brilliance within your staff and your colleagues?
2. How will you start a conversation about seeds of brilliance and bring the concept to life with your students, staff, parents, and the broader community?
3. After reading this chapter, how will you engage staff in an active exploration to discover the seeds of brilliance, hidden talents, and interests of every individual in your organization?



Try This!

Discover Seeds of Brilliance with a New Kind of Wonder Wall

Revealing seeds of brilliance is a beautiful and transformative step to transforming your learning culture. But when adults and children start to think about discovering their own seeds of brilliance, they often don't even know where to begin. Here's how to get started:

- Talk about seeds of brilliance and how we all have them. Take on a spirit of celebration by announcing a quest where everyone will discover and reveal their seeds of brilliance over the next semester or school year.
- Create a Wonder Wall outside of every classroom, as well as the staff room, custodians' room, administrators' office, and others. Every person in the building should be included. You can even put one up for parents and visitors.

To make each Wonder Wall, mark off a large area of the wall with painter's tape (or use a very large piece of paper), as illustrated in Figure 3.2 where we imagined a school that had members of the custodial staff named Jody, Asher, and Padi. Include each person's name on the left-hand side and then columns to record each person's wonderings, curiosities, interests, and passions with sticky notes. Feel free to make your own columns for your unique school situation.

Figure 3.2 A Wonder Wall from the Custodial Staff

Wonder Wall					
Name	I sometimes wonder . . .	I'm curious/ passionate about . . .	I'd love to learn more about . . .	One thing you may not know about me (because I never do it at school) . . .	Ideas that I have . . .
Jody	If students should be taught how a building works, such as electrical wiring, plumbing, etc.	Birds and aviation.	How to grow heritage vegetables.	I play the banjo.	Custodians could make a presentation on how a building works. We should start a school garden.
Asher	How many medicinal benefits of plants have yet to be discovered.	Creating documentaries.	Making a soundtrack for a documentary.	I do stand-up comedy on weekends.	We should plant a garden. I would like to make a documentary about the new garden.
Padi	How to create a cleanser that's less harmful to the environment.	The environment, wildlife, and camping.	Chemistry and public speaking.	I volunteer to make birthday cakes for seniors at the retirement home.	I can teach others how to bake and we could have a bake sale. The custodians and the chemistry students could work together on a new cleanser project.

- Once your Wonder Walls are even partially filled out, they'll provide a rich assortment of ideas for passions, projects, and the opportunity for each individual to start discovering their seeds of brilliance. Make it a living document, allowing sticky notes to be added or taken away as the individuals grow.
- Make time, perhaps four to eight hours each week, for people to nurture their seeds of brilliance. Find ways of making the extraordinary happen. Now that you know these skills and talents, partner people up and enable them to learn from each other or collaborate in a large team project.
- This will take some coordination and preparation work, but the transformation in your culture and your people will be well worth it. As a leader, you'll need to show support and allow people to take risks and learn from mistakes for the learning culture to transform.