1 What Is Giftedness, Anyway?

Wolfgang Amadeus Mozart was a gifted composer – one of the most gifted in history. But would he have been recognized as gifted, or even have been gifted, if his family did not provide him with abundant opportunities to engage with music and the music profession? Mozart's father, Johann Georg Leopold Mozart, was himself a composer as well as a violinist. He not only was himself distinguished but also had the connections in the musical world to introduce young Wolfgang to people who could advance Wolfgang's career. What if the very same boy had been born to a father who was a laborer, or to a father who wanted his son only to be an accountant, or in a society that forbade music?

A central theme of this Element is that giftedness is not just something one is born with. It is not something that is stored somewhere in one's brain or otherwise in one's head or body. Giftedness certainly emanates from a person, but only in interaction with the environmental context in which a person lives and with the kinds of tasks that the person encounters while developing (Sternberg, 2023a; Ziegler, 2005; Ziegler & Stoeger, 2007). Moreover, it is not just an individual phenomenon, it is also a collective one (Sternberg, 2023b).

Educators did not "discover" giftedness; largely, they invented it (Borland, 2005; Reis & Renzulli, 2009). In this Element, we view the invention of giftedness in terms of a pentagonal theory of labeling of giftedness (Sternberg, 1993; Sternberg & Zhang, 1995). This theory deals with the way people use the term "giftedness," in other words, how they come to label certain people and actions as gifted, and others as not. The pentagonal theory designates people as *gifted* if they meet all of five labeling criteria.

First, gifted people must excel in some identifiable way. They differentiate themselves from others by doing something much better than others do it.

Second, the way in which gifted people excel is relatively rare statistically. In other words, it is an excellence that relatively few people display.

Third, people labeled as "gifted" must be able in some identifiable way to demonstrate their excellence. They cannot be excellent merely in the imagination or because someone says they are. They have to show it somehow.

Fourth, people identified as gifted must be productive in demonstrating their giftedness. They need to find ways consistently to show their gift or gifts. One performance does not suffice: gifted people need to show their gifts on a repeated basis.

Fifth and finally, whatever the people identified as gifted are excellent at must be valued by persons in positions of authority in some group or groups – those who are authorized to label people as "gifted" or not.

Whenever we talk about giftedness in this Element, we are talking about someone who (1) excels identifiably, (2) is relatively rare in their excellence, (3) demonstrates the excellence, (4) does so productively, and (5) is valued by authorities in some discipline or field. We will not keep referring to these criteria, but they underlie our entire discussion.

The pentagonal theory shows that giftedness is not just "in the person" (Sternberg, 2023a). It shows the extent to which giftedness is a collective concept (Sternberg, 2023b): it is a collaboration between those individuals who perform in a certain way and those who value the way those individuals perform. In a way, it is like a musical performance: one needs a performer, of course, but one also needs an appreciative audience. If there were only one individual in the world, with no audience, there would arise no concept of "giftedness," no matter how well that one person did anything. And for musical performers to reach where they are, usually, there have been many teachers, supportive parents, colleagues, and others who helped them get there. Moreover, during that performer's life course, there are many ups and downs, successes and failures, ascensions and crashes that make them who they are. So it is with gifted individuals (Dabrowski, 1964).

Gifted individuals can be gifted in many different ways. They may be exceptional writers, musicians, dancers, soldiers, actors, scientists, or whatever. When they are young, they often are recognized simply as students. In an ideal world, those who are identified as gifted when children would, as adults, give back to the world and not just devote their resources to their self-enhancement (Sternberg, in press).

What is valued by societies changes over time. Any theory of giftedness that includes content, therefore, has a kind of life expectancy, just as people and other living beings do.

In 1925, the life expectancy for men was 57.6 years and that for women was 60.6 years (life expectancy in the United States, 1900–98). This life expectancy was actually a considerable increase from 1905, twenty years earlier, when the respective life expectancies were 47.3 years and 50.2 years. In 2023, the average man in the United States will live to 76.6 years and the average woman to 81.6 years. Unfortunately, their life spans rank only 46 worldwide. They would live longer if they came from Japan, where the average life expectancy is 81.9 years for men and 88.1 years for women (Worldometer, 2023b).

Obviously, the world has changed, at least in terms of life expectancy. Prenatal care is better, medical knowledge has increased enormously, nutrition is better, and health practices are better. For example, smoking is much less common now than it was a century ago. We know that we have to limit our intake of red meat, sugar, and saturated fats. We all can consider ourselves

fortunate, at least from the standpoint of longevity, to live now rather than a century ago. As our physical health has improved, our thinking about it has changed as well. But our thinking has not changed about all matters for which a change is needed. In some areas, we are stubbornly stuck on old ideas that no longer work well.

It is perhaps odd that, whereas nutritional and medical practices have changed so much over the course of a century, aspects of psychological and educational practice have changed hardly at all. In 1925, when the life expectancy of the senior author of this Element would have been 57.6 years (he is writing at an age well beyond 57 or 58), Terman (1925) published the first results of his longitudinal study of the gifted. To this end, he used a test he had first published in 1916, which came to be called the Stanford-Binet Intelligence Scales (Terman, 1916). The current version of the same test, the fifth edition, is in active use for identifying gifted children and adults (Roid, 2003). It is perhaps not a great sign that, as this Element is being written, the current (fifth) edition of the Stanford-Binet Intelligence Scales was published twenty years ago.

To understand the field of giftedness today, one must understand how it, or any field, could have remained so nearly static over such a long period of time – essentially, a century. What kind of field does not much change over the course of a century, and what does it tell us about a field when, a century after its inception, it is still doing much the same stuff as it was doing when the average man did not reach sixty years of age? Why has our thinking gotten stuck?

2 Societal Fixation on IQ

Terman's (1925) thinking was that the main basis for identifying the gifted ought to be IQ (intelligence quotient). This is the quantity that originally was computed by dividing a person's so-called mental age – the age at which the mind operates – by their chronological age, the age they have reached physically, and multiplying the quotient by 100. Today, IQs are rarely computed in this way, but rather by percentiles, or percentages of individuals a particular person's score exceeds. In other words, your IQ today is determined not by some function of your mental age, but rather by how much better you do on the test than others of your same chronological age.

That conception of giftedness as based in IQ has lasted a long time indeed. Some would believe it has lasted so long because it is essentially correct – IQ or some derivative of it, they believe, is what matters for outstanding intellectual accomplishments (e.g., Deary, 2020; Gottfredson, 1997; Herrnstein & Murray, 1994; Kuncel et al., 2014; Lubinski & Benbow, 2006, 2020; Murray, 1998; Sackett et al., 2009, 2020; Schmidt & Hunter, 1998). Yet so many psychologists

and educators have found the notion of giftedness as inhering in IQ to be inadequate and have proposed their own views, summarized in some edited books and to be explicated later in this Element (e.g., Heller et al., 2000; Pfeiffer, 2018; Sternberg & Ambrose, 2021; Sternberg et al., 2022; Sternberg & Davidson, 1986, 2005, Sternberg & Reis, 2004).

Most of those who have concerns about the use of IQ and its proxies – tests such as the SAT and ACT that have different names but that are essentially IQ tests (Frey & Detterman, 2004; Koenig et al., 2008; Sackett et al., 2020) – are not "anti-IQ" in the sense that they believe IQ tests tell us nothing or somehow provide seriously erroneous information. Rather, they believe that IQ tests provide some information about giftedness that is useful for some students in some circumstances. But they believe there is more to giftedness than just IQ, as this Element will show. As just one early example, Renzulli (1978) proposed that giftedness involves above-average (not necessarily exceptional) ability, but also creativity and task commitment (motivation). He later greatly expanded his model to include schoolwide enrichment that would provide to all students the kind of education that previously had been given primarily to gifted students (Renzulli & Reis, 1993, 1994; Renzulli et al., 2006).

Gifted programs today often use indices beyond IQ to identify students as "gifted," but the indices they use, such as the SAT, ACT, GRE, and many other tests, are rather strong correlates of IQ. Even school grades are correlates of IQ, although not as strongly as the IQ proxy tests that measure essentially the same things.

Why is IQ inadequate and why has it lasted so long as the primary measure for identifying giftedness? Why do measures of anything continue to be used long past their expiration date? For example, the body mass index is still used by many to assess health, even though the measure is severely flawed (Nordqvist, 2022). It fails to take into account such variables as muscle mass, height, age, bone density, overall body composition, and both sex and racial differences.

Table 1 shows the difference between what we call "gifted" performance versus what we call gifted performance (Sternberg, in press). "Gifted" performance is the kind of performance measured by intelligence tests. Gifted performance is the kind of performance one needs to excel in the real, everyday world. The table compares the kinds of skills one needs to succeed at a high level on intelligence tests with the kinds of skills needed to succeed at a high level in the world. The contrast, we suggest, is striking. On the one hand, there may be some transfer from the IQ test solving skills to the real world, as suggested by the correlation between IQ test scores and various kinds of real-world performances (Sackett et al., 2020). On the other hand, there may be some negative transfer – that is, worsening of performance as a result of the skills. Someone who is

Table 1 Why being "gifted" does not equal truly being gifted[a]

Difference	*"Gifted" issue*	*"Gifted" individual example*	*Gifted issue*	*Gifted individual example*
Type of answer	Right versus wrong	What does "exacerbate" mean?	More adaptive versus less adaptive	How can we decrease air pollution?
Structure of path to solution	Well-structured: clear, often unique path to unique solution	How many loaves of bread is 50 percent of fifty loaves?	Ill-structured: multiple fuzzy paths to partial solutions	When is 50% of a loaf of bread better than fifty loaves of bread?
Emotional/ideological resonance	Low emotional/ ideological resonance, so usually clear thinking	If five out of fifty people who are vaccinated get the disease against which they are vaccinated, what is the vaccine's efficacy?	High emotional/ ideological resonance, so often clouded thinking	You have been ordered to schedule your boss to attend an in-person meeting with other bosses. You know your boss has COVID−19. What do you do?
Life stakes	Low and thus low stakes if a solution is wrong	What are the effects of long-term doses of radioactivity on people?	Often high and thus high need for a good solution	You gave your boss an expensive necklace from a collection of jewelry that was recalled because of radioactivity. What should you do?

Table 1 (cont.)

Difference	*"Gifted" issue*	*"Gifted" individual example*	*Gifted issue*	*Gifted individual example*
Life contextualization	Decontextualized problems weakly contextualized	For what kind of illnesses is Vincristine used?	Highly contextualized problems strongly related to life events	You need medicine you cannot afford. Your sister, a nurse, offers to steal it for you. What do you say?
Need for problem recognition	None: problems are given by test	What is a pandemic and what are two great pandemics in history?	Great: one has to recognize that the problem even exists	What are the signs that a pandemic may be starting?
Need for problem definition	Low: problems are usually defined by test	During the early 1800s, what were arguments some people used to justify rebelling against the union of states in the United States?	High: problems are poorly defined	Why does slavery continue to exist in some parts of the world?
Time for solution	Low: problems can be solved in a few seconds to a few minutes	What number comes next in the following series: 2, 5, 9, 14, ?	High: problems are addressed over time but often cannot be definitively solved even then	How can we avoid polarization of political and ideological groups?

Need to search for information	Low: information needed for solution given in the test problem	Bobby bought ten cherries and paid $1.50. How much did each cherry cost?	High: Information needed for solution has to be located on Internet or elsewhere	How would someone figure out the cost to society of each case of COVID−19?
Need to evaluate information	Information given in test problem is generally viewed as credible and consistent	Abraham Lincoln is often viewed as the best president in US history. Why?	Information sources are often low in credibility and mutually contradictory	Abraham Lincoln is often viewed as the best president in US history. Why?
Need to work groups	Problems are solved individually without consultation being allowed	Figure out how to compute the area of a hexagon. You must work individually without consulting anyone else	Problems are solved individually or in groups but with consultation of others, including experts	Working as a group, figure out how to compute the area of house that needs carpeting
Relevance of ethical thinking and action	Ethics are not important for solution	What are the stages in Kohlberg's theory of moral development?	Ethics often are important for solution	If your wife were desperately ill and the only hope of cure was to smuggle unapproved medication that could not be legally imported into the country, would you do it?

[a] Based in part on Sternberg, R. J. (in press). In the movies, someone always defuses the time bomb – in real life, not so much: what is wrong with contemporary conceptions of giftedness. In C. Fischer, C. Fischer-Ontrup, F. Käpnick, N. Neuber, & C. (Eds.), *Potenziale erkennen – Talente entwickeln – Bildung nachhaltig gestalten.* Waxmann.

skilled in solving clean, neat, abstract IQ test problems with no rough edges may try to solve real-world problems in the same way that they try to solve IQ test problems, with bad or even disastrous results.

There are many reasons why the traditional approach to giftedness remains, even when it is, at best, incomplete, and at worst, counterproductive.

1. **Entrenchment.** The field has been doing, more or less, the same thing for a century – identifying the gifted by IQ and related measures and then teaching in ways that emphasize academic acceleration or enrichment. It is difficult to change practices that are entrenched and that have become standard practice over a long period of time.
2. **Training.** Teachers of the gifted and those who train them have been inculcated with a certain model. It is what they understand and know how to use. Changing identification and labeling practices would involve a great deal of training, up and down the line from training teachers of the gifted to preparing administrators for changes, and resources for gifted programs are hard enough to find without adding to the problems they currently have in getting funded.
3. **Benefits to Those Who Already Are Benefited.** There is an expression that "history is written by victors." The expression is attributed to Winston Churchill, but it is not clear who was the first truly to say it. But those who are in positions of power, in education or any other field, are the winners of a societal race. They were identified as standing out, often by the very measures that now are being questioned. Yet, a fundamental principle of interpersonal attraction is that we are attracted to people like ourselves (Sternberg, 1998b). We choose as gifted those who fit a societal prototype of success, which resembles those in power who get to choose, largely, what the prototype is. These tests create what sometimes is viewed as a meritocracy trap (Markovits, 2020; Sandel, 2021). Society comes to believe in them and in their value as establishing a "true" meritocracy. They then become self-perpetuating as those who have been benefited by the tests assume positions of power and look for others like themselves.
4. **Superstition.** Few adults believe they have superstitions. That is because they (mistakenly) call them by another name: "facts." As has been pointed out elsewhere (Sternberg, 2022a), when a society identifies what it believes to be a marker of future success, that belief results in a self-fulfilling prophecy so that the identified marker does indeed become a predictor of future success. So, for example, if employers believe that going to a particular set of universities is a marker of future success, they are more likely to hire people from those universities, thereby opening a path to future success denied to those going to universities outside that set. Those who did