

# David Shenk's The Genius in Us All

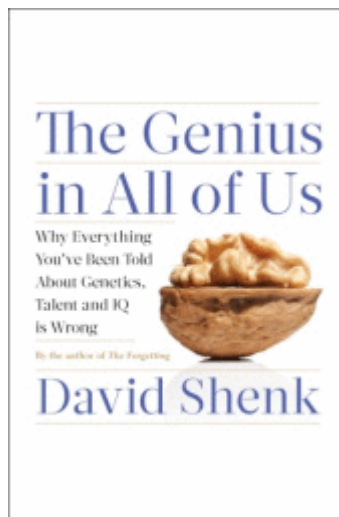


**A book review by**

**Marcus T. Anthony (PhD)**

*This review also appears on my blog, [www.22cplus.blogspot.com](http://www.22cplus.blogspot.com)*

“This book is not a dispassionate presentation of all scientific points of view. Instead it embraces the arguments of the Interactionists, whose views I came to trust most after much reading, conversation and consideration.” (p. 148)



So writes David Shenk in *The Genius in All of Us*, and true to his word he is. Shenk's book is not a strictly scientific investigation of intelligence or giftedness, but a personal presentation for the case that intelligence is highly malleable, and that it emerges from the interaction of genes and environment. His case differs from many mainstream representations of intelligence in that he finds environment plays a far greater role than many intelligence theorists acknowledge. Intelligence, states Shenk, is a process, more so than a discrete entity which sits in the physical structure of the brain. He writes:

“...intelligence isn't fixed. Intelligence isn't general. Intelligence is not a thing. Intelligence is a dynamic, diffuse and ongoing process.” (p.42)

So, David Shenk does not even attempt to be even-handed, and barely addresses the criticisms to the interactionist position. Some readers won't like the book for that reason.

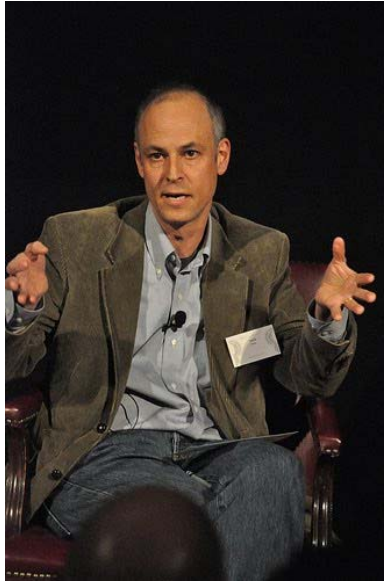
I had no problem with reading the book. There is no law which says that a non-fiction book has to take a critical approach to its own thesis. If you are looking for a look at the arguments from multiple perspectives, this is not the book for you. You might instead try Howard Gardner's *Intelligence: Multiple Perspectives*, or Ken Richardson's brilliant little book, *The Making of Intelligence* (though both books largely comply with Shenk's position). These are very readable and concise volumes.

Personally, I liked *The Genius in Us All* a great deal, and no doubt this reflects the fact that I agree with Shenk's essential argument. I have spent many years investigating cognitive development, including researching and practicing “learning how to learn”, accelerated learning, intelligence theory, and neural plasticity. On top of this I have explored other ways of knowing, including the meditative and intuitive. Many years ago my older brother (who just happened to nick-name me “Dope” as a child – children are cruel!) was diagnosed with some mental problems. He was given an intelligence test. His IQ attribution was about half of the score I have been assigned in such tests, and it struck me that genetics are probably a poor explanation for the very different adults we had turned out to be. As a child, my brother had no interest in the scholastic at all, while I was obsessed with reading and writing. Later I developed myself further through years of mental work. I have come to strongly believe that mental ability is far more malleable than what is popularly depicted in mainstream science and the mass media. Given this, I am very sympathetic to Shenk's argument.

*The Genius in All of Us* is well written. Shenk's writing style is highly lucid, and he embellishes his ideas with interesting examples from real-life case studies. The book is divided into two sections. The first is some 130 pages of easy-to-read prose, which outlines Shenk's thesis, without the interruption of excessive references and quotations. These he leaves for the second half of the book. Those who wish to follow up with a more critical investigation of the subject, can proceed to this section after completing the first. Personally, I found the second half just as fascinating, but many may wish to conclude with the first. In short, *The Genius* is an excellent layman's account of the argument for the plasticity of intelligence. Shenk's enthusiasm for the subject shines through on all pages, and so I give it five stars. It achieves exactly what it sets out to do.

David Shenk believes that the concept of “g” (IQ), may have developed from the fact that western education teaches the very abilities that IQ tests test for. The entire IQ game then become a self-fulfilling prophecy, as those who work hard and succeed in the education system then test higher in IQ assessment. An interesting aside, although Shenk does not state this himself, is that the success of Asians in IQ tests can probably be attributed (in part) to the endless schooling and tests they do in their exceedingly rote-centred education systems (I have taught in Asia for ten years at all levels of the

system). In this sense, IQ tests may reflect academic achievement as much as innate intelligence.



**David Shenk**

Shenk does not dismiss genetics and natural ability altogether as contributing to human intelligence. He simply states that their contribution is overstated. Something as complex as intelligence cannot be attributed, reductionist style, to the micro-processes within cells. Shenk quotes Cambridge university psychologist Patrick Bateson as saying that genes:

“...store information coding for the amino acid sequences of proteins... That is all. They do not code for parts of the nervous system and they certainly do not code for particular behavior patterns.” (p. 21)

Hard work, discipline and self-sacrifice lie at the heart of many a story of “genius”, Shenk finds. Amongst many examples, the author refers to the biography of Mozart, whose life is often cited as an example of innate giftedness. In fact, according to Shenk, Mozart was exposed to an extraordinarily stimulating musical environment almost from the moment he was born; and thus his remarkable achievements were at least in part a function of the environment in which he was raised, not to mention his extreme dedication to his chosen profession.

A related point raised by Shenk is that some evidence suggests children diagnosed as “gifted” rarely go on to be adult creators of note. Citing research from Stanford psychologist Carol Dweck, Shenk argues that a belief that intelligence is innate, rather than an interactive process, actually retards the full development of ability. Those with an interactionist perspective of intelligence tend to be far more intellectually ambitious and successful. (p. 235). It may be an irony that thinking you are born smart makes you dumb – well, dumber than you might otherwise have been. Further, child prodigies can become “frozen into expertise”, and turn into risk avoiders. In short, their capacity for

innovation is reduced by attitudes which emerge from their childhood self-concept and worldview. The reverse side of this coin is where people believe that they have an innate lack of intelligence and ability, and don't even try to express their potential capacities.

One recurring reference in *The Genius* is that of the Flynn effect - the fact that IQ scores are increasing about three points per generation. A fascinating statistic is that ninety-eight per cent of IQ test takers do better today than their counterparts did in 1900. Shenk rightly points out that if intelligence is purely genetic, IQ scores should remain stable from generation to generation. Clearly then, there is something important happening here. Shenk puts it down to the demands of modern education, and the fact the industrial and information society demand the development of a greater cognitive complexity, especially in the workplace. Increased leisure time may be another factor, including the influence of radio, television and the internet placing increasing demands on the intellect. Shenk also argues that dominant concepts within society help facilitate the expansion of intelligence. Recent centuries have seen the emergence of the idea of evolution, and the development of abstract thought, and the deep questioning of information. Flynn himself described the generations expansion of intelligence as a "cultural transition from pre-scientific to post-scientific thinking", and that it represented "nothing less than the liberation of the human mind." (p.36) These culturally mediated shifts in thinking are deeply ingrained in western populations today, but this was not always the case.

Another strong theme in the book is that genes do not encode for intelligence, and that the function of genetics in intelligence theory has been overstated (and in many other domains of enquiry). This oversell has occurred both in scientific and popular circles.

Personally, I would go even further than Shenk in the evaluating the implications of intelligence as malleable process.

Shenk states that the developmental paradigm "will... require not just a new intellectual leap, but also a moral, psychological, and spiritual leap." (p. 95) He cites biological, economic, cultural, nutritional, parental, and ecological" influences on cognitive development." (p.95). Quoting neuroscientists Mark H. Johnson and Annette Karmiloff-Smith, Shenk finds that cognitive development "is an activity-dependent process at the molecular, cellular, and organismal levels involving probabilistic epigenesis (bidirectional relations between genes, brain and behavior)." (p. 106)

Shenk is right to point out (citing McGill's Michael Meaney) that the intracellular environment (within cells) emerges from the genetic makeup of the cell and the extracellular environment (e.g. hormones, the immune system, neurotransmitters and nutrients), and that these in turn are influenced by the individual environment (p. 159). Neurotransmitter and hormonal activity, for example, are influenced by social interactions.

Yet beyond all these regulators of cognitive development there is the domain of "motivation", and this is what really fascinates me. Shenk addresses human intention briefly, but does not explore it depth, preferring to leave it as a kind of mystery. The

author quotes Ellen Winner as saying that creators have a desire to shake things up, and are restless, rebellious, and dissatisfied with the status quo. They are “courageous and independent” (p. 226) But where do such qualities come from? It is here that mainstream science is at its weakest, and quite surprisingly, Shenk also.

At this juncture we begin to address the intangible, qualitative domains of consciousness, and ultimately the “spiritual”. What is it that drives a person to dedicate the “magic” figure of 10 000 hours to develop his/her genius to a level of mastery?

Shenk has stretched the dominant paradigm -but I believe that it will be stretched even more in the coming decades and centuries, and that eventually it will “bust”. Constricted by an overly reductionist model of mind and biology, Shenk stops enticingly short of expanding into the real frontiers of human intelligence – consciousness itself. He states that “any individual gene or environmental event produces an effect *only* by interacting with other genes and environments.” (160, my italics) In other words intelligence is only ever gene or environment mediated. This is an unnecessary delimitation.

For example, he writes:

If genes are merely the bricklayers, where’s the foreman. Where’s the architect?

Amazingly, there’s no architect. Like ant colonies, galaxies, and other complex emergent systems, the human body is a dynamic assembly abiding by certain strict laws of science but not following any master set of instructions. The outcome is a function of the ingredients and the process. (p. 159)

It appears that Shenk sees ontogeny (individual development) as an essentially random process, parroting the very worldview of the mechanistic views of mind and body that he seeks to discredit. This is an almost inexplicable contradiction to Shenk’s a central tenet of his main thesis - that motivation is a prime driver in the development of intelligence and genius.

The next great step in the examination of intelligence will incorporate an expansion of the understanding of consciousness itself (though this may be a long way off). At one level, for example, we have human intention – the myriad of thoughts and emotional energies that run through the mind, generated both consciously and unconsciously by the individual. Thinking affects physiology, and in turn, the expression of genetic potential. So, first-person thought, or human intention will have to be added to the genetic and environmental mediators of intelligence that Shenk refers to . This is just common sense, and a surprising omission from Shenk’s thesis.

Yet this is only the tip of the iceberg. Increasing evidence points to the fact that consciousness, like intelligence, is not a discrete entity which exists in finite brains, but is a system of information (much as I hate the word, I cannot think of a better one) which transcends the brain. There is no *physicalist* framework which adequately

accommodates this expression of mind. Ultimately we will need to incorporate the concept of consciousness fields.

It won't be long before the whole book has to be re-written. In just one recent paper published in *Nature* (463, 644-647 -4 February 2010). Elisabetta Collini and other scientists presented evidence " that long-range quantum coherence between molecules can... be sustained in complex biological systems." The evidence is only going to become greater, and it won't be confined to cellular biology. Once it is established that "environment" incorporates consciousness fields that extend (theoretically) into infinite space (and beyond), the entire field of cognitive development, indeed cognitive science, will have to expand massively beyond its currently narrow confines. Once that happens, David Shenk's thesis will not appear so outrageous – in fact it will appear relatively conservative.

Flynn saw the development of scientific thinking as liberation from pre-scientific thinking. But the liberation is not yet complete. This recent "critical rationality" (as I call it) will eventually be enhanced by an intelligence which embraces the transrational intellect, and which incorporates brain-transcendent cognition - or what I call "integrated intelligence".

Still, one cannot blame David Shenk for simply "nibbling" at the periphery of the frontiers of human intelligence. As futurist John Naisbitt has commented, if you get too far ahead of the parade, nobody will be able to see you. No doubt I've lost a few readers since the beginning of this review!

Shenk is correct. A whole new definition of intelligence will soon be required, and he has done a noble job in getting the ball rolling.

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