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How and Why People Become Expert Performers

by

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How and why do some people become expert performers? By expert performers, I mean people who display outstanding capabilities and perform at levels far beyond those obtained by the average person. Research into expert performers has focused on star athletes, champion chess players, extraordinarily “gifted” musicians and artists, genius physicists and writers, prodigies, and idiot savants who display remarkable ability in performing specific tasks but generally have low or limited intelligence.

Most of us assume that extraordinary performers are exceptionally gifted. Their breathtaking accomplishments must stem from inborn talent, a gift from God. How else can we explain the fact that many strive for success in any domain—athletics, art, music, knowledge, etc.—but only a select few reach the highest levels? How can we explain the boy who, according to his parents, started speaking at five months, developed a 50-word vocabulary at six months and could speak five languages and read in three by the age of three.¹ How else do we explain Stravinsky's self-described ability to imitate local singers at the age of two or Arthur Rubenstein's self-reported mastery of the piano before he could speak?

How do we explain the extraordinary achievements of idiot savants such as Nadia? At four, she was slow, clumsy, and hardly spoke to anyone. Much of the time at school she was unresponsive choosing to spend her time staring into space or simply wandering around aimlessly. Yet, Nadia could draw beautiful pictures of horses, birds, and other animals. Not only were the pictures exceptionally beautiful but also researchers reported they displayed “...the use of techniques to represent perspective and proportion, foreshortening and the illusion of movement.[that contrasted sharply] with the schematic, rigid, and stereotyped drawings that are almost universal in children of Nadia's age.”²

How else but from talent do we explain the amazing musical accomplishments of a five-year-old autistic boy by the name of Stephen.

Researchers observed that Stephen was "...largely unresponsive to his physical environment and very severely retarded in language development, with practically no speech. However, when confronted with a piano keyboard he could not only reproduce a heard melody but also transform the piece by transposing it to a different key, incorporating new elements, such as minor thirds which he introduced to replace the major thirds of the original. In other words, he could improvise in ways that conformed to the conventions of musical composition."³

How can we explain the fact that children in certain parts of Africa such as parts of Kenya are able to stand and walk much earlier than children in other parts of the world? Why is it that Australian aboriginal children who live in the dessert perform so much better on tasks involving visual memory than do other Australian children? Why do children in certain cultures demonstrate early on extraordinary abilities in swimming, canoeing, land navigation, and water navigation compared to children in other parts of the world?

Are these extraordinary achievements the result of talent or is there another explanation? A vocal and often controversial group of researchers led by K. Anders Ericsson, a professor of psychology at Florida State University, argue that extraordinary individual achievements such as I just describe are essentially the result of one simple thing—deliberate and sustained practice. That is right—practice.

The reports of amazing accomplishments of children at young ages such as the boy who could speak five languages at the tender age of three are usually from parents and recorded by researchers years after they occur. "While the parents of these children portray themselves as "...having made no contribution to their child's abilities, simply looking on in wonder," researchers note that "their professed passivity is often belied by the fact that their descriptions contain detailed information about the child's achievements which could never have been obtained without a substantial investment of time and considerable planning."⁴ For example, one researcher investigated the reports of a girl by the name of Heidi, who according to her parents, began reading at the age of four. The parents insisted that Heidi had learned to read all on her own with no assistance from them. They even produced elaborate records showing the dates at which Heidi had achieved various levels of reading ability such as, the specific dates she mastered different letters. The researcher was skeptical noting that "it is hard to see how parents who have devoted as much time as these people did to making detailed records of their child's progress could have possibly avoided becoming actively involved in the child's early learning."⁵

In respect to reports of extraordinary early musical accomplishment such as those of Stravinsky and Rubenstein, researchers are skeptical of whether the reports are anywhere near reliable. Even if they are, the researchers suspect more than talent was involved. For example, commenting on the reports of early accomplishments of famous composers and musicians, researchers Michael Howe, University of Exeter; Jane Davidson, University of Sheffield; and John Sloboda, Keele University, England write:

It is...apparent that from a very early age these children were given special opportunities and considerable encouragement. In many cases, the emergence of skills that were at all remarkable followed rather than preceded a period of some time during which not only were unusual opportunities provided, but there was firm expectation that the child would do well. An examination of biographical evidence concerning the early lives of prominent composers revealed that there were invariable opportunities for the child to have had supervised practice sessions.⁶

With regard to idiot savants and the mentally handicapped such as Nadia and Stephen who show remarkable talent, researchers speculate that practice may be as important, if not more important, than any special gift. They note that while some innate abilities may be involved, the achievements of these people are equally likely to be the result of "...an obsessional motivation to engage in a particular activity, probably resulting in large amounts of attention to or practice at the relevant skills."⁷

Finally, when it comes to the children who demonstrate special skills early on in such things as swimming, canoeing, land navigation, and so on; researchers suspect that the early accomplishments may have much to do with practice and parenting. Howe, et.al. write:

...Charles Super...who studied infants in a Kenyan tribe confirmed that they did indeed gain motor capacities such as walking, standing and sitting without support a month or so earlier than children in other continents, but he also discovered that the only skills that these infants acquired earlier than others were ones that their mothers deliberately taught them. When genetically similar infants from the same tribe were brought up in an urban environment where parents did not provide the special training given in traditional villages, the infants displayed no precocity at all at those motor skills at which the traditionally-raised infants excelled.⁸

The Importance of Deliberate Practice

As we have seen, Anders Ericsson and others argue that expert performers become expert performers primarily as a result of many years of practice. When Ericsson and others refer to "practice," they mean "deliberate practice" which they define as "...effortful activity motivated by the goal of improving performance."⁹ Deliberate practice is not play and is not work. Deliberate practice is not fun and it is not pursued for some short-term external social or financial reward. Deliberate practice is an activity a person engages in for the sole purpose of improving their performance. It requires large amounts of effort and concentration. Typically, the practice sessions are designed by teachers or coaches to ensure that the activities undertaken are of an appropriate level of difficulty for the individual being trained and provide plenty of

opportunity for feedback, repetition, and error correction. Think of a person practicing a musical instrument or an athlete in training.

How long does the normal person have to engage in deliberate practice to become an expert? In most cases, it takes ten years. The so-called “10 year rule” was first proposed based upon research on the amount of deliberate practice it took for someone to become a chess master. Later the 10-year rule was found to apply to many, if not most, fields of endeavor as Ericsson notes:

[T]he 10-year rule is remarkably accurate, although there are at least some exceptions. However, even those exceptions, such as Bobby Fischer, who started playing chess very early and attained an international level at age 15, are only about a year shy of the 10-year requirement. Winning international competitions in sports, arts, and science appears to require at least 10 years of preparation and typically substantially longer. In the sciences and some of the arts, such as literature, the necessary preparation overlaps so much with regular education that it is often difficult to determine a precise starting point. However, when the time interval between scientists' and authors' first accepted publication and their most valued publication is measured, it averages more than- 10 years and implies an even longer preparation period ... Even for the most successful ("talented") individuals, the major domains of expertise are sufficiently complex that mastery of them requires approximately 10 years of essentially full-time preparation.¹⁰

Ten years of deliberate practice translates into thousands of hours of grueling effort expended for the sole purpose of mastering a craft or activity. By age twenty the best violinists are estimated to have engaged in deliberate practice for at least 10,000 hours. Expert performers arrange their lives around a commitment to daily practice. For example, expert musicians have been found to engage in deliberate practice approximately four hours per day, seven days a week, 365 days a year. In fact, there appears to be a 4-hour rule. That is about the amount of time in deliberate practice experts in most fields report spending per day.

How do expert performers become expert performers? Ericsson summarizes much of the expert performer research this way.

[I]nter-national-level performers in several domains start out as children by engaging in playful activities in the domain.... After a period of playful and enjoyable experience, they reveal "talent" or promise. At this point parents typically suggest that their children take lessons from a teacher and engage in limited amounts of deliberate practice. The parents help their children acquire regular habits of practice and teach them that this activity has instrumental value by noticing improvements in performance. The next phase...is an extended period of preparation and ends with the individual's commitment to pursue activities in the domain on a full-

time basis. During this period, the daily amounts of deliberate practice are increased, and more advanced teachers and training facilities are sought out. Occasionally parents even move to a different region of the country to provide their children with the best training environment. In the next phase, the individual makes a full-time commitment to improving performance. This phase ends when the individual either can make a living as a professional performer in the domain or terminates full-time engagement in the activity...[D]uring this phase nearly all of the individuals who ultimately reach an international level performance work with master teachers who either themselves had reached that level or had previously trained other individuals to that level. All through their development, international-level performers are provided with the best teachers for their current level of performance and engage in a great amount of deliberate practice.¹¹

¹ The examples that follow are taken largely from Howe, Michael J.A., Jane W. Davidson, and John A. Sloboda, "Innate Gifts and Talents: Reality or Myth?" at <http://www.zainea.com/innate.htm/> accessed 4/20/2004

² Ibid., p. 17

³ Ibid., 17

⁴ Ibid., p. 10

⁵ Ibid., p. 10

⁶ Ibid., p. 11

⁷ Ibid., p. 17

⁸ Ibid., p. 19

⁹ Ericsson, K. Anders and Neil Chaness, "Expert Performance: Its Structure and Acquisition," *American Psychologist*, 49, No. 8 (August 1994), p. 738.

¹⁰ Ibid., p. 738

¹¹ Ibid., p. 739-740