

Hungarian Education III: Mastering The Core Teachings Of The Budapestians

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I

Someone summed up my [previous post](#) as “Hungarian education isn’t magic”. I would amend that to read “Hungarian education isn’t *systemically* magic”. As far as I know, there’s only one Hungarian educator with magic powers, and (like all good wizards) his secrets are maddeningly hard to find.

Laszlo Polgar studied intelligence in university, and decided he had discovered the basic principles behind raising any child to be a genius. He wrote a book called *Bring Up Genius* and recruited an interested woman to marry him so they could test his philosophy by raising children together. He said a bunch of stuff on how ‘natural talent’ was meaningless and so any child could become a prodigy with the right upbringing.

This is normally the point where I’d start making fun of him. Except that when he trained his three daughters in chess, they became

the 1st, 2nd, and 6th best female chess players in the world, gaining honors like “youngest grandmaster ever” and “greatest female chess player of all time”. Also they spoke seven languages, including Esperanto.

Their immense success suggests that education can have a major effect even on such traditional genius-requiring domains as chess ability. How can we reconcile that with the rest of our picture of the world, and how obsessed should we be with getting a copy of Laszlo Polgar’s book?



Let’s get this out of the way first: the Polgar sisters were probably genetically really smart. The whole family was Hungarian Jews, a group with a great track record. Their mother and father were both well-educated teachers interested in stuff like developmental psychology. They had every possible biological advantage and I’m sure that helped.

J Levitt [proposes](#) an equation to estimate a chess player’s IQ from their chess score. It suggests that chess grandmasters probably have IQs above 160. Plugging the Polgar sisters’ chess scores into his equation, I get IQs in the range of 150, 160, and 170 for the three sisters.

~~This is biologically impossible. Even if both Polgar parents were 170 IQ themselves, regression to the mean predicts that their chil-~~

~~dren would have IQs around 140 to 150. It's mathematically possible for there to be an IQ that predicts you would have three children of 150, 160, and 170, but I doubt any living people have it, and even if they did there's no way they would marry somebody else equally gifted.~~

EDIT: Thanks to a few people who pointed out some problems with my math here ([1](#), [2](#), [3](#)). I still think that having three supergenius-IQ kids when you and your spouse show no signs of being a supergenius yourself (Laszlo Polgar's daughters could beat him at chess by the time they were 8) is pretty unlikely, but I admit not impossible. I still think arguing about this is unnecessary thanks to the points below.

On the other hand, I'm not sure Levitt's right. Chess champion Gary Kasparov actually sat and [took an IQ test](#) for the magazine *Der Spiegel*, and his IQ was 135. That's not bad – it's top 1% of the population – but it's not amazing either.

This is what we should expect given [the correlation of about \$r = 0.24\$](#) between IQ and chess ability (see also [this analysis](#) , although I disagree with the details). And the contrary claims – like [the one](#) that Bobby Fischer's IQ was in the 180s – are less well-sourced (although Fischer was [the son of a Hungarian-Jewish mathematician](#), so who knows?).

If it were possible to be a chess world champion with an IQ of 135, then maybe it's possible to be a “mere” grandmaster with IQs in the high 120s and low 130s. And it's just barely plausible that

some sufficiently smart people might have three kids who all have IQs in the high 120s and low 130s.

But this just passes the buck on the mystery. 2% of people have IQs in the high 120s or low 130s, but 2% of people aren't the top-ranked female chess player in the world. The Polgar sisters' IQs might have been a *permissive* factor in allowing them to excel, but it didn't *necessitate* it. So what's going on there?



“Practice” seems like an obvious part of the picture. Malcolm Gladwell uses the Polgars as poster children for his famous [‘10,000 hours of practice makes you an expert at anything’](#) rule. The Polgars had 50,000 hours of chess practice each by the time they were adults, presumably enough to make them quintuple-experts.

Robert Howard has a paper [Does High-Level Performance Depend On Practice Alone? Debunking The Polgar Sisters Case](#) in which he argues against the strong version of Gladwell's thesis. He points out that there are many chess masters who have practiced much less than the Polgar sisters but are better than they are. He also points out that even though the sisters themselves have all practiced similar amounts, youngest sister Judit is clearly better than the other two in a way that practice alone cannot explain.

I don't know if the case he's arguing against – that practice is literally everything and it's impossible for anything else to factor in – is

a straw man or not. But it seems more important to consider a less silly argument – that practice is one of many factors, and that enough of it can make up for a lack of the others. This seems potentially true. [This study](#) showing that amount of practice only explains 12% of the variance in skill level at various tasks, and is often summarized as “practice doesn’t matter much”. But it finds practice matters more (25% of the variance) in unchanging games with clear fixed rules, and uses chess as an example.

So suppose that the Polgar sisters are genetically smart, but maybe not as high up there as some other chess masters. We would expect them to need much more practice to achieve a level of proficiency similar to those chess masters, and indeed that seems like what happens.

(all of this is confounded by them being women and almost all the other equally-good chess masters being men. It’s unclear if the Polgars deserve extra points for overcoming whatever factor usually keeps women out of the highest levels of chess.)

But I’m actually still not sure this suffices as an explanation. According to Wikipedia:

Polgár began teaching his eldest daughter, Susan, to play chess when she was four years old. Six months later, Susan toddled into Budapest’s smoke-filled chess club,” which was crowded with elderly men, and proceeded to beat the veteran players.

The study linked above suggests that Susan practiced 48 hours a week. During those six months, she would have accumulated about 1200 hours of practice. Suppose the elderly Budapest chess players practiced only one hour a week, but had been doing so for the last twenty-five years. They would have more practice than Susan – plus the advantage of having older, more developed brains. So why did she beat them so easily?

Maybe there's a time-decay factor for practice? That is, maybe Susan had been practicing intensively, so she got a lot of chances to link it all together as she was learning, and also it was fresh in her mind when she went to the club to go play? I'm not sure. If some of those veterans had been playing more than one hour a week (and surely the sort of people who frequent Budapest chess clubs do) then her advantage seems too implausible to be due to freshness-of-material alone.

IV

That leaves two possibilities.

First, Susan could have benefitted from some form of malleability. A lot of people claim there's a "developmental window" during which children have a unique ability to learn language. [If cats see only vertical stripes](#) for the first few weeks of their lives, they never learn to see in horizontal. Maybe if you teach your kid high-level chess at age 4, they'll be able to recruit systems that adults could

never manage, or reorganize the fundamental structure of their brain to conform to chess better, or something like that.

Second, Polgar might actually have some really good educational methods besides just “start early and have a lot of practice”. I assume this is true, but I’m having a lot of trouble finding them. Shockingly, Polgar’s book *Bring Up Genius* is out of print and totally unavailable anywhere – I guess the book-reading community heard that someone wrote down a way to reliably turn any child into a genius which had a great real-world track record of success, and collectively decided “Nah, better read *Fifty Shades Of Grey* instead”. I’m not sure at what point I should start positing a conspiracy of suppression, or whether that would be better or worse than the alternative.

The book seems to possibly be available in Hungarian under the title *Nevelj zsenit!*, but I can’t tell for sure and a lot of the Hungarian sites suggest it’s out of print even in that language. There *may* have been a recent republication in Esperanto called *Eduku geniu-lon!*, but I can’t find that one either. If anybody knows where to find this book and wants to send it to me, I will figure out some way to translate it and review it. I’d also be willing to pay for costs and even pay extra for your time if it helps. Come on, Esperanto-speakers! This is the only chance you’ll ever have to be useful!

V

One thing I know without reading the book: Polgar says that his method should work to create geniuses in any field, not just chess. He said he chose chess kind of on the whim of his eldest daughter. From Wikipedia:

Polgár and his wife considered various possible subjects in which to drill their children, “including mathematics and foreign languages,” but they settled on chess. “We could do the same thing with any subject, if you start early, spend lots of time and give great love to that one subject,” Klara later explained. “But we chose chess. Chess is very objective and easy to measure.” Susan described chess as having been her own choice: “Yes, he could have put us in any field, but it was I who chose chess as a four-year-old.... I liked the chessmen; they were toys for me.”

It's disappointing that he decided to stick with chess for his other two daughters. The study linked above suggests that chess is unusually amenable to practice. What would have happened if he'd tried to train his kids in art? In mathematics? In entrepreneurship? I'm not sure, and I'm really tempted to have some kids and find out.

(be right back, going to change my OKCupid profile to include “must be interested in $n=1$ developmental-psych experiments, have access to a rare book library, and speak either Hungarian or Esperanto”)

I mentioned this plan to a friend, who protested that this was cruel and tantamount to child abuse. After all, how can you force someone to spend their entire childhood indoors, studying mind-numbing chess problems day in and day out, instead of enjoying themselves like normal kids?

First of all, this isn't how the Polgar children (or adults) describe their experiment. From [The Guardian](#):

Starting with his eldest daughter, Susan, Polgár was careful to treat it as a playful activity, turning it into a fantasy of dramatic wins and losses. Whereas Earl and Kultida Woods had coerced perfection from Tiger, the Polgárs encouraged enjoyment. By the time Susan had turned five, she was excited by playing and spent hundreds of hours practising. She was entered into a local competition and treated it as fun, winning 10-0, causing a sensation.

Meanwhile, her younger sisters were intrigued and László allowed them to feel the pieces, seeing them as toys, with no formal tuition until they were five. Interviewed recently, all three girls described playing the game as something that they loved doing – it never felt like a chore. Instead of messing about playing Monopoly, netball or going to the local swimming pool, chess was just what the Polgár family enjoyed... Polgár understood that coercion was less valuable than small children's need to enjoy fantasy play. Consequently, his daughters all seem to have grown into satiable, well-balanced people rather than success addicts.

But more important – I responded that the Polgars claim to have spent about 48 hours a week practicing chess. I spent seven hours a day in school, so if my teachers assigned two hours of homework a night then we spent about the same amount of time getting educated. Except what the *Polgars* got out of it was world-champion-level mastery of their favorite subject in the world, nationwide fame, and (by their own accounts) loving every second of it, and what I got was staring out a window all day as my teacher declared that we were going to make a collage about the meaning of Respect.

The Polgar sisters talk about how they loved their education, had a great childhood, thought their parents were always patient with them and never strict and harsh, and don't regret anything. How many kids who went to public school can say the same?

An article about Laszlo Polgar mentions that he had to fight the Hungarian authorities to be allowed to home school his children. Imagine being so certain of your own home-schooling techniques that you're afraid taking your kids to [the Fasori Gymnasium](#) is going to stunt their intellectual growth. And imagine being *right*. And imagine my friend thinking that normal American public school might be better than that. It sort of boggles the imagination.

And I guess I shouldn't be too harsh, because the public school system tries to do the best it can with an impossible set of constraints. But I'm still suspicious. *Who else has the motivation to hide that book?*

EDIT: Thanks to readers, I've got an Esperanto copy and a person willing to translate it. I'll let you know as this develops.