Intelligence and How to Get it

One interesting thing is that the analytical intelligence of a person (the kind of intelligence that IQ tests measure) depends on three things. One is called the working memory. This is like the person's RAM. This is where you store the information relevant to the problem you are trying to solve. The better the working memory, the more analytical intelligence you will have. The second thing is a good control on your attention, that is, you should be able to control what you are thinking about. You should be able to direct your attention. The third thing is the capability to stop yourself from thinking on tempting but irrelevant things. This happens when trying to solve a problem. One generally starts thinking about something else, which was not completely unrelated, but was not completely related either.

Another interesting thing is that analytical intelligence is composed of two different kinds of intelligence. One is called fluid intelligence. And I forgot the name of the other one. Let's call it non-fluid. So fluid intelligence is the kind of intelligence that doesn't require any knowledge about the real world. The kinds of things that test a person's fluid intelligence are puzzles that contain pictures. For example, you are shown 3-4 pictures and you have to identfify the next one in the series. This does not require any knowledge about the world. However, arithmetic requires nkowledge about the world. You can't just start thinking on arithmetic type questions, you need some training. Another thing that requires non-fluid intelligence is vocabulary.

There is a lot of evidence that shows that fluid intelligence and non-fluid intelligence are really different, in the sense that they seem independent of each other. For example, it has been observed that fluid intellgence achieves its peak at around the age of 20 and it goes downhill after that. However, non-fluid intelligence constantly increases. Therefore it is also observed that people doing Math feel that they are losing their skills as they grow old, but people doing something like History get better and better. Math needs a lot of fluid intelligence.

The kind of intelligence measured by IQ tests is not the only kind of intelligence. Some people have defined some other kinds of intelligence as well. For example, practical intelligence and creative intelligence. They have tests for each one of them too. A practical intelligence test contains questions such as this - what would you do if you had to enter a party where you did not know anyone at all? Creative intelligence tests how creative you are. Using statistical experiments, people have realized that if you combine IQ with the scores in the other two tests, the correlation of this new score with success in life is more than the correlation between just IQ and success in life.

One of the most interesting things though is that the factor that seems to have the biggest correlation with success in life is not any of these scores. It is the person's score in tests that determine motivation and self-discipline. Self-discipline, according to the book, is the capability to accept an inferior option now that gives good rewards in future over an option that is good for now, but gets awful in future. One of the experiments described in the book was done on a bunch of pre-school kids. What they did was that a kid was kept in a room with one piece of chocolate. The kid was told that he could eat the chocolate whenever he wanted to. However, if he waits for the experimenter to come in, which he will after a few minutes, then he will receive two chocolates instead of one. The kids were then divided into two groups based on whether they waited for two chocolates or not. Then these kids were monitored for the next 10 years. It was observed that kids who had waited for two chocolates actually performed better academically.

****

Suppose someone claims that there is a gene for basketball playerness. That is, capability to play good basketball is mainly decided by the genes, and hence is hereditary. The person also mentions many studies supporting his claim. He mentions for example, that people have found a large correlation between some gene and the person's ability to play good basketball. Or, may be, that the probability that a person is a basketball player is high if his parents also play basketball. Or something like that. This claim can be wrong because of the following reason. It's entirely possible that there is a gene for controlling people's heights. So height is heritable. Also, if you are very tall, then you might end up getting a different kind of environment than what shorter people get. For example, people might encourage you to play basketball. Or you might hang out with other tall people, etc etc. So it's likely that you will end up becoming a good basketball player. So the reason why you are a good basketball player in the end won't be the fact that your parents were good basketball players, but because you grew up in an environment that encourages one to become a good basketball player. If someone who is not very tall grows up in a simlar environment, he will also probably become a good basketball player.

The author of the book I am reading tries to say that intelligence is similar to the ability to be a good basketball player. There are many experiments that show that there is a large correlation between a person's IQ and his children's IQ's. But that may be because of environmental factors. For example, may be there is a gene for curiosity. And curiosity is inherited. And may be that people who are very curios end up getting similar environments because of the attitude other people show towards them. So it's possible that a father and his child have similar IQ's because they both have the curiosity gene and hence they both grew up in an environment well suited for building one's IQ. May be, if someone who did not have the curiosity gene was also brought up in a similar environment, he would have a similar IQ.

****

It seems that there is not much of a correlation between the amount of money spent by a country on their schools and the average IQ of the students. This has been verified on actual data. I don't know why this is happening. May be the countries spend money in useless things, like getting fancier chairs for the classrooms and stuff.

It does turn out that the quality of teachers is important. Measuring the quality of a teacher is difficult, so one can raise questions about such studies. One important parameter that contributes to the quality of the teacher is experience. There is a positive correlation between how experienced the teachers are and how well the students perform. Some vague experiments were done where the quality of teacher was "judged" by a different observers sitting in a class. The scores given by the observers was assumed to be a good indicator of the actual quality of the teacher. There was some correlation between this quality and the performance of the students.

****

Chinese people are smart. But the reason is probably that they are hardworking.

Jews are also smart. There is too much statistical evidence for this actually. If you look at the percentage of Jews in the general population and the percentage of Jews among the Nobel Laureates, there is a huge difference. There are many hypotheses for explaining this. For

example, one of them says that when Jews were being killed during the holocaust, the ones who were intelligent escaped. Thus there was a very rapid evolution because of survival of the fittest. There are other similar theories that somehow explain the smartness of Jews using genetic differences between Jews and non-Jews. But the author of the book says that these hypotheses do not really explain the real difference in performance. For example, he has done some calculations and has found out that the expected difference between the percentage of Jews among the Nobel Laureates and the percentage in the general population that would have occurred if the hypothesis above was true, would be pretty small compared to what we have now. So the author says that Jews are smart more because of the environmental reasons. He says that the Jew culture itself has many components that make them smarter.

****

Many studies indicate that hard-work has twice the correlation with academic achievement than what IQ has with academic achievement. This is quite interesting.

Studies have also suggested that kids who are appreciated for hardwork rather than smartness are likely to become smarter in future. For example, an experiment was done where small kids were given simple problems and in the end some of them were told that they were really smart and the others were told that they worked pretty hard. Then they were given two options for the next task. THe kids who were told that they were smart picked the easier task and the kids who were told they had worked hard picked the more challenging task.

****