

Science and Math for Inventing and Living Well

About Me

garyrobinson.net

- Not a particularly good high school student.

Figure Out How To Do Your Best

(Side-trip slide 0)

- I believe I had ADHD-Inattentive.
- If you really feel your abilities aren't showing up in your schoolwork, you're probably right.
- Don't let anyone convince you that you can't do what you feel you can. You may just need to figure out how.
- Do something about it! Really try.
- If you can't figure it out in high school, things may be harder for you at first in your career, but you can still manifest.

About Me

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- Not a particularly good high school student.
- Dating service: 212-Romance.
- Tracking cookie
- Spam filtering
- Current work: Evidence-of-Personhood blockchain

Inventing

Hard work is not bad!

- Your enjoyment of science and math will help you do the work
- That doesn't mean it won't be hard and even very unpleasant at times
- The magic thing about hard mental work is that except when taken to absurd extremes, it has zero lasting negative effects! So it is truly OK!
- If you do harder work than the norm each year, you're better positioned for your further work to be even more effective, which increases your power exponentially in the long run
- Picasso: "inspiration exists, but it has to find you working"

Inventing

Think for yourself

- If you want to invent, you have to go your own way
- The greatest sign that an idea is a good one (ASSUMING it's correct) is that others don't see why it's good idea. Otherwise, an expert in the relevant field would have already thought of it.
- Howard Aitken: "Don't worry about people stealing your ideas. If your ideas are any good, you'll have to ram them down people's throats."

Inventing

Think for yourself

- If you want to invent, you have to go your own way
- The greatest sign that an idea is a good one (ASSUMING it's correct) is that others don't immediately see why it's good idea. If they do, it's too obvious.
- Howard Aitken: "Don't worry about people stealing your ideas. If your ideas are any good, you'll have to ram them down people's throats."
- Ted Dintersmith, said to be the top venture capitalist in the world, who was heavily invested in advertising, when told about the tracking cookie concept for advertising: "I don't see how there's much money to be made here."

The Definition of Science

and its implications for thinking for yourself. (Side-trip slide 1)

- Richard Feynman: "Science is the belief in the ignorance of experts"
- This is the opposite of what the popular culture believes science is, but it is true.
- Don't believe anyone who tells you you're wrong simply because they told you so. But you may be wrong, so you should listen.
- Bob Metcalfe: "The only difference between being a visionary and being stubborn is whether you are right or not." YOU, and only YOU, have to take responsibility for being right. That takes hard work. It takes creativity, logic and research. YOU have to do it if you want to have actual, earned confidence.

Inventing

Get to a better viewpoint, then take advantage of what you see

- Find something with potential, that other people aren't doing and build, on it
- Experts may tell you that it has no potential, but if you're right, that's your advantage: you see what they don't.
- Learn about a lot of things, which open view-ports from where you are into new worlds that are even more remote from what others see

Learn About Different Things

(Side-trip slide 2)

- Steve Jobs: "Creativity is just connecting things. When you ask creative people how they did something, they feel a little guilty because they didn't really do it, they just saw something. It seemed obvious to them after a while. That's because they were able to connect experiences they've had and synthesize new things."
- In Steve Jobs case, he talked about studying calligraphy, which enabled him to envision the potential for computers which could show different fonts.
- In my case, knew about certain math and then I learned about problems with the web ad business. And then I learned how blockchains worked and am leveraging some of the same math, which few people know about. It is why, when talking to someone on the board of Bitcoin Gold, I instantaneously put it together.

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- In my case, knew about certain math and then I learned about problems with the web ad business. And then I learned how blockchains worked and am leveraging some of the same math, which few people know about. It is why, when talking to someone on the board of Bitcoin Gold, I instantaneously put it together.
- Then... "kill your darlings" (as Faulkner is often quoted to have said).

Kill Your Darlings

(side-trip slide 2.5)

- Stephen King: “Kill your darlings, kill your darlings, even when it breaks your egocentric little scribbler’s heart, kill your darlings.”
- Meaning for inventors: Do not be attached to an earlier idea when your viewpoint leads you to something new.
- Example: My web advertising patent involved in my ideas for recommending things. In 212-ROMANCE, it was people. In the technology Jeff Bezos called me to discuss, it was music/books/etc. In the web advertising patent, it was ads. And I was so attached to that technology that I didn’t write the patent specification that allowed that tracking cookie to be claimed separately from the recommendation technology! That cost me millions (at least) of dollars.

Living Well

through your enjoyment of science and math

- Studying science and math is training yourself in how to figure out what is actually likely to be true. A rare skill in our culture.
- Example: If you take $3N$ low-difficulty but high-benefit risks, you have about a 95% chance that at least one of them will succeed.
 - Because of the math and your belief in it, you can know this is true in your bones.
 - Example: Try things that each only have a 1-in-100 chance of succeeding, but extremely high reward. Try 300 of them. You have a 95% chance that at least one will succeed!
 - Example: I went to a particular birthday party... Very relevant in HS!

Why the 95% probability is true for any N (side-trip slide 3)

$$1 - (1/e)^N$$

- The probability of at least 1 success:
- N is the ratio of the number of tries vs the likelihood success for one try.
- N=1 approaches 63.21%. Example: 100 tries, each with likelihood 1/100.
- N=2 gives 86.47%. Example: 200 tries, each with likelihood 1/100.
- N=3 gives 95.02%. Example: 300 tries, each with likelihood 1/100.

e as an example of the magic of math

(side-trip slide 4)

$$e^{\pi i} + 1 = 0$$

- Euler's Identity:
- WHAT THE HECK??
- Why it's true: <https://chatgpt.com/share/670d545c-5278-8003-be04-e0459042bbc6> (You need to have studied trigonometry, complex numbers, and infinite series. Pre-calculus might give you all you need, if not, calculus should.)

Living Well

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- Example: If you take $3N$ low-difficulty but high-benefit risks, you have about a 95% chance that at least one of them will succeed.
- If you enjoy these examples, you probably have a love of science and math that will power you through years of studies to be a professional such as an engineer or researcher. Your current grades may not be an indicator.
 - And in that case, use Google to check out Cantor's Diagonal Theorem proving that some infinities are bigger than others!

Living Well

through your enjoyment of science and math

- Studying science and math is training yourself in how to figure out what is actually likely to be true. This is called Critical Thinking.
- Example: If you take 3N low-difficulty but high-benefit risks, you have about a 95% chance that at least one of them will succeed.
- If you enjoy these examples, you probably have a love of science and math that will power you through years of studies to be a professional such as an engineer or researcher. Your current grades may not be an indicator.
- You can help humanity by acting with the miracle combination: compassion and critical thinking. That pair will empower you to truly help the world.

Today's Worst Violation Of Critical Thinking

(side-trip slide 5)

- On any subject, experts have a wide range of opinions, including “fringe beliefs” that completely contradict the consensus of the majority of experts.

Today's Worst Violation Of Critical Thinking

(side-trip slide 5)

- On any subject, experts have a wide range of opinions, including “fringe beliefs” that completely contradict the consensus of the majority of experts.
- That means that no matter what you want to believe, you can always find an expert who will tell you it's true.
- So, you can always find a YouTube video or an article that tells you what you want to hear, giving you reasons that seem logical. Since you can always find such a video or article, the fact of finding one gives you zero useful information! Including the fact that it sounds superficially logical. You already knew you could find one, and you did! That is not new information.

Today's Worst Violation Of Critical Thinking

(side-trip slide 5a)

- Science is the belief in the ignorance of experts.
- That means ALL experts, including the ones who tell you what you want to hear.
- Simply finding the expert who tells us what we want to hear, and believing it based on that, is just wishful thinking. It is nothing more than that!
- You have two choices:
 - Fully understand the subject, better than most experts do.
 - Assume that the consensus of experts is the best available guess, knowing that it will almost certainly be just an approximation that needs to be refined, and may be wrong.

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- The first blog post there points to this slide deck.