

Singularity

A sunset over a body of water with silhouettes of buildings in the foreground. The sky is a mix of blue, orange, and yellow, with the sun low on the horizon. The water is dark, and the buildings are silhouetted against the bright sky.

Ayn Rand & Objectivism

Choose Your Own Adventure

Control & Water Colouring

Liberal Arts Education

June 2010

from the editor

I believe knowledge is best acquired when there's a story involved. Facts on their own without much context can be dry, and get you interested only so far. Unless you're the type who eats facts for breakfast. And lunch and dinner.

This is why I remember the umbra and penumbra. Because when I was a teenager, my science teacher said that the umbra and penumbra are different parts of a shadow.

"And not another type of bra." he added with a wink.

Somehow, that just stuck.

We have a popular belief that every human being is separated from each other by at most 6 degrees. That is, you are connected to me via a friend of yours, whose friend is connected to another friend and so on, until I'm connected. And you will reach me after jumping at most 6 times.

While I doubt the number, I believe in the concept. I also believe each piece of knowledge is linked to each other in a similar manner. We just don't know how yet.

Based on the reasoning above, every piece of knowledge, concept or idea presented in *Singularity* usually comes with a story. They may or may not be related to each other. That's not the point. Following each piece of knowledge from one to another related piece makes sense if you have a purpose. Sometimes you don't have a purpose. What then? *Singularity* addresses that. And when the time comes for a particular piece of information to surface, you already know a little bit about it. If nothing else, you know where and how to find out more.

I had found it vexing when I needed to learn something, and I didn't know that the something existed, and thus I had no idea how to go about finding more. How do you learn about a brand new concept when you didn't know it was there, let alone its name?

I wouldn't say this magazine is created for polymaths, but it appears to be headed in that direction.

So in this inaugural issue, you will meet Ayn Rand and her brand of philosophy, Objectivism. You will also read about the limitations of choice in a role playing game. Then there is an introduction of water colouring and its link to the concept of control. And finally, an interpretation of what it means by a liberal arts education.

It's actually just a bunch of articles written in a personal manner, sometimes opinionated, sometimes subjective, and maybe even possibly wrong. It's the nature of stories. Being able to distinguish fact and fiction is sometimes the point.

I would love to hear from you. Comments, ideas, submissions, corrections, enquiries are welcome. Email me at singularity@polymathprogrammer.com or you can talk with me on Twitter twitter.com/orcasquall

Till next time, *scientia potestas est*. Knowledge is power. But remember to think for yourself too.



Vincent Tan

Ayn Rand & Objectivism

Philosophy was never a strong point of mine. A few of my friends were intensely interested in the subject. So I decided to give this philosophy thing a look.

They were discussing Ayn Rand. "Who's Ayn Rand?" I thought, but I kept my mouth shut. Listening to my friends' conversation, I tried to learn as much about this woman (I got that much) and a particular philosophy she believed in. Objectivism was the word she used.

Objectivism was bit much to swallow for me. However, I will attempt to explain it, because explaining something is a fast way to understanding it. I will not discuss Ayn Rand the person here. Besides, understanding her life philosophy should bring you closer to what this woman cared about.

As it turns out, Ayn Rand summarised her philosophy when someone asked her to do so while standing on one foot.

- Metaphysics – objective reality
- Epistemology – reason
- Ethics – rational self-interest
- Politics – capitalism

Apparently, there was a fifth point which she didn't mention during that interview. I'll bite the bullet and talk about it too.

- Aesthetics – metaphysical value-judgements

Explaining something is a
fast way to understanding it

Metaphysics. Reality simply exists, independent of what we think and feel. If you want to change that piece of rock, you're going to have to do something about it. You take it up and smash it into pieces. You move it to a different position. You paint it purple.

To change reality, you must do something to affect it.

Epistemology. Another big word. It means study or theory of knowledge. We understand the world (or universe, or surroundings. I'm using the word generally) around us through reasoning. Ayn Rand believed that the only objective sources of input are our 5 senses.

Through our 5 senses, we perceive the world, we take in information about it, we reason about the information, and thus we understand it. Knowledge is thus gained.

There is a flaw in the argument. Even if we assume that our 5 senses are objective, we're assuming all 5 senses are enough to completely perceive our world. Or even that they're strong enough in their relative fields of sensation.

For example, we don't have X-ray vision because our eyes can see only the visible spectrum of light. But we have machines to "see" the invisible spectrum of light. We built the machines, which are objective, thus their output is objective, hence we perceive that output as objective input to us.

The objective input is infallible. Therefore if our understanding is wrong, then it's because our reasoning is wrong.

Ethics. Our judgement on what is right and wrong, what is good and bad, derives directly on our self-interest. What is right for you? What is good for you? That's your basis for ethics.

Politics. Ayn Rand believed politics to be driven by capitalism, in particular laissez-faire capitalism. I don't propose to understand the fine distinction (only the absence of state intervention?), so I'll just broadly take it as capitalism.

I've heard an argument that capitalism is not a political system. Dictatorship, communism and democracy are forms of political systems. I believe Ayn Rand went deeper than that. She skipped the macro picture of systems and went directly to the hearts of men.

Self-interest (see Ethics above).

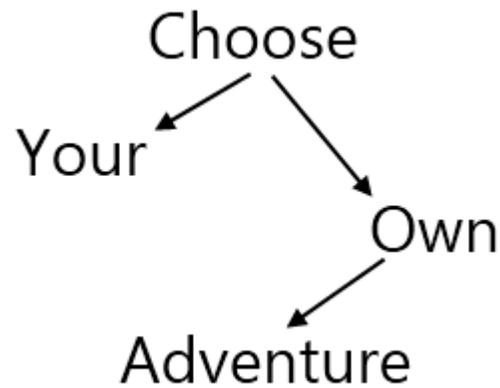
And money is a powerful motivator. When you scale that to a collective group of individuals forming a government, you get capitalism.

I am neither versed in economics nor very interested in politics, so I'll leave you to decide whether that resonates with your world view.

Aesthetics. A human's need to create or view art comes from his frustration with trying to conceptualise his thoughts and ideas. That's the best summary I could do. Ayn Rand's idea of art is kind of hard to explain...

Challenge

- Do your own research on Objectivism. What do you understand about it?
- Which parts do you agree with? Which parts do you not? And why?



I had just finished hosting a freeform role playing game for my friends. Another friend arrived in the middle of the game, and sat in, watching us in play. When the game finished, we went to get our dinner.

After dinner, in a stroke of coincidence, that friend was seated next to me. And we started a small conversation. He thought the role playing game I hosted had too many words, too many descriptions. It was a freeform game, so the only thing that mattered was the players' choices. Describe the situation with enough information so the players could make a decision.

Then we talked about an idea of his. He wanted to write a book where the reader could make choices. He gave a hypothetical situation where there was the father, the mother and the son. Something happened, and the reader was presented with 3 choices for each of the characters to respond with.

Mathematically speaking, there were 27 unique results from the choices of those 3 characters. $3 \times 3 \times 3 = 27$. For each of those 27 unique results, something else happened. And the reader could choose to respond with another 3 different choices for each of the 3 characters.

“I can only tell you that it's freakin' high”

He asked me if there was a formula for this. I said it was a geometric progression. The formula is

$$ar^n$$

where a is the initial term, r is the ratio of multiplication and n is the level of progression.

My mental picture of the mathematical formulation was that a was 1, r was 27, and n would depend on the number of levels he wanted to go.

Then he asked me what that number was, since I was the mathematician. Well, my background was in abstract theories, so I'm actually poor in mental calculations. I can't even multiply 27 by 27. Not without a calculator in any case.

He was still waiting for my answer. I got the feeling he was waiting for a level 3 progression. That's $27 \times 27 \times 27$. I didn't want to whip out my mobile phone to get at the calculator application.

"Well, I'm not a numbers kind of mathematician." I said. "I can only tell you that it's freakin' high."

He looked at me for 2 seconds, stunned speechless by my answer. Then he laughed. "Freakin' high, eh?"

He could not write that book of his if the number of choices and unique situations got out of hand. Freakin' high was not good for him. He explained that a flowchart was needed to chart the different responses and resulting situations. How do you keep that flowchart to a manageable level?

By eliminating choices. By eliminating results.

In a closed system such as a choose-your-own-adventure book or a typical single player computer game, there are a finite number of endings. There is also the physical limitation, particularly for a paper book. For a computer game, the solution to breaking out of the closed system is to add human beings into the mix. In other words, multiplayer online games. Other people will add the randomness to your game, and thus generate different results and endings.

This is why the freeform role playing game has the greatest variety. Because the number of possible endings is limited by the imagination of the players.

In a game, you're presented with choices. Automatically, you assume those choices are the only possibly "correct" choices, and there are no other options.

In real life, in *your* life, sometimes your choices aren't so clear. More often than not, you have other options to choose from. My point is that even though you've carefully thought out your options, and your conclusion is that one choice and you hate it, there might be some other choice to consider.

There is always a choice.

This is your life. Choose your own adventure to live.



CONTROL & Water Colouring

I attended a talk by Emylia Safian, an art therapist. Emylia specialises with helping children and adolescents through their crises. Her talk, *Art Therapy: When Art Meets Science*, was conducted at the blinkBL-NK event. The event organisers' URL is at <http://blinkbl-nk.com>

Emylia uses different mediums in her work with her clients. Clay, paints, paper, strings, acrylic and other art materials are used. I asked if certain mediums were more appropriate for certain clients. I had a rough idea of the answer, but I wanted to hear from her.

From my understanding, art therapy allows people to express themselves in ways that they might never will, or cannot. When a person is angry, the person might want to punch something (or someone), shout, scream, flail their arms, stomp their feet, or smash vases.

In art therapy, the person might be introduced to clay. I imagine the art therapist saying something like "Do what you will with the clay" to the person.

The person might pound at the piece of clay. Claw at it. Wrench it apart. Smash it back together. Or mould it. Sculpt it. Play with it.

Art therapy is not about art. It's about the expression of emotions, feelings and thoughts through the creation of art. And the resulting art does not have to be pretty. It doesn't have to be worth thousands of dollars. It just needs to be created by that person.

So back to my question. Emylia gave a counter example. For children who were experiencing some sort of loss of control, do not use water colouring as part of the therapy. The point being that water colouring doesn't allow the creator much control.

A friend didn't agree with that. He said that painting with water colours can still be controlled. Well, perhaps to a certain degree, I was thinking.

I'm not an artist, nor an expert on art. If I remember correctly, my early art lessons with water colouring was mixing paints in water, then applying them onto a *dry* piece of thick paper. I'll get to the significance of the emphasis in a bit.

*Art therapy is not
about art*

In that manner, then yes, some form of control over the pigments is possible. Where you paint the colours is generally where the colours will stay. The paints will seep into the paper and spread, the degree will depend on the properties of the paint, the paper, and the amount of water used.

It so happens that another of my friend went through a course in art, in particular, working with water colours. Her experience fits my understanding of Emylia's explanation.

In one of my friend's classes, she *wets the entire piece of paper*. Her paper canvas was dipped into water and laid on the table. With the paper still wet, she applied water colours on it.

As you can imagine, the colours went wild.

The paints, already of low viscosity, rode on top of the water on the paper. This thin layer of water also allowed coloured strokes close to each other to merge. Unexpected tendrils of colours formed. Different shades appear. The original stroke blurred. And when the paints and paper dried, the colours seeped into the paper, forming more patterns due to the texture of the paper.

Not a lot of control.

Sometimes, facing a problem head-on solves the problem. Have a fear of heights? Attend activities which force you to be at high places. Feeling uneasy with meeting new people? Force yourself to attend social gatherings.

But for a child feeling loss of control, is making the child perform an activity where the results aren't easy to predict and control, helpful?



LIBERAL ARTS EDUCATION

The ability to think clearly, argue logically, learn and assimilate new pieces of knowledge and ultimately apply them. That's how I would summarise liberal arts education in a sentence. And those skills are crucial to you and the world's future.

4 years in a standard university education. That's a long time considering that Moore's Law practically keeps doubling technological advances every 2 years. That businesses keep demanding the creation of products and services to be faster, easier and cheaper. That social and political support can be garnered and shaped and changed within months, or even weeks.

How is a fresh graduate going to deal with that?

I did some research on liberal arts education. Historically, there were 7 sections. The *Trivium* consisted of grammar, rhetoric and logic, and it formed the basis of the education. The *Quadrivium* consisted of arithmetic, geometry, music and astronomy, and it was offered after the *Trivium*.

There was also an interesting historical trinket. The word *liberal* came from the Latin word *liber*, which means free. Free, as in a free man.

In those days, liberal arts education was offered to free men, as opposed to education offered to slaves. The subtle implication was that

professional and vocational educations were beneath the upper classes. At least that's how I understood it.

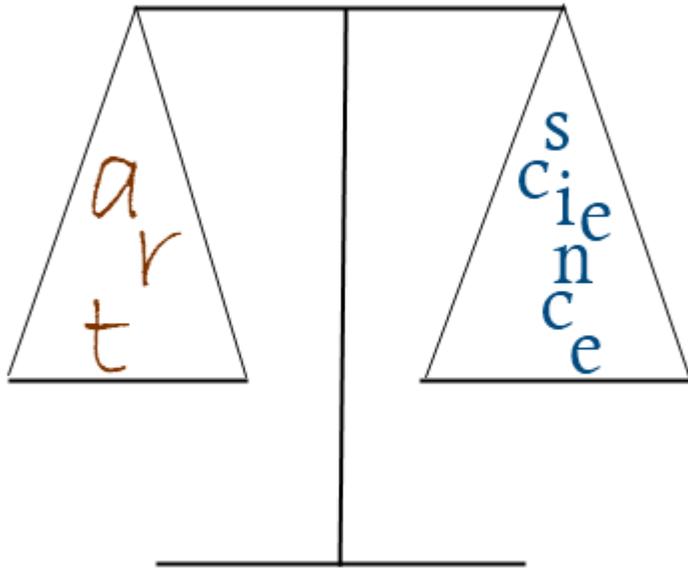
There was also the difference between liberal arts education and, well, other types of education. The former broadened the knowledge base of the students, training them to be generalists. The implication was that other types of education, that which was offered to slaves, trained students to be specialists.

*“liberal arts education
was offered to free men,
as opposed to education
offered to slaves”*

Please stay calm. I'm not saying it's true. I just find it interesting that after 4 years of my life and a tertiary education costing me 5 figures, I received a slave's education, so to speak.

But this is the 21st century. The moral issues about education systems for a free man and a slave may be gone, but the question remains. How can you stay relevant when everything happens so fast, when nothing seems certain, when something new keeps popping up?

You need to be able to tolerate and embrace ambiguity. You need to solve never-before-seen problems with incomplete information. You need to pick up new relevant ideas and let go of old irrelevant ideas like a sponge absorbing and releasing water.



I apologise if you're not a technical kind of person, so moving swiftly away from that slice of immodesty, my point is that you should learn to be adaptable. If what you learn during your education might not be relevant when you graduate, then your best bet is to learn how to be relevant regardless of the situation.

Learn to think for yourself.

You need to be able to think for yourself. And thinking is hard.

From what I understand, a liberal arts student is trained in the sciences and the arts. The student learns mathematics and physics amidst lessons of culture and history. A “balanced” education, so to speak.

We still need specialised education for professions such as doctors and lawyers. For other types of professions, a specialist form of education might not be as useful. Take me for example. The only programming languages I learnt in university were C, MATLAB and a bit of Unix shell scripts. Querying from databases, creating dynamic and interactive web pages, and writing scheduler programs for backend process were all learnt on the job. My education didn't prepare me with "real world" skills, but with the adaptability to pick up skills if I have to.