

The Importance of Cartography

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Somewhere along the outskirts of St. Louis, there is a rotten and mostly decomposed orange peel that ties the story of my education together with a prettier bow than I ever would have expected when, at age five, I drew a map of the world on it. In the 15 years between my first and second encounters with that particular fragment of fruit, I changed from a kindergartener who wanted to know absolutely everything about the world to a college student who viewed his education as a series of tests eventually leading to a job. Thankfully, I enrolled in a liberal arts college committed to the ideal of knowledge for the sake of knowledge, and that commitment righted my perspective before it was too late. However, this intellectual renewal came about in an unexpected way. It wasn't a real world application that restored my curiosity, but rather an intimate connection between the abstraction of a theoretical math class and the simplicity of an orange peel.

But before I explain my transformation, I need to explain how I used to be. I was a robot who subsisted on a diet of multiple-choice tests. I sucked in knowledge with the sole purpose of regurgitating it for a grade, and I forgot everything I learned immediately following the test. I was a great student, but completely devoid of true interests. Except, of course, my GPA. A popular joke around school was that Chuck Norris didn't read books, but rather stared at them until he got the information he wanted. I never laughed, because that was the same approach I took. I didn't read for fun; the idea of enjoying a magazine like *Forbes* or *Popular Science* was incomprehensible to me.

When I started college, I suddenly had the option of taking classes that I liked. However, I came to realize that the only things I liked were A's on my transcript, and I decided to simply enroll in whatever courses my advisor recommended. The fact of the matter was that I was unable to pick a major because I honestly couldn't come up with a single thing that genuinely interested me.

The story of the math problem and the orange peel begins there, as I walked into an honors theoretical math course and instantly felt a connection to the other 40 freshmen in the room: we all had large egos and no experience with higher mathematics. I sat in my padded (score!) chair and eagerly awaited the arrival of my professor, Dr. Sean Paul. However, my intellectual rebirth didn't occur until several months after that first lecture.

The class was completely abstract, and it was unapologetic in its absolute lack of real world applications. The hundreds of alphas, deltas, and epsilons quickly came to resemble my roommate's Greek homework, and I could not figure out why I would ever need to know any of the material. Still, I continued chasing that A, although every study session was a battle to convince myself that these ridiculous proofs were worth learning. As the end of the semester approached, I was running out of gas.

A week before the final, Professor Paul (in his wonderful British accent) said that a new type of problem would appear on the exam, since a classmate of ours had asked him for help on it. It was an analysis of a stereographic projection. I was appalled at both the idea of a new concept showing up now and the gall of the student whose blatant enjoyment of math had gotten us into this mess. However, I continued to take notes and soon learned that a stereographic projection takes a point from a sphere and transfers it to a point on a flat surface in such a way that the orientation of the points on the sphere is preserved (or nearly preserved) in the orientation of the new points on the plane. This concept was difficult to grasp, and although I didn't understand why anyone had even bothered to create this function in the first place, I kept slamming my head against the wall to get that A. As I drew out the graph of the projection for the (approximately) 8000th time, I realized what I was really studying—cartography. Taking the points from a sphere (or planet) and accurately transferring them to a plane (or sheet of paper) is exactly what one does to make a map.

I flashed back to a kindergarten class in St. Louis, Missouri. Each of us drew the continents on an orange with a permanent marker, then removed the peel and tried to press it flat to the table. It didn't work, and that was why there was distortion in maps. I remembered wanting to know so badly why a flat map didn't work, and I remembered the excitement that I had felt when I understood the explanation. And right there in front of me, I had the real, grown-up explanation of this real-world problem. (Okay, maybe it wasn't discussed at the G8 conference, but every leader there has probably wondered why Greenland looks so big on a map.)

As that orange peel flew back into my life, I was struck by how important that absolutely ungraded activity had seemed 15 years ago, and I realized the incredible importance of this impractical math. It didn't directly prepare me for a job, and it didn't even use actual numbers, but it did teach me about the world. It simultaneously sparked and satisfied my curiosity, and I was suddenly enjoying myself. My transformative realization occurred at that moment: education was not a means to an end, but a process that was worthwhile in itself.

Once that math problem changed my outlook on why I was in school, my whole life changed. I wanted to know for the simple, pure, and beautiful sake of knowing. What did I want to know? Everything. I wanted to know how the clicks worked in African languages and why not one of the dozen people watching Kitty Genovese's murder from their windows thought to call the police. I wanted to know exactly what a differential form was and why all polar bears were left-handed. (All polar bears are not, in fact, left-handed. But they can smell a seal from 20 miles away.) I recovered the curiosity that I had lost somewhere in the minutiae of grammar that had prepared me so well for the ACT. Suddenly, every major in the course booklet interested me. My future opened wide right in front of me, and I have been eagerly exploring it ever since.

In this way, a math problem and an orange peel changed me into that exemplary product of a liberal arts education: someone who learns for the sake of learning. In that stereographic projection, the connection to the real world, a world beyond college admissions and job applications, a world that tends to get lost in tests and bubble sheets, was reestablished. The pure beauty of understanding poked through that sheet of notebook paper, and I relearned what it meant to love my education.