

QSS Thesis Experience, 2018 Zachary Schnell

For months through junior year and into the summer, I repeatedly weighed prospective thesis topics. I knew my passion for education and technology, so I tried to familiarize myself with existing datasets in those domains. I started to look at datasets on financial aid application rates and public schools, curious what correlations I could identify. However, the QSS department pushed me further. They reminded me the goal of a thesis: to answer a question that has yet to be answered. I realized that the federal datasets at my disposal had been parsed and analyzed in every which way, so I decided to generate original data on use of college counseling software, which is utilized by schools but not measured or recorded in any dataset.

Much of the decision making on my thesis came from classes I took in the first three years of my Dartmouth career. I took Econometrics (Econ 20) during my junior spring. Had I taken it any earlier, I would have likely forgotten a bulk of the material, all of which I wound up using when putting together (and testing) various models. I was also happy to have had two courses under my belt that taught R. I took Data Visualization (QSS 17) regrettably early during my sophomore year, which made a second R refresher course (one of the QSS 30 offerings) during junior spring all the more helpful. I got the data for my thesis from web scraping, which I mostly learned from Google. I highly recommend learning how to scrape website information. It is often a guarantee that you are working with original data, which means you are uncovering an original thesis topic.

I also leveraged the social science credits in the QSS major to take relevant Education classes. When starting the literature review process early in the development of my thesis, I quickly overwhelmed myself with umpteen research papers that I felt compelled to read. Hundreds of articles had relevant-sounding titles, and a large swath of them wound up being useless. However, I reviewed assigned readings and notes from my Education courses. Eventually, papers started referencing one another, and the same academics' names cropped up, which served as a barometer for how well I had immersed myself. It was crucial that I kept track of (and paraphrased) everything that I read--relevant or not. It prevented me from going down the same rabbit hole twice, and it made writing a literature review far easier.

When it came time to picking an advisor, I spoke with professors whom I had had for Education courses. I knew that Professor Sean Kang would be a great fit because of a prior course that I had taken with him. However, his prior experience was mostly qualitative. He also told me that his domain (adolescent development) did not perfectly align with my thesis topic (college admissions). Needless to say, he had doubts about advising me.

I had to sell my case. I explained to Professor Kang that the QSS department would provide quantitative support, and I would consult other professors in the Education department as needed. His role was to help me wade through the literature; proofread and edit my drafts; and help me make sense of my data, which includes telling me what variables matter. I would not likely find a professor whose domain perfectly overlapped with my topic, especially within a small department. More important than a perfect fit, I told him, was a professor whom I worked well with and one familiar enough with the umbrella social science (in my case, Education and young adults) that they knew what a good research process should look like. Suffice it to say that

Professor Kang was a terrific advisor who complemented the QSS department. I am glad I reassured him that he would not be advising me alone, because his education experience made him a key contributor.

As I solidified my topic, which concerned the efficacy of a popular college counseling tool, professors further challenged me: why does my thesis matter? I may be tackling a question that no one has answered, but why is this a question worth answering? The timeline of the thesis—spanning several terms—gave me the space to evolve my idea into something I truly felt passionate about. I went from exploring “a gap in the literature” to reconciling the college counseling gap that 12th graders face at under-resourced schools. The gravity of my topic made working on my thesis all the more captivating.

The thesis work itself was admittedly difficult. Throughout senior year, I spent hours speaking with statisticians at the Department of Education, only to be told that I would need to find workarounds to the data constraints that I faced. Three weeks before my thesis was due, I discovered hundreds of errant datapoints that affected my results—so it goes when tackling a problem outside of a classroom’s sandbox. However, surmounting the issues presented by the real world were, in the end, wholly rewarding. Most solutions arose from trying to interpret my results with professors. I could run statistical tests night and day, but only I understood the results—and whether they were correct—after contextualizing every single one.

The real world does not have clean data or omniscient helpers. Rather, it has a litany of salient issues and a lot of question marks. I am incredibly appreciative to have had the opportunity to tackle one of those outstanding questions. Post-grad, I look forward to picking up where my thesis left off, continuing to explore how to help students apply to college. Without a QSS thesis, I never would have discovered this passion of mine—that too makes my thesis topic a question worth answering.