

Lessons Learned

Margaret-Ann Seger's GCSP Portfolio

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Grand Challenges Project- Advancing Personalized Learning in the 21st Century

Summer 2012 I worked at a startup textbook company called Chegg. Chegg helps students, “Save Time, Save Money, and Get Smarter.” The startup’s original business model centered around disrupting the traditional textbook model by offering an online marketplace for students to rent books for a semester at a fraction of the cost of buying a new version. Textbook rentals is still the bread and butter of Chegg, but they have recently branched out into a variety of supporting online businesses, aiming to create a sort of “academic hub” that offers students books, homework help, insight into course selection, and other helpful student services.

One innovation area that Chegg has targeted is eTextbooks. The concept of eTextbooks has been around for a while, but really exploded with the advent of dedicated hardware and software for mobile reading (what we refer to as “eReaders”). In recent years, due in part to the wild success of devices such as Amazon’s Kindle, observers have heralded the end of “traditional” clunky bound books in favor of electronic versions. Textbook publishers have been quick to forecast quick student adoption and now create various electronic formats of their material.

In 2011, Chegg did not offer eTextbooks, but wanted to enter the eTextbooks market. They saw an opportunity in the fact that many eReaders required downloading a native app onto an iPad or Android tablet. This meant that most students could not use electronic versions of their textbooks, as they didn’t own a tablet. Chegg’s solution to this problem was to build an HTML5 in-browser eReader, which would be accessible from literally anywhere with an internet connection. Chegg’s eTextbooks can be read on computers, phones, and tablets- without needing to download an eReader app.

Fast forward to summer 2012 and I’ve landed an internship with Chegg and am the new eTextbook team intern. I was responsible for helping develop and ship a notepad feature for the reader, which allowed students to create essentially a “digital notebook” associated with their eReader, which they could write their own notes in, copy text into, and highlight study materials. In the process of making product decisions and feature tradeoffs, I went out of my way to call a number of Chegg’s eTextbooks customers to talk about their experience with the eReader.

My discussions were very enlightening and made me think deeply about what I thought the future of eTextbooks would be. The interesting thing with eTextbooks is that, despite industry forecasts, adoption among students has been excruciatingly slow, with only about 11% of college kids having purchased an eTextbook as revealed in a 2012 survey by Student Monitor. Startup companies wholly dedicated to creating great digital textbook products have sprung up, and yet demand has not increased.

When I spoke to students, most expressed, at best, a modest appreciation for the convenience of being able to read their textbooks on the go. However, most disliked the experience of reading a book digitally. They said it was slower, harder to concentrate, and they easily got distracted, as they were at their computers and could easily open up a tab, navigate to Facebook, and realize two hours later that they were no further ahead in their assigned readings. Many said they preferred feeling the physical book, and being able to attach their own sticky-note markings on relevant pages, scrawl notes in the margin, and fold over pages they wanted to come back to. All of these actions were things the eTextbooks team at Chegg had attempted to digitally imitate and include as features in the eReader. However, students weren't discovering them.



Chegg eReader on tablet and laptop.

The reality is that interacting with a digital book is a fundamentally different experience from interacting with a physical book. This is a classic design conundrum: when creating a digital product that is meant to mimic a physical experience, does the designer try to imitate it exactly (think the terrible concept that is skeuomorphism), or do they invent a completely new experience that bears little resemblance to the original experience, but which attains the same ends? My experience with eTextbooks points to the latter. It is a delicate balancing act to try to recreate exactly a familiar experience like reading a textbook. This is something students are incredibly comfortable doing “the old way”, and they are resistant to change- especially because reading textbooks is something they just need to do as efficiently as possible, and then move on. Students’ tolerance for trying out cool new feature tweaks on an otherwise seemingly-consistent experience, when doing something as mundane as trying to cram for an exam is very low. I think this is the fundamental insight the eTextbook industry missed in their fervor to proclaim eTextbooks as “revolutionizing education”. They designed a book on a screen, with hidden features that attempted to mimic the interactions students have with physical textbooks. They did not overhaul the experience completely, or leverage

the technology to make textbook reading easier for students. They awkwardly projected a physical experience onto a digital medium- and students aren't biting.

So, what is the solution then? I'm not entirely sure for eTextbooks. I do know that the next big trend is online education. Companies like Coursera and edX are in the spotlight for their ambitious goals of democratizing education. The question is will the experiences these companies offer fall into the trap of trying to replicate exactly a traditional classroom experience, just watched through a live-feed instead? I can't imagine sticking a camera in a large lecture hall will be any more effective than a student sitting passively at the back of the classroom. Online education is a huge opportunity- the possibilities for online real-time collaboration and participation are huge. But innovation on the standard classroom experience is needed. I believe the classroom experience needs to be turned on its head to work on the internet. I hope that the innovative minds working in some of the world's best institutions of higher education realize this too, before it's too late.

International Awareness- A Cross-Cultural Entrepreneurial Experience

The second semester of my junior year, I decided I needed a break from Olin. I wanted the chance to have the “typical” college experience, at a larger school in a big city, with more traditional classes. I decided to study at KTH Royal Institute of Technology in Stockholm, Sweden. I chose KTH because I have a lot of family in Sweden, my dad went to a technical university in Sweden and I wanted to better understand his university experience, and KTH has a very strong CS program and I wanted some exposure to more traditional CS classes. The semester was a truly global education, as I lived in the abroad students residence area and took classes in English, which meant the majority of my classmates were not Swedish. I met kids from all over Europe, as well as Southeast Asia and South America. It was fun and exciting, and I learned such important things as how to say, “That focaccia was fantastic!” in Italian with the proper accent and accompanying hand gesticulations.

However, working with an exclusively international group of students was not always easy, or fun. One of the larger projects I completed while abroad was for my tech entrepreneurship class. We were tasked with developing a viable technical idea that we could build a business on. The project lasted nearly two months, and required the team to report out with pitches and a large paper every couple of weeks. I was excited for the project, as I’ve come to love entrepreneurship projects ever since I took my first entrepreneurship class at Olin, and I was curious to see how the ideas generated with this diverse group of people would differ from those generated on more homogeneous all-American entrepreneurship projects I’d worked on at Olin in the past.

When I was assigned my team, however, my enthusiasm faded. Most of my teammates didn’t speak English. Not just not very well, but at all. I was shocked that they had opted to take such a writing and presentation intensive class when they were struggling so much just to understand what the professor was saying during lecture. The first few group meetings we had went rather terribly: there were miscommunications about ideas people were trying to convey, brainstorming slowed to a snail’s pace because we had to focus on translation issues, and the least competent English speaker in the group said barely anything at all. We tried this futilely a few times before I realized an alternate approach was needed. Frustrated, I left one of our meetings with, “Okay, whatever- I’ll ping you guys on Facebook Chat, and we can just figure it out from there.”

It turns out that when we opened up the project conversation on Facebook chat, ideas started flowing. The chat seemed natural, and we actually made more efficient progress than in our hyper focused in-person meetings. I realized that talking over chat allowed my teammates to use Google Translate, look up words, and other resources online which they didn’t have as ready access to in our in-person conversations.

We pretty much carried out the rest of the project over Facebook chat, doing everything from making project defining decisions to delegating who would present which parts of the powerpoint. It turned out to be incredibly efficient, and would up being one of my more enjoyable projects- even compared to Olin projects! I think that sometimes my classmates at Olin overvalue in-person group meetings. These meetings have a tendency to get out of hand, resulting in heated debates or conversations that go on for hours. Before this project experience at KTH, I was staunchly in favor of in-person meetings. I assumed that no progress could be made unless everyone took time out to meet and fully concentrate on the project at hand. As it turns out though, this isn't a one-size-fits-all solution and, in different circumstances, you need to think differently. I'm sure that in my career going forward I will deal significantly with teams around the world, for whom English isn't guaranteed to be a comfortable language. I have learned not to discount non-verbal communication as an effective communication method, and I hope I can use this to save everyone time and energy in similar situations in my career going forward.

Service Learning- Building Class Spirit for Four Years

Each Olin class has a set budget for class activities, designed to bolster class spirit and supplement all-school activities. I have been on the Olin class of 2013 class activities committee since essentially day one of my college career. I inadvertently became involved with planning class activities long before I was officially elected to the role. The class of 2013, at the beginning of our first year, was easily excitable- we planned informal class events, like dress-up wars between the boys and girls, and dress-like-a-professor day. I was often a ringleader in these activities, and so I became known as a galvanizer of class spirit. Joining the class activities council was a natural fit.

Whereas most classes' excitement for class activities waned as they get older, the class of 2013 has always had a voracious appetite for a class-sponsored good time. We've planned events ranging from a formal Thai dinner to the Class of 2013 Classlympics (a very competitive day long field-day at the end of Sophomore year), and everything in between. There was the GIF exchange (yes GIF, not gift) around Christmas, the Decide-Your-Own-Theme Party where a piñata was expertly strung from the ceiling with trash bags and hit down with a broom. The class activities committee's general view towards class events has always been to have as many events, as frequently as possible, for as cheap as possible.



Class of 2013 Classy Dinner 2010

At first, I looked at other classes who might save up all their class funds for one big event a year and I would wonder if the class of 2013 should do that as well. However, I realized that the frequency of the class of 2013 events kept the class coming together, bridging groups that had previously broken off into cliques of their own, frequently enough that we still had a strong sense of

class community. Over the years, as can be expected, groups had solidified within our class and it was very easy to stay within your own group and live your life, without mixing with other groups very often. I didn't particularly mind this as I appreciate that it's more natural to have a close group of friends than to be equally close with everyone in your class. However, class activities always served as a welcome broadening of perspective, and a great chance to catch up with people I may not have had much interaction with for a few months. A lot of people who have seen previous classes go through four years of Olin believe that the class of 2013 is

one of the closest-knit classes they've seen. I attribute a lot of this to making even small and insignificant class activities a priority.

As we near the final weeks of our college career, the final task of the class activities committee is to plan senior week. We will have a larger budget than we've ever had before (thanks a successful senior auction!), and there are high expectations all around. I can't wait to have a week of great events with a class I've stayed close to for four years, in large part, through planning such events.

Interdisciplinary Experience- The “Full Stack” SCOPE Experience

I worked on a project for Facebook for my senior capstone (SCOPE) project. The project we were originally tasked with was unimaginably ambitious- jumpstart an industry around Facebook-connected physical devices. When our liaisons meant “jumpstart” they meant everything from develop the necessary technologies to creating a platform and building up a developer base through marketing. This was the first time in my Olin career that I was working on a truly “full stack” project. Oftentimes, one-semester Olin projects target one part of the product design, development, and marketing “funnel”: for example, UOCD (User Oriented Collaborative Design) tackles the design aspect, FBE (Foundations of Business and Entrepreneurship) the marketing and selling, and classes like Design Nature focus on the nuts and bolts of actually building the product.

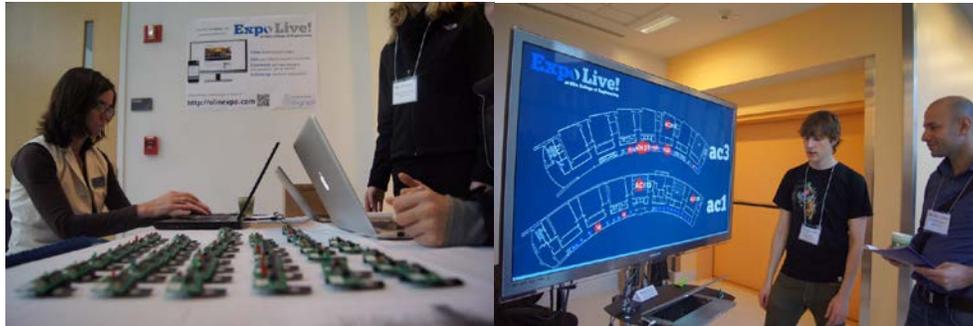
Given I had gone through each part of the “funnel” in one of these classes, I assumed I was well-equipped to string them together and seamlessly work from one phase to the next for the SCOPE project. I was mistaken- as it turns out, it is much easier to get through each phase of the funnel and then leave it at the end of the semester. The tricky bit is to transition between phases. Even trickier is to have the foresight at each phase in the project to think about what would be best for the next phase, and plan ahead so that you’re equipped to bridge the phases as seamlessly as possible.

This realization is unfortunately something I’ve only come to understand after completing almost a year of SCOPE, and nearing the end of the project. From this perspective, our team did nothing right- during each phase, we focused 110% of our efforts on the current phase we were in. Our heads were down and our blinders were on, in an effort to crank out the best work we could within each of our phases. In hindsight, there were little things-- such as defining explicit metrics, or cultivating relationships with people whose help we didn’t require at that moment in time, but who would be good to know later in the process-- that we could have done to set ourselves up for success further down the road. However, we didn’t even think about the next phase because we were so laser-focused on exceeding expectations in the current phase.

Put frankly, we were shortsighted. And the overall success of the project suffered because of it.

The classic example of this was our team’s production of Expo Live. Twice a year Olin hosts Olin Expo, which is an exposition of student projects for the Olin and outside scientific community. For Fall 2012 Expo, we outfitted Expo with a physical => digital layer that we called Expo Live. We added small hardware to visitor nametags that tracked which projects they visited. We then sent them an aggregate “summary” of their Expo Live experience after-the-fact, which included which projects they visited and the names of the students behind those projects. We had all projects up online at olinexpo.com, which gave Expo an online presence (which,

surprisingly, it had never had before). Finally, we displayed real-time visualizations of where people were in the project displays, which helped people see which projects were most popular, as well as where the “traffic jams” in the project display area were.



Left: Assigning hardware to visitor nametags. Right: Real-time visualization of people at Expo.

By some miracle, we pulled off Olin Expo relatively well. However, it killed the team. We worked nonstop for a month before the event, testing the various technologies, nervously biting our nails when hardware shipments from China got delayed, and working with the administration to get support for the event. We put our heads down and plowed through the work, not sleeping for longer than is probably healthy, and focusing only single-mindedly on getting through Expo day itself.

What happened in the process? We completely lost sight of why we were even putting on Expo Live. We had originally thought Expo Live would be a good opportunity to test our technology, but more importantly the idea of internet-connected physical experiences, at scale. This was a good broad strokes guiding goal, but we didn't take the time to set out metrics and really define exactly what we wanted to get out of Expo Live and how we would know if it was successful. We were so focused on the Design Nature-style “just build it” mentality, that we lost sight of any of the UOCD-style design processes.

As a result, we were left at the end of Expo Live saying, “Well we think that went well...we're not really sure. Wait, why did we invest everything we had in that?” It felt, quite frankly, terrible because this is the trap that Oliners are taught not to fall into- the trap of engineering a product without knowing why, or to what end. That is why we are taught skills like defining metrics and goals, keeping users in mind, and always thinking before building in classes like UOCD. Our SCOPE team had failed to remember that, in our first time working on a truly interdisciplinary project.

The feeling of aimlessness the team experienced after the mad rush of Expo Live passed is something that I hope to take away for myself as an example of how not to run a long-term, interdisciplinary project. I know that going forward, I will be doing increasingly more projects like our SCOPE project, and fewer “boxed-in” one semester-long projects that are focused on one area. As much as it hurts to say this, I

am glad that I learned how *not* to run an interdisciplinary project while still in school: when the stakes get higher, I'll be ready.

Entrepreneurship- The Conception and Creation of Spot

In the second semester of my sophomore year, I took a mobile development class with Professor Mark Chang. As I near graduation, I can confidently say this was the best class I've taken at Olin. The class was structured around "sprints" where a company would come in, pitch us on what they do, task us with creating an app for a need they had, and then we would present our apps for the judging panel the next week.

For one of the sprints, my team and I developed a quick-and-dirty version of a location based file sharing application. We named it Spot. We only had a week to work on it, but we really loved the idea and kept brainstorming new contexts it would be useful in. When we pitched it to the judging panel, they loved it- further validation that we might be onto something.

Spring break came around, and with that the end of sprints and the transition into working on the final project. A number of us opted to stay on campus over break, getting a head start on the final project. We decided we were going to pursue further developing Spot, and set to work designing our ideal file-sharing application.

After a few weeks of work, I headed to an entrepreneurship conference at Stanford. All of the students attending were working to launch their own ventures. The culmination of the conference was a pitching competition, sponsored by Sequoia Capital, where each student pitched their venture to a panel of VCs, advancing through the rounds until the winners were picked. I pitched Spot, and we ended up being one of the top three pitches- even further validation, we assumed, that we might be onto something!

When I got back to Olin, we put our heads down and really started cranking on the app. We finished a v1, just in time to demo at MIT Mobile Monday, where we again were ranked highly by audience voting.

We were on a roll, and we were all starting to get excited about it. But then the end of the year came, and we were all off to



Me pitching Spot at Stanford, April 2011.

different internships in completely different corners of the globe. We wanted to pursue Spot as a start-up, build a polished v2 of the product, release it, and then try to raise enough capital to take a semester off to work on it full-time in the fall.

However, things started falling apart as soon as we left for the summer. Long-distance meetings were difficult to coordinate due to time zones, people were much less willing to put in time as they had full-time jobs during the day and were tired at night, and different team members realized they didn't want to pursue this any further and dropped off.

By the end of the summer, when we had planned to have a working version of our app released into the wild, we were no further ahead. We only had half the original team, and any ambitions I'd had to "make this the next big app" were reduced to, "let's just get it out there".

And we did eventually get it out there. After slowly chugging along, making small increments of progress for the next semester, we finally released a beta version of the app to users on Christmas Eve. It was a good feeling, but also, as I knew would be the case, the end of our work on Spot.

I believe that Spot was a quintessential failed startup experience. When I reflect on it, I immediately jump to the laundry list of things that we did wrong and think about the small things we could have changed to have been more successful. For a while after Spot, I was really demoralized: cynical of Olin projects, and what I perceived as Oliners' lack of desire to really follow through with anything. I felt that I was a personal failure: Spot had given me a fair amount of attention on campus and online, and I didn't really want to give up the spotlight. People would ask me, "What happened to Spot?" or "When are you guys releasing already??" I'd embarrassedly reply, "Well, it didn't work out. For a number of reasons."

Now that I have some healthy distance from the situation, I better appreciate Spot for what it was: a great learning experience. I learned more from the failure of Spot than I ever would have if it were successful. The most important thing I learned was that the team is everything. A great idea will remain only a great idea unless you have teammates who share your vision, will stand by you, and are willing to get as involved with the grunt work of building and shipping the product as you are. Ideas are fantastic, but execution is everything, and the team is what will either help or hinder you in executing on your vision.

I eventually want to start my own company. I know that I don't know everything I'll need to make that dream a reality, but Spot helped me get that much closer, and for that reason I'm glad I created a failed startup.