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Learning to Learn: My Journey

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Engineering: Computing
Grand Challenge: Advancing Personalized Learning

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"What is essential is invisible to the eye." -- Antoine de Saint Exupéry

Prologue

Psychologist Dan McAdams posed in a 1995 journal paper the question "what do we know when we know a person?" According to his research, there are multiple levels at which differences in personality may be described. One of them is the *life story* that we "[continue] to author and revise over time to make sense, for [ourselves] and others, of [our] own life in time." (McAdams, 1995)

For myself, that story takes shape somewhere around the time I'm 16 years old. I'm working in open source software communities. And I'm mistaken by one of my closest co-workers (who had not yet met me in person) for a teacher. My path since then has been shaped by a nontraditional educational institution: I've spent my time at Olin College of Engineering, a small school outside of Boston with the declared mission of transforming engineering education. At Olin, students engage in a largely problem-oriented, project-based curriculum and enjoy a significant amount of autonomy, allowing them to pursue their passions.

These experiences have naturally shaped my relationship to my learning, which is exhibited in my narrative. As I'm about to graduate from Olin and leave this place that has made up so much of my life over the last four years behind, I want to reflect on my story in this portfolio.

Part One: Open Source Communities

I can trace insights about my learning back to January 2008, when I made one of my very first contributions to an open source project. I sent a project proposal to the developers' mailing list of the Fedora Project, a free and open source operating system. Soon thereafter, a flurry of emails began to appear in my inbox. People I had never met were arguing about the need and merit and place of my idea. I was petrified. I later found that this was not an uncommon experience: for many, including myself, getting involved in an open source community is a long and difficult process.

As Lave and Wenger note, "communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly." In the case of open source communities, their concern is the advancement of free and open source software. One of the distinguishing factors of communities of practice is that they allow contributors to make small, yet meaningful contributions at the rim of a community. Over time, they are then gradually drawn closer to the center of the community where they take more central roles in a process called *legitimate peripheral participation*. (Lave & Wenger, 1991) This is something I experienced first-hand.

But when I sent my email to the developers' mailing list, it hadn't yet occurred to me that I could simply do whatever I thought was appropriate, that I didn't need anybody's permission, that open source communities were meritocracies. And so I was looking to others. This is when I met Greg DeKoenigsberg. Greg was one of the people who first responded to my email to the mailing list. He was working for Red Hat, the company sponsoring the Fedora Project, and was ready to advise whenever I felt lost in the deep ocean that was the community to me. With his support, I managed to establish a special

interest group for education – a group of people who cared about providing applications for teachers and learners – and was holding weekly online meetings. Still a high school student back in Germany at the time, I would often log on to my computer as soon as I got home in the afternoons. As I became more and more involved in the open source community, Greg invited me to join him and others at a conference in the Czech Republic. It was then that I told him I was a high school student and had to ask my parents for permission. We had never met in person before and he had assumed that I was a teacher all along. Over the course of the next few months, we became not only coworkers, but also close friends. In fact, when I later traveled across the Atlantic to attend Olin's Candidates' Weekend, which the college requires all students to attend as part of its two-step admissions process, he joined me for the weekend. (In many cases, prospective students and their parents attend Candidates' Weekend together.) I am incredibly proud to call him a mentor and friend and am excited that he will be attending my graduation at Olin this year as well.

Both Greg and I came together around a common interest in education and when an opportunity to work with the One Laptop Per Child project came up, Greg reached out to me. The project's mission was to develop a laptop computer with the target price of $100 that would be distributed in developing countries across the world. Since I was interested in technology myself, I had heard about the project and visited their website before. I had even used some of their software in my own work. But it never occurred to me that I would be working with them. I thought there wasn't anything I could contribute. How wrong I was! Greg introduced me to OLPC's vice president of software, Jim Gettys, who became my coworker for the next few months.

Things didn't stop there. I became involved with Sugar Labs, the organization producing the software interface for One Laptop Per Child, and was soon responsible for developing *Sugar on a Stick*. This was the same software interface as on the laptop, but on top of an operating system layer so that it would be able start from a $10 thumbdrive on just about any computer. Sugar on a Stick was nothing short of an **entrepreneurial experience** for me and was covered in several publications, including the BBC and Wired. (Fildes, 2009; Lawton, 2009) Soon, I was spending more and more time on it, developing releases on my own computer, pulling different pieces of software from different developers together into one product, working with other volunteers to facilitate testing, and setting the release schedule for months to come.

But by the time the second release came around, it was no longer a sustainable effort for me. For instance, in the hectic leading up to the release, nobody noticed that the product we had published was still marked as a pre-release version. And so I was desperately rebuilding the final version, just hours before leaving to announce it at an international conference in Toronto. I realized then that doing everything by myself was no longer an option. Here, the close relationship with the Fedora Project turned out to be an opportunity: we adopted its release schedule and processes, meaning that our releases could be produced by the experienced engineering team of the Fedora Project, rather than a single high school student. It also meant that volunteers could follow existing procedures in bringing their contributions to the project. I later wrote:

> *[This change] contributes essentially to our goal of achieving both sustainable development and stable releases – it allows both Sugar Labs and the Fedora Project to leverage the mutual work and results in a great upstream / downstream relationship: Fedora benefits from an easily deployable implementation of the most recent version of the Sugar Learning Platform, while Sugar on a Stick gains access to Fedora's extensive resources in terms of engineering and testing, with automated nightly builds containing the latest components just being one example. (Dziallas, 2010)*

Part Two: Olin College

When I initially became involved with Sugar Labs, I didn't know how much it would shape my path for the years to come. One of the people I was working with on a regular basis, Mel Chua, was an alumna of Olin College. As I was completing my high school degree and considering different options in higher education in Germany, we began discussing the idea of me going to college in the United States. One thing came to another, and in December 2009, after announcing the Sugar on a Stick release at the conference in Toronto, I had the opportunity to visit Olin and stay overnight.

While I was there, I learned about an event called *story time* that happens every semester during finals period: students gather with a group of professors in one of the lounges in the dorms, where they spend about an hour together late at night during the busiest time of the year. The stories the professors tell range from childhood stories to dramatic readings of books they brought; some of them even bring their children along. It was there, sitting among all of the Olin students, that it occurred to me that this was the kind of place I could spend the next four years of my life in. This was the type of community I wanted to be a part of: where students and faculty have such a close rapport and care about each other to make time and come together for a remarkable little event like this.

Ultimately, I was admitted and joined Olin College in August of 2010. Coming to the US from Germany and becoming immersed in the US college culture was perhaps the biggest step for me to date in terms of **global awareness**. Before, I had worked on open source projects where few of the contributors were in the same time zone, traveled within Europe, and attended conferences in other countries. All of these experiences have shaped my story. Indeed, I cannot isolate an individual aspect of my experience, as the last four years of my life have been consistently been shaped by a global experience.

When I arrived at Olin, I thought I wanted to be a computer scientist. I knew that Olin – where my focus instead would be engineering – would push me outside my comfort zone. For instance, sketching hoppers for Design Nature, a course that introduces students to the process of mechanical design, was unlike anything I had ever done before. Perhaps unsurprisingly then, my first semester was a struggle, and often, late at night, it was oftentimes just me and the stars and the lights that made up so much of this place that I'd committed four years of my life to. I discovered that everything was going to be alright, that what mattered to me was my learning experience and not necessarily the resulting letter grade at the end of the day. This experience shaped who I am today and changed the way I learn. As I persevered, I also learned to cut my losses. I decided that I wanted to be present in the community I was actually in – the Olin community on campus – even if that meant

stepping back from my work on Sugar on a Stick. In doing so, I was able to build on my previous experiences and interests in computer science and focus on my passion for education – first, by taking a course on pedagogy, and now, after graduating from Olin, by pursuing a PhD in Computer Science, focusing on computing education research.

The course, which I took my third semester, was called *Teaching & Learning in Undergraduate Science and Engineering*. It was intended to expose students to research on best practices in pedagogy and curriculum design, cognition and learning, student classroom experiences, motivational theories, diversity, and assessment. This is also when I encountered the term *cognitive apprenticeship* for the first time. Cognitive apprenticeship models "try to enculturate students into authentic practices through activity and social interaction." (Brown, Collins, & Duguid, 1989) This was, of course, exactly what I experienced myself in open source communities, where strong mentors proved to be an invaluable resource to me. And so, in many ways, Olin gave me the words to describe what I had been experiencing all along.

For Teaching and Learning, we were required to put our newly acquired teaching skills to use: we had to design and teach a lesson. At the time, I had become involved in introducing professors at other institutions to the idea of bringing their students into open source communities as part of the classroom experience. (Ellis, Hislop, Purcell, Chua, & Dziallas, 2013) And so I decided to teach a course that would do the same for my students. I wanted to provide my students with the inherently **interdisciplinary** real world **experiences** I had had in the open source community myself. In doing so, I tried to provide guidance and encouragement, even if I didn't always know the answers. In my own research, I later found that this was something even professors struggled with in their efforts to involve students in open source communities. Together with Mel Chua, I wrote: "Not having done exactly what their students were about to do was a constant source of stress; they had to consciously adjust their expectations of themselves and their class to adapt to a teaching model where students regularly learned things the professor didn't know." (Chua & Dziallas, 2012)

Part Three: Grand Challenge Scholars Program

During my time at Olin, I became involved with the Grand Challenge Scholars Program, my **long term project** in **service learning**. The program is designed to "[give] students a better understanding of how their undergraduate work prepares them to face their careers and important societal challenges" and revolves around the 14 engineering grand challenges the National Academy of Engineering identified for the future. (Katsouleas, Miller, & Yortsos, 2013) As I am writing this, there are currently 16 active programs at academic institutions all over the nation. However, the Grand Challenge Scholars Program at Olin College is unique in many regards. For instance, the program was jointly developed by students, faculty, and alumni; its structure is shaped by the student experience at the college. By virtue of the college's curriculum, Olin students are oftentimes already exposed to the program's key components (a research project, interdisciplinary and entrepreneurial experiences, a global dimension, and service learning). As a result, the program is instead designed to leverage these experiences by letting students reflect on them.

When the class of 2013 had the opportunity to become certified as Grand Challenge Scholars in the spring of 2013, the stacks of paper were piling on my desk. Each one of them

was a student portfolio for the Grand Challenge Scholars Program; a truly personal account of experiences and reflections wrapped inside. As I was the student facilitating the program, I spent every waking moment during the weeks leading up to the submission of the portfolios in between classes and meetings going through them over and over again, often into the middle of the night. Together with the faculty adviser, Yevgeniya Zastavker, I was working with the students, making suggestions and dwelling on insights. *Tell us your story. How do your experiences shape who you are today?* In a way, I became a mentor myself when guiding students' reflections; now I'm capturing my own. That year, we graduated 24 scholars – almost a third of the entire graduating class at Olin, more than ever before, but also more than at any other institution in the nation.

As part of my work for the Grand Challenge Scholars Program, we also conceived *Interesting Conversations*. The idea was to invite a faculty or staff member to the dorms, acquire their favorite food, and give them free reign to lead the conversation. Interesting Conversations have been used for discussions with the college's provost and sparked, in another instance, efforts to establish a dedicated computing space at Olin. Here, we were creating a space for others to have the same kind of interactions that convinced me to come to Olin in the first place, but on a more regular, almost weekly, basis.

Epilogue

One of my earliest memories is from the day I arrived in kindergarten. I distinctly remember being dropped off by my mother and soon thereafter throwing what I would now describe as a tantrum. I didn't want her to go. This went on for the next couple of minutes, until another child approached and invited me to come play. This is how I came to meet my best childhood friend for many years to come.

As we age, we are rarely able to recall memories from our childhood and instead often focus on experiences that occurred in adolescence. (Hayne & Jack, 2011) Yet, I remember this scene so vividly. I believe that there are patterns of apprenticeship emerging from my narratives that are fundamentally important to me: my friend helped me become accustomed to the culture in kindergarten. Later in my life, Greg did the same for me when I joined the open source community. And, similarly, story time at Olin provided a window for me into this place that espoused the same values I didn't yet know I was looking for: a close-knit community with ample opportunities for mentorship.

Place can play a significant role in affording different kinds of social interactions and, in an academic context, in affecting student motivation. (Knox & Fincher, 2013) Over time, I've created spaces that support close interactions within communities and with mentors. For instance, my interest in educational software applications was sparked by my activities in my high school's computer technician's room – a place that afforded students like myself significant autonomy in the maintenance of computer systems, but also allowed teachers guide our explorations. Nowadays, I have learned to create these spaces for myself – and for others. With Interesting Conversations, I supported an event that scaffolds interactions very similar to the ones I had during story time over the course of an entire semester. And when I worked with the students looking to become Grand Challenge Scholars themselves, I became a mentor myself. Now, as I look towards the future, I'm excited to become an apprentice again and to continue learning in a new environment.

References

- Brown, J. S., Collins, A., & Duguid, P. (1989). Situated Cognition and the Culture of Learning. *Educational Researcher*, *18*(1), 32–42.
- Chua, M., & Dziallas, S. (2012). Work in progress: From sage on the stage to guide on the side: Examining shifts in teaching practice through stories of open community participation. In *Frontiers in Education Conference (FIE), 2012*.
- Dziallas, S. (2010, June 10). The correlation of Mirabelles and sustainability. Retrieved from https://opensource.com/education/10/6/correlation-mirabelles-and-sustainability
- Ellis, H. J. C., Hislop, G. W., Purcell, M., Chua, M., & Dziallas, S. (2013). Towards a model of faculty development for FOSS in education. In *2013 IEEE 26th Conference on Software Engineering Education and Training (CSEE&T)* (pp. 269–273).
- Fildes, J. (2009, June 24). OLPC software to power ageing PCs. *BBC*. Retrieved from http://news.bbc.co.uk/1/hi/technology/8117064.stm
- Hayne, H., & Jack, F. (2011). Childhood amnesia. *Wiley Interdisciplinary Reviews: Cognitive Science*, *2*(2), 136–145.
- Katsouleas, T., Miller, R., & Yortsos, Y. (2013). The NAE Grand Challenge Scholars Program. *The Bridge*, *43*(2), 53–56.
- Knox, D., & Fincher, S. (2013). Why Does Place Matter? In *Proceedings of the 18th ACM Conference on Innovation and Technology in Computer Science Education* (pp. 171–176). New York, NY, USA: ACM.
- Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation* (1st edition). Cambridge England ; New York: Cambridge University Press.
- Lawton, C. (2009, December 9). New Sugar on a Stick Brings Much Needed Improvements. Retrieved from http://www.wired.com/2009/12/new-sugar-on-a-stick-brings-much-needed-improvements/
- McAdams, D. P. (1995). What Do We Know When We Know a Person? *Journal of Personality*, *63*(3), 365–396.