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Narrative 10: Brandon Oakley

Brandon Oakley is an assistant professor at a Doctoral University: Higher Research Activity. At the time of the interview, Brandon had been in this position for just over three years. In this narrative, Brandon describes how his own undergraduate education inspired him to give back as a professor focusing on undergraduates. Brandon also describes his graduate school experience which made him recognize his desire to educate graduate students and lead a research group as well. In his current position, he is able to dedicate his time to both undergraduate and graduate students while also pursuing his technical research interests.

How I got here

I did not consider becoming a professor at all during [my undergraduate years]. I did not consider going to graduate school. And [my department was] in a really weird situation where for spring semester of my senior year. There were a lot of professors on sabbatical, a lot of professors who, I don't know if they had course buyouts or what, but the number of senior year elective classes was at an all-time low, and definitely, certainly in the areas where I was interested in. I liked my [engineering] class sophomore year. It wasn't necessarily what I was going to go into. And there was an advanced [version of the] course that was being offered that semester.

So, I stopped by the professor's office to talk about it, and by the end of our conversation, the conclusion was, "No, you are not prepared to take my [advanced] class. You do not have the prerequisites, but you should go to graduate school. And if you go to graduate school you will not pay, because you can get an assistantship."

I kind of got bit by that bug and realized I wasn't ready to leave the university and stop learning in that context. So, between Thanksgiving and Christmas I managed to study for the GREs, put together some applications and took the GREs on New Year's Eve of that year, just in time. I managed to get an offer at [Master's University, a Doctoral University: Highest Research Activity]. I had a research assistantship and needed to go through some personal growth. My thesis didn't get published, I kind of burned out, took the master's and took a job.

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For the first year I think I was giving the job a chance and learning the business. And it seemed like everything I wanted to do to make our product better, I wasn't given the latitude to do. Ultimately my job consisted of firefighting. As an engineer it was not really fulfilling. And I also noticed that a lot of my engineering colleagues just did not know their engineering skills. We'd have parts that were breaking, and instead of calculating the stresses on those parts, and in comparing that to the fracture stress or yield stress, they'd just throw another rib in there and hope for the best.

I got pretty frustrated and when my wife got her master's degree, I was a free man, professionally speaking, and we were getting out of there. So, in my wife's final year of her program, I was applying to graduate PhD programs with the goal of becoming a professor and giving undergraduates a good education.

I went to [PhD University, a Doctoral University: Highest Research Activity] and worked on a project. It was good, I was very proud of the work. I was very fulfilled and satisfied by it. And one thing that happened at [PhD University] is I gained an appreciation for graduate education, which hitherto fore I hadn't really appreciated. I was really intended to be focused on undergraduates only, and I had really thought of going to a teaching school. By the time I graduated, I thought it might be nice to have some grad students of my own someday. So, I started looking for postdocs where I could really burnish my research credentials and get a few good publications while I looked for a long-term teaching and research position.

A position popped up with a very well-known [researcher in my field]. [I decided to] apply for it and, and culturally speaking, getting to live in Europe for a while would really give me a broader perspective and my wife and daughter, I had become a father by that time, give them a broader cultural perspective. It was a very different experience working for a more established person. I learned some very good things from [my advisor]. He did not have a lot of time, which is completely understandable, so I did not get a lot of personal mentoring. His goal was to teach me to be autonomous, and that was really trial by fire for me. But I think he did a good job mentoring me with the time he had available. I was just part of a large research group, and so I saw what it looked like.

One thing I hadn't counted on about [European Country] was the immigration system. As a husband and father, it was very hard for me – I wanted us to be together as a family, and by and

large we were. But I had to put a lot of time and energy into navigating the immigration system and getting my wife and daughter there in [European Country] legally. And it really took its toll on my research productivity. We managed to get a conference paper and a journal article out of my work, but it really wasn't what I hoped for in terms of what I would have produced as a postdoc.

About a year in I said I'll go ahead and apply for faculty positions the first round, and [my advisor] gave me his blessing to do that because I felt I needed the practice. My hope was that I'd get maybe one job interview out of it and have an interview experience so that the second year when my contract was about to be up, I'd be more competitive, and I wouldn't blow the interview if I got one when it really counted. What I hadn't counted on was getting offered a position through that experience. [Current Institution, a Doctoral University: Higher Research Activity] popped up on my radar screen. Actually, my wife found it because she was really frustrated about some of the difficulties of living in [European Country] and the immigration experience. She said, "You need to apply more places. Why don't you-" She gave me a list.

While we were separated due to immigration reasons, on New Year's Day I put in an application to this faculty position at [Current Institution], which in many ways looked a lot like [Undergraduate Institution]. And I got the job. [My postdoc advisor] was very gracious about me taking the job after having been there just under a year. I used the remaining time as a postdoc to work as hard as I could. We did manage to get what I was working on published after my arrival at [Current Institution]. For family reasons, being back in the United States was good for us.

Conventional wisdom, the [R1] wisdom, would have said no, turn it down, stay in your postdoc, get more publications, get more experience. I had a friend who was a postdoc at the same time who said, "I would never go there because it's in [Current State]."You know, said, "A [Doctoral University: Higher Research Activity] is a good stepping stone." There were a lot of people who said, "Well, [Current Institution] is not really where it's at, you need to be at an [R1] school. You'll never get good students unless you're at an [R1] school." My reservation about going to a [R1] is I felt like I wouldn't be able to do justice to undergraduate teaching at a [R1], and quite frankly I felt I probably couldn't handle the pressure. What I've realized now is I probably work just as hard as somebody at a [R1] for less research output. But I decided to take my chances and by and large it's been a very good experience.

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[I had a] wonderful advisor [at PhD University]. I was his first student, so this was the cauldron of assistant professordom. And he treated me very, very well, he always respected me, and he always put my interests before his own. I asked him about [accepting the job offer at Current Institution] and what he told me was, "Don't worry about it, go ahead and go to the [R2]. When I was applying for schools, I applied to [R2] schools and if I'd gotten the offer there instead of [PhD University], I would have taken it. I would have not held out for a better offer," is what he said. Better offer meaning [R1], because at [PhD University] the goal is for your PhD students to become professors at [R1] institutions. I am not a favorite son there the way [another former graduate student] is for instance who is a professor at [an R1 University].

My preparations for teaching

During my final year at [PhD University] I went to an NSF career workshop that was really intended for faculty, but one of my buddies said we have got to go to this thing. They had a panel of NSF CAREER award winners, one of whom who had moved to [where I got my PhD] from [Undergraduate Institution]. So, he won a CAREER award and that was his ticket out.

As a proud [Undergraduate Institution graduate], that felt like a betrayal. I was really upset that somebody would win a CAREER award and then leave [Undergraduate Institution]. But I think what it boiled down to is he was probably not willing to make the commitment to undergraduate education that [Undergraduate Institution] expects. It's a school that manages to thread the needle pretty well and have faculty who are producing as much research, as many publications, pulling down as many grants, as someone at [another R1 Institution]. But, I think they affirm that commitment to undergraduate teaching, and I felt like the undergraduate teaching that I got was very, very good. And that's what I try to provide to my students.

I think it really started from just getting excellent teaching at [Undergraduate Institution], and getting the sense that you have to learn this, this is important, this is not just a rite of passage. You're going to learn this, and you're going to use it in your career, and here's how you're going to use it in your career. That made a tremendous impression on me; that was modeled for me so well.

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I did have a little bit of a teaching experience at [PhD University]. I substitute taught for my advisor. Being at [PhD University] he had to travel, and he had places he needed to be. So, I covered for him several times. For PhD students, [PhD University] requires a one semester teaching practicum. I really wanted somebody else's input into my professional development, so I approached a different professor [other than my advisor and said], "Will you be my teaching mentor for the teaching practicum?" And I wanted to do a different class because I think I'd already substitute taught for my advisor once, [and] I knew it would happen again. So, I knew I'd get some experience with that class, and I wanted to have a different class under my belt, so I wasn't just going into it with one class experience.

Another graduate student had been doing a workshop for K-12 teachers through an NSF-sponsored math/science partnership. During the second year they needed an additional graduate student, so he pulled me in and my advisor said I could do it and I wouldn't lose my assistantship. So, I'd make a little extra money, (I was a new dad, a little extra money was helpful). It also gave me an opportunity to work with K through 12 teachers. My friend was the fifth-grade science content advisor. He said, "We need a fourth-grade content advisor, will you do it?" So, I went in to interview for the position and I came out being selected as the fifth-grade math content advisor, which was great. Because the science content advisor has to order a whole bunch of supplies and make these whiz bang demonstrations. And the math content advisor just has to use his brain.

At the same time as this happened, something was kind of forming in my mind about STEM education. And this is why I'm the most feared and loathed and reviled professor in [my] department [at Current Institution]. It’s because of the M [in STEM]. People don't understand fluid mechanics and they don't understand fluid mechanics not because they don't understand that there's a relationship between pressure and flow that you can model with an equation, it's that they don't understand the math. It's not that they can't memorize the equation.

I had a good time with these teachers teaching them the most fundamental things about mathematics. Trying to help them have a deeper understanding of mathematics, and it was hard work, it was stressful, but it was a lot of fun. And I really enjoyed it. So, as I write NSF proposals, I normally try to center my broader impacts around doing similar kinds of things. And I also bring that mindset into the classroom.

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My early days as a professor and what I am doing now

Here I am [at Current Institution]; we do graduate education. Graduate education is very important to me. I currently advise three wonderful graduate students, one who's a pretty recent addition to my group. They're working hard, they're intelligent young men. I also have a number of undergraduate volunteers. I really enjoy advising undergraduate research. But what I'm coming to realize is, you don't get a lot out of it in terms of productivity.

At [Current Institution], undergraduate research is our special sauce. I think we do undergraduate research better than any other school I know of. But after three years I only have one peer reviewed publication with an undergraduate researcher as lead author. It takes a lot of time and energy to complete a bachelor's degree, so no matter how smart you are and how good your intentions are, the amount of time you have to devote to research is rather small.

I feel like I'm extremely fortunate to have been able to attend both of [my] graduate schools. It gave me a really varied perspective. As far as for my own satisfaction, I felt like I would be more at home at a school that was like [Master's University] than a school that was like [PhD University]. I chose not to apply to [a couple R1 Institutions] that had open positions at the time. I'm very happy to be at the kind of institution where I am where we have a commitment to undergraduate teaching, where it's not like, "Oh no, I've got to go teach class. Oh my goodness, I was just getting some work done." I'll admit that I still feel that way sometimes because, when you're a researcher you want to get research done.

I felt like [Master's University] and especially [PhD University] did not have a strong enough commitment to undergraduate teaching. Here, I think the balance is off the other way. I don't think we support our graduate students well enough. And I guess once I get tenure I'm willing to be the man with the megaphone about that. I think we need to move the other direction as an institution to where we are more about where [Undergraduate Institution] is, where we expect our professors to do good research and we're realistic about what that takes.

I think we could do a lot of things to improve our graduate program, and the sacrifice to our undergraduate program would be negligible or at least at worst minimal. That's my political opinion about my institution and where we are. At graduation we have about half a row of doctoral students. That's way too few; we should be graduating more doctoral students.

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I teach two classes a semester. And every single class I teach is a serious workload class; exams, large sections most of the time. Except for the graduate classes, those are small sections. I'm not teaching seminar classes and blow off classes. I've got a tremendous teaching workload compared to [an R1]. Actually, a colleague at [an R1] that I met at a conference recently said, "I don't know how you do it. How do you have a research program at all?" This shows a little bit of the [R1] mindset there.

The teaching culture here: number one, teaching two classes is somewhere between 50% to 150% more teaching. I'm okay with doing less research and doing more teaching. That's something I'm okay with. But the teaching culture here is also, there are many faculty for whom teaching is all. Research is for your spare time. I don't think [my] department feels that way, but in some other departments there are faculty who said, "Yes, I did research to get tenure and now I'm done. If I do any research at all, I'm going to do research in engineering education," which is a good, worthy field. However, that wasn't their training and expertise, so I think what they were doing is maybe they plot some graphs on test scores and maybe, maybe do a little bit there. But, I do hear a little bit of this, "I'm just really about teaching."

[But I don't think] you shouldn't be ignoring [the] formation of graduate education, and use undergraduate teaching as an excuse to work less. Or an excuse to keep polishing [lecture notes or something for class] that you can already see your face in. I think there's some who would say, "Well, you should be redoing your teaching notes every semester. You should rebuild them every time, you know." And the reality of that is the only way that I see that you could pull that off is to give up on graduate education, to give up on publishing. And some people have made that choice, but I think they're outside of my department. Everyone in my department does research.

Another thing about the teaching culture here, and I like it and dislike it at the same time, is that we're very available to our students. So, students can just barge into your office at any time and you can talk. And it's great. I really like talking to undergraduates, and getting to know them, helping them understand these difficult engineering concepts. But you can let that get to the point where you don't take good enough care of your graduate students.

So, I'm three years in, I go up for tenure in 2018. I've been teaching both graduate and undergraduate classes, more undergraduate classes than graduate. I enjoy teaching.

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What tenure looks like here

I think I knew that the balancing act [of being a faculty member] was going to be hard, but I had no idea [of exactly how hard]. It's incredibly hard. But I had a chance to do something easy with my life, [when I was in industry], and I hated it. So, if that's the price I have to pay, bring it on. I just got reviewed, and so we have two reviews between hire and tenure. The second review, what that forced me to do is go back and look at my teaching evaluations. I'm below average. The average is 4.2 out of 5, the teachers are well liked, and I'm in, cracked four in a couple areas and I'm in the high threes in others. I don't think that's terrible, but that came up in my review.

But I teach [hard engineering classes] which [do not make me the] most popular engineering professor. But I love the material, I'm excited about it. I'm never going to win a teaching award; I'm never going to have the highest teaching evaluations. I believe it's because of the courses that I teach. And students who really want to learn love me. Students who are becoming engineers because their uncle is an engineer and said it's a good career and are just trying to get their degree with as little effort as possible hate me. So, I was completely unprepared for the level of vitriol that I saw in those teaching evaluations.

As far as a balancing act, I try to do the best job I can in teaching with the time I have to devote to it. Somehow, I have to be a good teacher and I have to be a good research advisor, and that's not negotiable. I am not going to be a bad research advisor so that I could be a good teacher. I am not going to let people get run out of our graduate program financially because I didn't write enough proposals to give them assistantships. It still might happen. I can't write nearly as many proposals as I want to.

My goal in my [class] is not to be the most dynamic and beloved professor. It's for them to learn. And I have three 50-minute periods a week this semester to do that, and maybe a little more if they come to office hours. And that's all the time I have. I don't have prep time. I'm not going to spend 20 hours a week prepping my class, because I couldn't teach [my other class], for one, and my research group would wither and die, and I wouldn't be taking good care of my

graduate students. So, I prep my notes and if there are mistakes I deal with them. But I'm doing the same thing every semester, I'm not doing demonstrations that take a lot of time and effort to put together. I try to do what I can when there are opportunities.

When I'm in the classroom, I'm committed. I'm prepared and ready and I give it the best I can. But I only have that 50-minute period and I try to make it count. But I'm not popular because I want them to learn math. And I'm not going to, I guess, entertain them more than teaching them to get better teaching evaluations.

I think the prevailing wisdom by and large is true, which is, "teaching may sink you, but it will never float you." So, they're looking at research funding and publications probably more so than teaching, even though they talk a good game about caring about teaching.

Other thoughts

I was also involved in Graduate Christian Fellowship on campus [during my MS]. And professionally, not only was that important spiritually, but professionally that was also really important for me too. Because I got to know graduate students in other disciplines who weren't engineers, who had a different outlook on things. And there were a couple professors who came to that because it really is graduate and faculty ministries, so that, that wing Intervarsity Christian Fellowship really tries to - I think they've recognized the graduate student experience is more like the faculty experience than like the undergraduate experience. And so, they run programs for those groups together.

There was a professor in psychology who had gotten a position at [a Baccalaureate college], same metro area as [MS city], and he continued coming to the meetings because his friends were still there, and it was supportive for him and all that. I learned a lot from him and getting a perspective of people in the humanities and people who were committed to a faculty career in areas other than engineering.