

# MTN Ep 14 Transcript

[00:00:00.12] ERIN HAGAR: Welcome to Moving the Needle, casual conversations about ways, big and small, to impact student learning, brought to you by the Faculty Center for Teaching and Learning at the University of Maryland, Baltimore. I'm Erin Hagar. Let's move the needle.

[00:00:15.74] [MUSIC PLAYING]

[00:00:19.01] Hi, everyone. Welcome back to Moving the Needle. A question for you, when you were in graduate school, did you have an opportunity to explore the field of education, alongside your discipline? Did you have any kind of mentored experience to learn about learning?

[00:00:34.58] I'm guessing a lot of you might say no. And you're not alone. Many faculty don't have the chance to develop their teaching skills during graduate school, meaning that they're thrown right into the classroom in their first job and left to figure it out for themselves. Others may have had the chance to become a teaching assistant or receive some other kind of mentored experience around the educational mission. But maybe they felt or were told explicitly that focusing on teaching wasn't the best use of their time, that really every minute should be focused on developing their research skills. Does that sound familiar?

[00:01:09.32] Were you told or do you maybe even think today that focusing on teaching holds graduate students back with respect to research? Some interesting studies recently explore this very question. And we'll link to them from our show notes. We're going to tackle all of this today with our guest, Dr. Scott J. Riley II.

[00:01:28.58] Scott is a faculty member in the School of Pharmacy at the University of Maryland, Baltimore, where he develops courses that marry the fields of data analytics and pharmaceutical sciences. His interest in education goes way back. He was the kind of graduate student that embraced educational training early on, serving for many years as a TA, a guest lecturer, even a mentor to our own UMB CURE scholars on the weekends.

[00:01:54.53] He's very interested in the ways that we nurture and develop graduate students in all aspects of faculty life. And I'm really excited to share this conversation with you. Let's get to it. Scott, welcome to Moving the Needle.

[00:02:07.10] SCOTT J. RILEY: I really appreciate you all having me. I'm a big fan of the show.

[00:02:10.16] ERIN HAGAR: Thank you. This topic of preparing the next generation of faculty is near and dear to my heart. It has been part of every job that I've had in Centers for Teaching and Learning over the past 20 years. I think it's so important,

particularly in a research context where we find ourselves now. We both work at a research 1 institution. And we understand the value of preparing graduate students to do research.

[00:02:39.86] But let's talk a little bit about the value in preparing them to become educators. Why should this also be a priority?

[00:02:47.45] SCOTT J. RILEY: Well, that's a great starting question. And you're going to have to stop me because I could probably talk about it all day. But I like to think about this in four different parts.

[00:02:57.56] When we're talking about the benefit of preparing graduate students to teach, even in the setting of an R2 institution, I think about it in terms of benefit to the graduate student in the fact that this individual student is gaining self-confidence by going out and teaching others what they know. They're improving their teaching efficiency, which has tangible benefits all over campus. And they're learning transferable skills which will make them more competitive in the job market. It's not enough nowadays to be a specialist in your field. You also have to be able to effectively communicate it and teach it to other people.

[00:03:37.25] But it doesn't just stop for benefits to the grad student. You can also think about it as a benefit to the department. You're going to produce higher-quality students who get more effective teaching from their TAs. You're going to have more efficient faculty support in the fact that they're going to be able to allow graduate TAs to have more autonomy in the tasks that they're assigned because they know that their quality teachers. And there's going to be an enhanced reputation of the graduate students coming out of that department.

[00:04:06.23] And then the last way I kind of think about the benefit of teaching graduate students teaching skills-- funny how they say that-- is that it improves student morale overall throughout the institution. And, when, inevitably, the state or the federal government comes to kind of install these programs in different institutions, if we're ahead of the game, we get to maintain our autonomy. They're like, oh, they're already doing it. So they must know what they're doing. It also demonstrates a commitment to the institution's vision right of teaching people and getting them ready for the job market. It's a wise use of resources.

[00:04:44.75] And then an abstract, more romantic thought that I always have, it's for the greater good.

[00:04:50.81] ERIN HAGAR: Yeah, absolutely. And your point about specialization is so interesting to me. I think about this a lot. I think one of the challenges of a junior faculty member coming right out of their PhD program is that they have really reached that pinnacle of specialization, where they're down into the really the nitty-gritty of this particular protein and this-- you know, how all these very specific focus.

[00:05:21.20] And then you come to the institution. And now you're teaching Bio 101. And what has motivated you and what has interested you and what you've spent your life doing for the past however many years is now too advanced for the level of student that you're coming. And that can be a real challenge.

[00:05:40.64] You can feel like you're, as an educator, you're not giving it all because you're not sharing everything you know about this particular thing with your students even though it's not appropriate for their level. Can you talk a little bit about that? Have you experienced that yourself?

[00:05:54.83] SCOTT J. RILEY: So, yes, actually, one of the first positions I took after graduating was a high school teacher. And I had gotten my doctorate in advanced lithium ion battery chemistry. And I was teaching a class of introductory physics and chemistry.

[00:06:09.41] We were learning about valence shells and force equals mass times acceleration. So I couldn't talk about solid phase lithium ion diffusion through a three-dimensional crystal structure, which, believe it or not, I did kind of have an itch that I wanted to teach that. And so this goes back to the original question and the value of teaching students how to teach is that there's always a way to incorporate your passion into anything that you're teaching. If you go back to what you mentioned earlier about someone who is advanced-- they know protein kinetics. Or they've studied a protein in depth, but they're teaching Bio 101.

[00:06:49.46] Every story-- because I think of teaching as a storytelling-- is every story has a beginning. But the beginning introduces the students to the basics that they need so that they can understand the complex things later on. So, in my opinion, there's no reason that, at the end of that series of lectures or that class, that you can't sneak your passion in and really fulfill your need to teach your expertise while also giving the students the knowledge they need to succeed in the class.

[00:07:18.14] ERIN HAGAR: And that enthusiasm can be contagious. Even if someone maybe isn't 100% understanding the idea, they're catching that energy. And they're realizing, oh, people really get jazzed about this kind of stuff. And that's very cool. It's always contagious.

[00:07:33.38] So I think a lot of times faculty and institutions have the sense that teaching pulls them away from their research responsibilities, that it creates a distraction from the important mission that is research. But you found that developing teaching skills actually enhances research skills. Can you talk a little bit about that relationship?

[00:07:56.30] SCOTT J. RILEY: Sure. First, because I'm going to lose the thought before I get through my explanation, the research that I found that I want to give to anybody listening to this podcast, there's this great paper by Shortlidge and Eddy called "The trade-off between graduate student research and teaching". And then they leave a question, a myth. And this whole idea of professors or research faculty being concerned that teaching is not a valuable use of graduate students' time comes from the idea that

they should be focused on building those research skills. And the paper does a really good job of creating this-- painting this picture, if you will, of how there are cognitive skills required for both research and teaching that overlap.

[00:08:43.05] And so, as a scientist, I had to break it down. I had to categorize what are considered the five primary research skills based on the literature. And so if we think about research skills as statistical analysis or quantitative analysis, information seeking, problem-solving, communication, and research methodology.

[00:09:02.37] If you think about those five categories with a relationship to research, there are actually a lot of parallels to teaching, especially when we think about communication skills and problem-solving skills. And so the paper and other papers found that, by providing graduate students with evidence-based teaching experiences that there was a measurable improvement in their communication and problem-solving skills.

[00:09:30.30] As well as-- they were slight. I won't I won't sugarcoat it. They were slight positive correlations to a boost in research methodology, as well as information seeking. And if you really dive into the literature they have proven tools or quantified tools to determine whether or not these skills are improving because it's kind of hard to quantify those.

[00:09:52.06] ERIN HAGAR: I wonder too, just zooming out a little bit, if there's some benefit to showing this next generation of faculty that there are evidence-based teaching practices, that this is in itself an area of research and rigor. And so if they are feeling as though these are two completely different universes-- there's my research skills, where I need to be analytical and focused, and then there's my teaching life, where I need to be human and relational and connected and not realizing that these things intersect with each other.

[00:10:27.84] SCOTT J. RILEY: I think there's a whole lot of value in that I have spent a lot of time-- and I'd love to brainstorm with you at some point-- about how the best approach to convincing faculty and other people, that that is valuable because communication of science or effective communication of science is one of the biggest-- or most important, paramount skills that a scientist needs when they graduate because it's great if you're the foremost expert on this protein, on the protein analysis. But if you can't effectively communicate and teach others how to do it, you're kind of standing on an island by yourself.

[00:11:03.42] ERIN HAGAR: Yeah, absolutely. So, when we're thinking about training this next generation of faculty, when we're talking about graduate students and pedagogy, how do we do this? What are some of the best ways to develop their skills as educators?

[00:11:20.79] SCOTT J. RILEY: Oh, wow, yeah, this is a great question and deserves an episode in and of itself in a lot of ways. When I think about an effective training program for graduate students, especially for teaching them pedagogy, what I've seen

in other programs and what I've seen from my own personal experience is that mentorship is almost always at the forefront.

[00:11:43.77] You need a good mentorship program in two relationships. You need a good superior/subordinate or better to say experience versus inexperience mentor/mentee program, as well as a peer-to-peer mentorship program. And if you have that strong pillar for your mentorship program to teach students pedagogy, the other things, like resources, cultures of encouragement, and opportunities for application, almost build themselves out.

[00:12:13.80] ERIN HAGAR: Yeah, yeah, the Faculty Center for Teaching and Learning is running a graduate teaching assistantship program. And one of the most valuable parts of that, I think, is when we all gather together the students and the faculty mentors. And the first half of that meeting is really, what's on everybody's mind? What's coming up for you in your classes? What are some challenges you're facing? What's something that's working well?

[00:12:37.89] And the level of sharing not just among the graduate students but from the faculty as well, the questions that are asked, the support that's given, I think it is really valuable as showing that there can be safe spaces to talk about the things that come up in the emotions that come up around teaching and learning.

[00:12:58.17] SCOTT J. RILEY: Yeah, that's a really good point because, going back to my personal experience, one of the things that I was always looking for was a safe space to provide my ideas. When we first started this episode, one of the things I mentioned was building graduate student confidence. And you'd be-- a lot of people would probably be surprised that even when a graduate student's getting ready to graduate and they are a six-year expert in their field, many of them aren't confident in a lot of their knowledge because there was no place to bounce potentially bad ideas off of or ideas they weren't sure of. So this program that you're talking about from the faculty-- facultal-- Faculty Center for Teaching and Learning-- I always mess that up-- is so-- it's unique. But it's so necessary to allow students to have that safe space to share.

[00:13:52.44] ERIN HAGAR: So tell us a little bit about your experience as a graduate student. Were you a teaching assistant? What kind of mentorship did you have?

[00:14:00.63] SCOTT J. RILEY: Yes, I was a teaching assistant. And I can't remember. We used to have a funny phrase between me and a couple of the other senior teaching assistants that we were, I think it was, we were overripe because you're supposed to-- if there's an ideal world where funding is everywhere and you never have to worry about it, you're supposed to teach for your first year. And then do research for the rest of it, become a research assistant.

[00:14:23.73] But, during the time of COVID and a little bit before that, funding was a little bit harder to come by. So some of the teaching-- or some of the students that were in my cohort and myself had to teach for an extended time. And, in that time, it's actually where I really found my passion for teaching.

[00:14:41.49] At first, I also considered it a necessary assignment, if you will. Oh, let me get this year of teaching over. And then I'll graduate in four years. And then I did it for a first year-- I did it for my first year. And then I did it for my second year.

[00:14:56.25] And then I actually volunteered. There was a funding opportunity. But I volunteered to do it in my third year because, at that point, I had been doing it for so long in my career. I couldn't think of not doing it.

[00:15:07.74] And that actually led to me becoming a private tutor for some of the students who were struggling in general chemistry. And the head lecturer of the general chemistry lab at my third year of teaching was like, do you just-- do you just want to lecture for the lab? And I was like, yes, yes I do.

[00:15:25.71] And I didn't-- going back to what you were talking about about teaching initiatives, I had no idea that was even a possibility. It'd never even occurred to me that I could teach one of the lectures. And so that opened the floodgate for me.

[00:15:38.36] I started bugging professors like, hey, do you want to take a day off? I could teach that statistical analysis lecture. I could do that lecture on IR. I've been teaching it for two years. Just let me slip into your class and teach it for you.

[00:15:51.32] And that was the best part about the experience. But, as far as specific programs for mentorship, I really didn't have any. It was all trial by fire.

[00:16:02.19] ERIN HAGAR: God, so interesting. And I think that makes it even more valuable that you had that year after year experience because so much about what we learn about teaching is done through reflection and through that trial and error. And if you don't have a chance to redo it or rethink it and try it on that next group of students, that that may be some insights that are harder to unearth the next time around.

[00:16:25.38] SCOTT J. RILEY: Oh, agreed wholeheartedly. I didn't know how poor I was doing at the first year until I did the reflection. And, not to toot my own horn, but, by the third year, I was getting teaching assistantship awards. Because I'd done it for so many years, I was really good at it.

[00:16:42.96] ERIN HAGAR: What were some things that you noticed improving during that time?

[00:16:46.98] SCOTT J. RILEY: two things. One was effective communication. The first year, I wasn't-- again, I wasn't concerned about how well I was doing or the effect I was having on the students because it was like, it's a responsibility. It's one year, and it's over.

[00:17:01.56] But, when I started to think of it more as something I wanted to do, something I was passionate about, I began to reflect on how I could effectively communicate the science to students better. And that led to the next thing that I saw improving was my ability to create rapport with students. Every student's different. Every student learns differently.

[00:17:23.25] And so I didn't realize how necessary the relationship between the teaching assistant and the student was as far as trust, rapport, things like that. It really makes a difference in the students learning if they can approach you. And you don't brush them off.

[00:17:40.29] ERIN HAGAR: There's a book I'm reading now. It's called Relationship-Rich Education. And they look exactly at this. And study after study show that the relationship students have, particularly with faculty GTAs, staff on campus at tutoring centers, support centers, learning support, that kind of thing, is absolutely pivotal to their success in their graduation rates. And so something that you really felt intuitively that this really matters is borne out in the research again and again. So that's great.

[00:18:15.09] Those aha moments I think as educators-- I remember one of my big-- my early teaching, I got a teaching evaluation from a student that said I really like the activity she designs. But we never have enough time to finish them, because I felt so anxious standing up in front of the classroom with them working and them doing an activity that I felt, well, I'm not doing my job if I'm not saying something or doing something or herding this along. And so realizing that it's OK to give them an extra five minutes if they're not finished. And just those kinds of things where you have to get out of your own head a little bit. And stop thinking about yourself and start thinking about, what is it that the students are needing right now?

[00:19:01.29] So you had that GTA experience for a few years. And now you find yourself as a full-time faculty member here at the school of pharmacy. And, as you think about your teaching now, what skills do you have now that you think were born during that GTA experience? And what would you describe as your teaching superpower?

[00:19:21.92] SCOTT J. RILEY: Oh, great question. So the skills that I think were most important that I developed during that teaching tenure, as I'll say, is the ability to effectively understand my students' needs. And from that was born-- what I consider my teaching superpower-- is I'm very quick to build rapport with the students.

[00:19:45.90] And, for me, that has gone so far. It's gone such a long way in making me an effective teacher is when you can break down the barriers of this, oh, they're a professor. They have a PhD. I'll never be able to talk to them. When you can break down that obstacle and students feel comfortable approaching you, teaching becomes so much easier. And I think that's my teaching superpower is I can make students feel safe and comfortable around me.

[00:20:11.01] ERIN HAGAR: That's so great. Can you share a little bit about what that looks like?

[00:20:14.67] SCOTT J. RILEY: Sure, I can. I can think of a lot of good examples. But if I had to pick one, it kind of circles back to what I just said. I remember a student coming up to me very upset about a general chemistry exam. And I wasn't teaching general chemistry that semester.

[00:20:32.13] But they came to me and said, you were my TA last year. And it made all the difference that you were willing to send emails to me at 8 o'clock and that we talked about-- we both had a mutual love of a card game called Magic-- The Gathering. I really just felt like if I could reach out to you, even though you're not responsible for this at all, that I could get a good idea of where I'm supposed to go.

[00:20:55.32] And so we-- again, I was not responsible for the student at all. But we spent about an hour over zoom discussing what the next steps were. And I introduced them to a new TA who needed to become a private tutor as part of a certification program.

[00:21:12.40] And that student did exceptionally well on the next two exams just because they weren't afraid to reach out to me. And I was able to point them to a resource that they used. So I think that's a good example.

[00:21:22.93] ERIN HAGAR: So that was really a two-way process. The student taking the initiative to come to you and ask for help but also you not being tied to, well, the student isn't in my direct line of responsibility. This isn't part of what I'm doing right now. So by that student making connection and you receiving the connection and passing all along another connection, really, just rooting that student in some relationships. What a what a powerful story.

[00:21:52.72] So, when we're thinking about graduate teaching assistants or any kind of program that's preparing graduate students for the academy and the teaching side of the academy in particular, you mentioned that idea of mentor and mentee relationships. What do you think-- what have you been reading about what makes that relationship work?

[00:22:15.82] SCOTT J. RILEY: Yeah, so there's a lot of things that one should consider when creating a mentor/mentee program with the idea of finding good mentors for your students. And what I've been reading in the literature really focuses on two things-- how the mentee perceives the mentor and vice versa, how the mentor perceives the mentee, as well as the actions of the mentor on behalf of the mentee.

[00:22:43.75] So if we start with the first point. When you want to create a good relationship, especially in a mentor/mentee setting, the prestige of the mentor is pretty critical, perceived credibility, demonstrated competence. If the student hears from other students that, oh, this professor is really good to take a class from. Or, this professor is really approachable and easy to talk to.

[00:23:09.61] That can make a huge difference in the initiation of that mentee/mentor relationship, as well as demonstrated competence. If a student goes into a class and is just wowed by the professor and their ability to convey this really complex information into a-- make it a palatable experience, a palatable experience for their student, that demonstrated competence goes a long way for the mentee to say, I really want that person to teach me.

[00:23:41.34] Another thing to consider is similarity to self. When you want to build rapport with somebody, if you have similar worldviews or if you have similar goals/ambitions, it makes it much easier for the mentee to perceive you as a role model, someone that they want to model their behavior after. And that can really take away some of the obstacles of building a strong relationship, which is necessary for this kind of program to work.

[00:24:11.67] ERIN HAGAR: Yeah, I'm thinking about the time commitment of being a good mentor, that it's not something that just happens instantly. It takes some time to build that rapport. It takes some time to know what you want from your mentee in terms of the work that's going to be performed if they're in a position maybe where they're supporting a faculty member or a graduate student might be supporting a faculty member in their teaching. What kinds of work am I willing to offload to this student?

[00:24:41.73] It can take some time. And it, again, might feel like this is pulling them away from some other priorities either in the research realm or the service realm. Why do you think faculty members should consider playing this role for future educators? What could be in it for the mentor?

[00:24:58.65] SCOTT J. RILEY: Good question. I think one of the topics that we could cover with regards to this is going back to-- I don't want to sound like a broken record-- but, when you're talking about getting help for your grading and your classes, you want to have that peace of mind that there's no loss in quality if a professor hands off grading or teaching to a graduate teaching assistant. And so the benefit to the professor is that, by putting in the time, you get a better, more efficient graduate teaching assistant. You want someone to be able-- you want to be, like I said, you want to be able to hand that assignment off to the graduate teaching assistant and say, I'm not going to have to worry about this because that's one of the big factors is you want the faculty, who are very busy people, to be able to focus on that hard-core research and really drive whatever project they're working on forward. But they can't do that if they have to constantly come in and check on their graduate teaching assistants.

[00:25:56.55] The other thing that I'll say-- and I'll circle back to some of the research that-- point to the research I didn't get to before-- is that it boosts their research skills. So if you take on a student as a mentee and you help them in training with teaching pedagogy, it actually helps them research more effectively. And this was proven in a separate paper that showed that there was no-- the two factors that I think faculty are really worried about that maybe they don't say is time to graduation. If you're spending time teaching, you're not spending time research. And that's slowing your graduation.

[00:26:31.62] And publications. And there are two really good articles out there that show that there are-- there's either no negative relationship between evidence-based teaching training and graduation rates and publications. And there's another article that shows there's actually a slight boost. There was a boost in publications by-- it was like 1.13, a factor of 1.13. So not huge but there's nothing that's saying there's a negative relationship there. And so it's only helping the students become more effective

researchers. So I think those are the two big benefits that faculty can gain by teaching their students how to teach.

[00:27:13.41] ERIN HAGAR: This is so great. I really hope that faculty who are listening from UMB to this conversation will consider being a mentor to a graduate student in this way, particularly around teaching and learning. I think there's so much learning that can happen in a bidirectional way between the two. And the Faculty Center for Teaching and Learning is certainly here to support that. And we're excited about this next generation.

[00:27:40.98] So one question we like to ask our guests as we wrap up the episode is, what do you think is moving the needle in higher education right now?

[00:27:51.32] SCOTT J. RILEY: Hmm, I think, if I have to speak from personal experience, I think what's moving the needle now, especially because of COVID, is the incorporation of technology and making the education more accessible. I know a lot of programs are now taking to, for instance, recording lectures and making them available for students who are self-isolating. And I think that is what's going to transform pedagogy in the in the future.

[00:28:22.98] And it's really going to-- it's really going to make for an interesting shift because we're going to, in my opinion, we're going to shift from this top-down approach of lecturing to students in a hall and, as you mentioned in previous episodes, potentially move more towards a horizontal approach, where students will see the lectured material before they come to class. And then that class time can be used for discussion and synthesis of new ideas. So I think that's what's going to move the needle in the future.

[00:28:54.03] ERIN HAGAR: It has been exciting as difficult as COVID has been. It's been exciting as an educator and someone interested in these topics to see how it kind of fast forwarded the way we think about tech-- education and where it lives and how it works and what we use it for and what needs to happen where. I think it's just invited all kinds of conversations around that.

[00:29:16.65] Well, thank you. Thank you so much for joining us. It's been a wonderful conversation. We can't wait to have you back.

[00:29:22.17] SCOTT J. RILEY: It sounds great, Erin. I'm excited.

[00:29:23.52] [MUSIC PLAYING]

[00:29:25.95] ERIN HAGAR: Thank you for joining us today on Moving the Needle, visit us at [UMaryland.edu/FCTL](http://UMaryland.edu/FCTL) to hear additional episodes, leave us feedback, or suggest future topics. We'd love to hear from you.

[00:29:40.89]