

The Taproot Podcast

Season 6, episode 3

Guest: Jennifer Robison

Hosted by Liz Haswell and Ivan Baxter

Transcribed by Jo Stormer

[Upbeat theme music]

00:25 Ivan Hello, everyone. Happy New Year and welcome back to the Taproot Podcast. I'm Ivan Baxter.

00:31 Liz And I'm Liz Haswell. Today's episode is all about teaching. The pandemic meant pivoting, reworking, or flipping our classrooms. Some of these changes were for the good, and others were not so good. What lessons did we learn as instructors that we can bring with us, now that most college classrooms have returned to in-person learning?

00:55 Ivan We also ask: how can we bring the same creative and data-driven approaches that we strive for in our research endeavors to our teaching? And now, on to the episode.

[Theme music]

01:32 Liz Our guest today is Jennifer Robison, an assistant professor of biology at Manchester University in Indiana. Jennifer received her bachelor's from Dickinson College, her master's from the University of Delaware, and her PhD from Indiana University, Purdue University Indianapolis, studying the effects of thermal stress on gene expression and physiology in soybean. After getting her PhD, she moved directly to her faculty position just in time to get some in-person teaching in before the pandemic hit. That's something that we're really looking forward to talking to her about.

Jennifer, welcome to the Taproot.

02:13 Jennifer Thank you for having me. I'm excited to be here.

- 02:16 Ivan Our paper today is “Using a student-generated mock magazine issue to improve students’ awareness of diverse scientists”, from the American Journal of Microbiology and Biology Education in 2020. Jennifer, can you give us a quick summary of this paper?
- 02:33 Jennifer Sure. One of the things I was interested in was increasing students’ awareness that there's not one type of person that can become a scientist. Much of our curriculum is based on the very famous scientists that tend to be one demographic, and there are so many other types of people that are in science. What I had them do was write a biography piece. They were assigned a scientist and had to do some research on what their science was, but then also who they were as a person. These five hundred word biographies were supposed to be 50% contribution to the field of genetics (cuz that was the course I was using this in) and 50% who they are as an individual to kind of humanize scientists for everybody. And what I found was that by the end, students had a much higher awareness of the types of people that could be in science, that there wasn't one-size-fits-all in science - that scientists had hobbies and lives and came from all walks of life.
- The students very much enjoyed this. Over three quarters of the class said that it was at least somewhat enjoyable to very enjoyable [laugh] you never get a hundred percent. And they went from low- to no-awareness for about 70% to moderate- and high-awareness for 90% of my classroom that there was a diverse set of people in science. It was really a powerful piece and it's not that hard to do, right? Students write five hundred words; they do that in their sleep practically.
- 04:27 Liz I love this general topic because that’s just part of the sort of core principles of The Taproot is this idea that we have this story about what it takes to be a scientist. You have to have been fascinated by science since you were in kindergarten. You have to have sailed right through every challenge with ease. And the thing is, that's not even close to being the truth, right?
- 04:54 Jennifer Right. And students get to see that we are not robots that only do science. Some of them are really shocked that these scientists are also members of

bands or artists or parents, and they're like, "Wow, you can do all of that AND be a famous scientist?" Yes, yes you can.

05:19 Ivan How many hours did the students devote to this? I mean, you said they did it in their sleep. I'm sure there was a little bit more work involved.

05:27 Jennifer I front-loaded the research when I picked the scientists that students were gonna highlight. I knew they could type those names into Google and Pub Med and get information, so they wouldn't have to spend hours and hours and hours researching these individuals. And then they write a five hundred word biography. Most students say that they spend about four hours working on writing the biography, so I don't find that to be too taxing.

05:59 Ivan And then they would also edit their peers so they would get more exposure to the other -

06:04 Jennifer Yeah. After writing the biography, I'd actually put them in groups and they became an editorial group that had to read all the biographies that the class wrote and classify them into a table of contents for our pretend magazine. So they had to think about how we put these scientists into groupings that our readers of our magazine would relate to.

06:30 Liz That's interesting.

06:31 Ivan And of course you made sure that there were lots and lots of plant scientists represented in this panel, right?

06:37 Jennifer There were a fair number.

06:39 Ivan This is a very different kind of paper than probably the typical research paper that you were trained to do as a grad student and master student. How much of an adjustment was it for you to write for an education audience?

06:53 Jennifer It was a huge adjustment. I actually had to learn brand new methods. I had never looked into qualitative methods before. One of the things in this paper was to look at students' reflections to: what aspect of this was the most valuable to you? What aspect was the least valuable to you? Like open-ended responses. I didn't know how to analyze those at first, and so it

took me quite a bit of time to learn what are the methods that are appropriate for analyzing qualitative research - not quantitative research.

The other challenge for me personally was the way that the journal wanted this crafted was so that anyone could pick it up like a lesson plan, and making sure that everything was so explicit that anybody could pick up the journal and teach it in their classroom. The very first time I submitted this to the journal, they rejected it because not that they thought it was a terrible idea, but the formatting was just so off.

Ivan Hmm.

Jennifer Thankfully, one of the reviewers was a kind and gracious human being that sent a very well-edited version back to me via the editor -

Liz Oh wow.

Jennifer - to kind of help me understand how to change it to make it appropriate for the audience. The editor straight up said, "We're rejecting this cuz it's not even close to the format we can use, but we want you to resubmit after you reformat. "

08:36 Liz That's really interesting. Imagine if we wrote our quantitative research papers in the same way where we were required to write them so that anybody could just pick it up and repeat it. [laugh] That would be something to shoot for.

08:52 Ivan Jennifer, it's sort of obvious that you've put a lot of thought into your pedagogy in your teaching, but one of the things that we're really focusing on this season is how the pandemic has changed how we do what we do; and as we are returning to the "new normal", what it means to be returning to "normal" and what have we learned and what's different about the way we should be doing things from this experience. To start us off on that path, can you just tell us about what was teaching like for you as you were going into the pandemic and how you had to shift.

09:35 Jennifer The pandemic shift was - I think everybody's gonna agree - hard, and I really didn't know what to do because so much of my pedagogy is based on things that I do in the classroom. I know some other colleagues that do a lot of

lecture and just a little bit of active learning, so they just recorded their lectures and threw out the active learning and I'm going, "Okay, I do like ten minutes of talking and then a whole bunch of activities. How do I translate that remote?"

I really struggled with that. I also really struggled with talking to an empty room. I like seeing my students and knowing if they're getting it or do I need to re-explain this? So my initial shift, I ended up just recording "blurb" videos, I guess. I tried to keep them between ten to fifteen minutes at the most and really just the very, very important things. Then I would give them a task to do using our discussion on Canvas, using the discussion boards.

What I started doing to keep myself from losing my mind was I themed the videos. So one week I dressed up in my *Star Trek* uniform and I put a *Star Trek* background on my Zoom and I used a beaming effect, and I talked to my cadets that had just arrived at Starfleet Academy. So I just started doing it in characters because it made it amusing for me. I know it made it amusing for them, and there was a little bit of "What is she going to do next", [laughter] because every lecture was different. One time it was *Star Trek*, one time it was *Doctor Who*, one time it was *Harry Potter*. I just grabbed random fandoms that I knew enough about to pull off a cosplay [laughs].

11:40 Liz Those students must have been so grateful for that little ray of sunshine each week. Oh my gosh.

Okay, so you pivoted not just in terms of the way in which the material was presented, but you also pivoted in terms of how you presented yourself.

12:04 Jennifer I did, yeah.

12:05 Liz Then did you have to back off of that later, like "This semester we're not doing that"?

12:14 Jennifer Yeah, that was definitely my full-on/all-in. I called myself "The Cosplay Professor", just for the semester that we had to go emergency remote - not for the next semester. Now I'm at a very small university. We have a student body of fourteen hundred here at Manchester University, so we were in

person the next fall; we were only remote for one semester. We were hybrid the next fall.

- 12:44 Ivan Tell us about that. What was that like?
- 12:46 Jennifer Hybrid? With the hybrid we were expected to have in-person classes but provide remote opportunities for students that did not feel comfortable coming to the classroom or were in quarantine or unable for whatever reason to make it to the classroom. That I found more difficult than being fully remote because I had to think about all my pedagogies being accessible from people that I could hand a set of markers to and say, "Create a poster on the Calvin Cycle", to students that were gonna be alone in a dorm room that may or may not even have markers lying around. How was I going to provide active opportunities for both sets of students that were equitable? That was probably the most challenging for me out of the pandemic, and I'm not gonna lie.
- 13:53 Liz I also had to do the same thing. I also have an active learning class that had to like flip semester, and you are right; it was challenging. I'm actually so impressed with all these ways you came up with to keep it from being a slog [laughter] from your side. I wonder about how all of those changes that you made were perceived by the students and how you think they affected the students' learning?
- 14:25 Jennifer From the cosplay emergency remote students definitely responded favorably. I got a lot of comments on my the end-of-semester student surveys that they have to do about how it was very helpful to them to have a world they could enter and think about a problem from *Doctor Who* or whatever. Students really appreciated that and I got a lot of good feedback. When it comes to the hybrid, some of the feedback was, "I think she did the best she could" [laughs].
- 15:06 Liz And what about the content? Did you feel like you were delivering the same amount of material and did you feel like the students were absorbing as much of it as they had in past years using different delivery methods?

- 15:21 Jennifer I actually do a pre-post test in my microbiology class and I still put it in there on the year that we went middle of the year remote. And students did not do any worse that year than they did the previous year on the post-test.
- 15:40 Ivan You mentioned that students who weren't comfortable coming in could join by Zoom in the fall of 2020. What about faculty who weren't comfortable coming in? What was the solution for those people?
- 15:55 Jennifer The school had a system for faculty where we could request to teach fully remote, and they were pretty much honoring it if you wanted to be fully remote. They were fine with that. They were . . .
- 16:11 Ivan "Moderately reasonable", I guess I would say?
- 16:13 Jennifer Yeah.
- 16:14 Liz What's the situation now? Are you everybody fully back in person?
- 16:21 Jennifer Yes, we are back fully in person. At the end of the spring semester we were still masking. It has not been decided if masks will be in the fall or not.
- 16:34 Liz And how did you see your students responding to being required to come in in-person? Were they excited or were they sort of reluctant?
- 16:48 Jennifer All the students I interacted [with] seemed really excited; they were glad to be back. Now we have a lot of students who are also athletes and it's very difficult to be a softball player or a tennis player at home, so they were very happy to get back to where they could do classes and their extracurriculars that honestly keep some of them going; we all have that thing that gives us our spark. So most students seemed really excited to be back.
- 17:23 Liz That's interesting. Something that happened here, this last semester was the first semester where every class was in-person and the school really wanted us to encourage students to come in in-person. And when I first got that message I thought, "Well, okay, that seems like a no-brainer," but actually it was really hard. They all really wanted a lot of accommodations. They wanted to be able to Zoom into the class because they were going out for sports or because they were traveling or because they didn't feel quite right -

accommodations for things that in the past would've been just accepted that you would just miss class if you choose to do that. It was really interesting to be trying to back off of what were essentially useful accommodations that helped students attend class, but at the same time accommodations that were like so much extra work for me to put together.

I would just be generally interested in your thoughts about how the remote and hybrid learning environments benefited students, and comparing that to the benefits of returning to full-on in-person class.

18:49 Jennifer Yeah, I struggle with a lot of that because I do feel like the remote had moments of being much more accessible to students, especially when I'm recording a video and they can watch it as many times as they want. They can pause it to write something down. When I am in person, it's very difficult to do that. You can put your hand up and ask me, "Can you repeat that?", but you have to be willing to put your hand up and say, "Hey, can you repeat that?"

19:25 Liz Right.

19:26 Jennifer I do struggle a lot with how do we keep some of that accessibility for students. I know here (fall of 2020 and spring of 2021), we were expected to provide Zoom whenever someone asked for it. And then in the fall we were only allowed to provide Zoom if someone had an excuse . . . I think frustration from the students cuz they had kind of gotten used to being able to access the Zoom. I don't know how we fix that. Maybe one summer I'll record a bunch of highlight lectures I just make access as supplemental instruction videos at all times. But you have to also take care of yourself. I forget who said it to me, but it was one of those paradigm-shifting moments when they looked at me and said, "Inclusive teaching includes the instructor. "

20:33 Liz Oh, what a nice thing to say. I have literally never heard that.

20:38 Jennifer That really shifted some of my struggles because I was like, "I know if I do this and I do this and I do do this, it's so much better for my students," but if I do all this, I don't have time to take care of my kid. I don't have time to do things that bring me joy. I don't have time. And that idea of "You are just as

important to your classroom” and being fully present is more important than completely doing every little thing you can. That really helped me.

21:15 Liz Thank you for saying that. I just feel like I heard so much about how to give students grace, how to just be there for every student during what was arguably some of the most difficult years any college student could go through. But I never heard about taking care of myself as part of the teaching process.

21:44 Ivan So Jen, maybe if we can step back and have you reflect, we really want to hear from our guests this season: what are the things that you learned that were great and new from the pandemic that you want to keep doing, and what are the things that you were doing before that you want to just throw away because it wasn't good before and we shouldn't go back to it?

22:14 Jennifer Remembering that if we're having fun, they're probably having fun. That's okay; they're gonna learn better when they're relaxed and engaged.

Things that I would throw away: I did try a couple of different active learning things on using Zoom where I was trying to have them build at home, like with Play-Doh on their own. That didn't work because not everybody had the same access to art supplies that are just lying around my house cuz I have a kid. I was like, “Okay, don't assume that students have access to *anything*. ” That's one thing I would definitely throw out.

23:00 Liz I remember what it was like to see into every student's bedroom [laugh]. Because we were a small class and because we had already sort of bonded as a class before we went remote, all the students were very open with each other and so everybody had their camera on. That changed during the next year when we taught remote where a lot of students had their camera off the whole time. But that first time they all had their camera on and there was something about seeing each of them in their own space rather than having all of them come into my space (which was the classroom), I was going into each of their individual spaces. It really gave me a much greater empathy and appreciation for the individual backgrounds and characteristics and the

places every student was coming from. That's something that I feel like I will be taking with me as we go forward.

It sounds like you already have this great relationship and empathy with your students, but for me that was a little bit of a lesson.

24:15 Jennifer Honestly, I hope that's a lesson everybody takes from the pandemic. I mean, I really made a lot of assumptions that all my students (because I have art supplies lying around) of course they're gonna have art supplies lying around and be able to just grab something and build something on the fly. Making any assumptions like that is not . . . it's not good pedagogy, and I learned that, nope, can't do that. What can I do with something they all have access to? Making sure that what I was using was already in my students' hands was the most important thing that I learned from teaching remotely.

25:04 Ivan Have you done cosplay in-person yet?

25:09 Jennifer I have not, although a lot of students have requested that.

25:13 Liz I'll bet they have.

[laughs]

Those of us who have taught remotely and synchronously have all (I am sure you have as well) struggled with the problem of figuring out how to tell whether our students are paying attention and how to draw them in if they're not. I suspect your cosplay helped you in some regard, but are there other ways that you tried to draw students in, especially if they had their cameras off?

25:42 Jennifer Yeah, so cameras off - I struggled with that but I've made the decision that I was not going to force a student to let me in their space. If they did not feel comfortable turning their camera on, that was fine. That was one of the hardest things for me when I was synchronous: how did I know if they were paying attention? Usually what I would do is I'd ask a question and ask everybody to put answers in chat so at least I'd know they were listening - ask some kind of open-ended question or "Okay, let's review". I, in class, do review questions about every five-to-six slides. I have a review slide that

comes up and I give out what I call “cheap clickers”: it's neon three by five cards that have A, B, C, or D on them, and so they hold up the color. Then I can see the whole classroom. It's like, “Okay, everybody's got hot pink cards up? Perfect. ” So to do that in my Zoom room I had them use different emoticons cuz they go up next to their names, so then if everybody had the reaction of a confetti popper, everybody had the heart reaction, whatever, then I'd know that they were a) actually paying attention (they weren't just a black screen that they had walked away from), and b) they were absorbing the information. That's how I kind of got around with the cameras off.

When I did my cosplay it was asynchronous, right. They just watched it whenever they want and I had open office hours that they could come ask questions, because I knew personally I am a single mom and I had a kid that was no longer in school that I had to figure out what to do with. Making our exact classroom times was gonna be difficult for me and I assumed they were gonna have the same type of external pressures. We were given the choice of asynchronous or synchronous to finish out the semester, and I just would stay up late and record my cosplay videos after my kid had gone to bed [laugh] so that I could post them for the students.

28:08 Liz Is there something about drawing students in and checking on their attention that you'll be carrying forward?

28:19 Jennifer One of the things that I tried in Zoom that I hadn't been doing in the classroom was putting them in small groups and having them talk about things that they understood and they didn't understand from the lecture in a breakout room where it's not quite as intimidating to admit that you might not understand something, and then as a group report back what they were still struggling with so that I could talk about it again at our next lecture session. I hadn't done that in-person before. Using that in Zoom, I think that seemed to help students because it gave them a place they could admit that they didn't understand something without having to say it in front of the entire Zoom room.

29:20 Liz I use something called “the muddiest point”. What's the point that I explained the least well? I've done that before; that helps cuz then the onus is on me.

29:31 Jennifer Yes, and I love doing that with my students. I'll tell them, "When you get a question wrong on a quiz or an exam, I go back to see how could I teach this better?" It's not just you. I'm part of this process as well. I think that helps them to understand that, yeah, they need to learn and they need to pay attention, but I also am learning from their mistakes.

29:58 Liz I feel like as we rush to return things to normal to get the students back in the classroom, what are we leaving behind that we could be taking with us? Because some of those teaching tools and strategies that we used were really equitable and actually really made learning more available to students (many of whom had been asking for that type of approach for a long time and then they finally got it) and now we're like saying, "No, now you still have to show up to class at 9 a. m. " What do you wish we could bring forward, but you think maybe we may not be able to?

30:43 Jennifer For me, I really think having those video lectures were helpful to students. If you were doing any kind of asynchronous or if you're doing synchronous but recording it and then putting it on for students to watch it later, we all know that we learn better with repetitive memory, right? Going back and re-looking at something and going back and re-looking at something.

Right now, we put that onus on the students. They have to go get an accommodation from the university to be allowed to record lectures. For me, part of me is really wishing that we could bring that forward in a way that's not as taxing on the instructor. Maybe not a Zoom room where students can just pop in, but is there a way that I could record my lectures and edit them in a way that students could go back and catch points that they might have missed while still encouraging them to come to class to participate in the active learning moments.

31:57 Liz Absolutely.

32:00 Ivan Alright, Jen, is there anything that you wanted to say on this topic that we haven't covered?

32:04 Jennifer All of us, I assume, as educators we want our students to get the best education possible and to learn. But how often do we stop and look at our

teaching, the way we look at our research? How often do we stop when we're teaching and say, I want my students to get this concept. How do I know that they're getting this concept? How do I measure that?

When I started doing pedagogical research, that's when it really hit me that I didn't pay that much attention. I just used exam scores (which is one moment), and if my student was having a bad moment, they may not have learned that one point. So I started looking at my teaching; I look at my research, how do I know I'm significantly impacting my students? That's why I think it's important for pedagogical research to . . . that's what's rewarding about it. That's what I like about my pedagogy research, is it lets me see that, no, this is having a significant effect, or don't do that. I've had a couple of those.

33:13 Ivan Jennifer, this was great; I really appreciate the time you took. If people want to get in touch with you and learn more about this, how should they do that?

33:23 Jennifer You can get in touch with me via my email, which is jdrobison@manchester.edu, or you can find me on Twitter and Instagram at [@JenRobiSci](https://twitter.com/JenRobiSci), that's the name of my lab: "JenRobiSci" cuz I'm a Robison that does science.

33:45 Ivan Right. And Liz, how can they get in touch with you?

33:48 Liz You can always, always, always find me on Twitter at [@EHaswell](https://twitter.com/EHaswell)

33:54 Ivan And you can find me at [@BaxterTwi](https://twitter.com/BaxterTwi), and you can find the podcast at [@TaprootPodcast](https://twitter.com/TaprootPodcast). And with that, Jennifer, thanks again. This was fantastic.

34:06 Jennifer Thanks.

34:07 Liz Thanks, Jen. Super inspiring. I wanna be a teacher like you when I grow up.

[Theme music]

34:37 Ivan The Taproot is brought to you by the American Society of Plant Biologists and the Plantae website. It is co-hosted and edited by Ivan Baxter and Liz Haswell; transcripts are by Jo Stormer. If you like this episode, tell your friends and colleagues and be sure to subscribe on iTunes or in your podcast

player of choice. Thanks for listening, and we'll bring you another story behind the science next week.

[Theme music]