Bonni: [00:00:00] Today on episode number 229 of the Teaching in Higher Ed podcast, Michael Ralph shares about approaches toward greater persistence and retention.

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Bonni: [00:00:22] Hello and welcome to this episode of Teaching in Higher Ed. I'm Bonni Stachowiak and this is the space where we explore the art and science of being more effective at facilitating learning. We also share ways to improve our productivity approaches so we can have a more peace in our lives and be even more present for our students.

Bonni: [00:00:50] Hello and welcome to this episode of Teaching in Higher Ed. It's number 229 and today I am welcoming to the show Michael Ralph. Michael Ralph is faculty with the Center for STEM learning at the University of Kansas. He works to promote STEM literacy in K through 12 education at the University and within the broader community. His work includes authoring the Biology Rocks Books for K through 12 educators and hosting the education podcast Two Pint PLC. Michael Ralph, welcome to Teaching in Higher Ed.

Michael: [00:01:31] Yes thanks for having me. I'm excited to be here.

Bonni: [00:01:34] It's great to have you, a fellow podcaster and someone who's trying different things and in your teaching all the time and cares so much about your students and about learning. I'm curious as we start out today, if you could just share your reflections on today as a professor how you measure success? And how that has evolved over your teaching career.

Michael: [00:01:58] Yeah that's a big question.

Bonni: [00:02:00] I told you so. And I shall sit back for the next 20 minutes and just let you respond. That's a tough one I know.

Michael: [00:02:11] Well. So I have some experience in K-12 education. And so I sort of developed this prioritization of competency and so I talk a lot about mastery with my students about I want to be sure that you can do something at a particular level of competency and however I can make that thinking visible, I'm willing to do that.

Michael: [00:02:32] And I was pretty willing to try a lot of different things with my students when I was at the high school level because there are a lot of different skills that I wanted to grow. And so coming to the university level and working with undergraduates, I was really working hard to try and figure out what does that look like at the next level where I've got faculty with different expectations, where their level of compentency are different than what they are at the high school level. You know we're trying to get them towards some of the undergrads are going to be moving on to research in just a few years.

Michael: [00:03:00] And so my greatest concern is really trying to find a way to make that thinking visible in a way that is reliable and in a way that is fair for everybody, where I can make those higher levels of capability visible. Someone that has a much higher feeling than something that I had to deal with when I was at the high school level.

Michael: [00:03:17] So I really want to try and maintain that focus on mastery and competency. But trying to do that at the higher ed level is different. It presents new challenges compared to what I was doing when I was teaching at the K-12.

Bonni: [00:03:30] I'm fascinated by the use of the word "mastery" because in my experience at least, and I'd love to hear your reflection on this, we yearn for mastery in higher ed, but a lot of times we allow the force behind wanting to cover a lot in the breadth to take over going more in-depth and having there being these building blocks to grow toward mastery. I see that as a real temptation.

Bonni: [00:04:02] And it's not like it's an either or. We would love to have both, yes. But I see mastery losing out sometimes or at least what it takes to truly master something sometimes losing out to open I got to cover everything that's in a textbook. I've got to cover everything. You know, whenever we start saying "covering things," we usually are doing it at the expense of mastery. Do you find that same tension in your work?

Michael: [00:04:27] Yeah. That's an important conversation. It was a tension that I had to come to a few years into my into my career of- the issue is if I want to go quickly, especially when I was starting to run a research lab that was one of the things that I did at Olathe East where I was where I was working as a K-12 teacher, I was trying to prepare the students to do isolation techniques with these methanotrophic microbes. And that's a kind of a complicated procedure especially for students at that level. And so I came to this place where I could say all the things that I needed to say. But at the end of the day when I asked them to do something, it just could not happen.

Michael: [00:05:04] If I didn't expect that level of quality and competency along the way, I already knew this time was not well spent because at the end of the day they're not going to be able to do the things that they're going to do. And it kind of got me to this watershed moment of we kind of have this false dichotomy of "I want to cover everything and I want to go quickly" but I am well aware that they're not going to be able to do all of those things at the level I want them to be able to do them if I go quickly.

Michael: [00:05:30] So really the choice that I have is expecting, and working towards, and providing feedback on their progress towards mastery so they can do the things they're going to be able to do at the level they need to be able to do them. And that might not be all of the list that I want that to be. Or I can go very quickly and I will say all the things that I need to say, I will have covered all of these topics but I'm not going to have the confidence that they have mastered very many of those topics. I'm going to have many fewer students who are able to do the things I'm looking for. And then that problem can kind of snowball.

Michael: [00:06:06] So really my choice is earn mastery on some of the things or cover a lot and have mastery on many fewer things. And so reframing that choice went a long way toward helping me sort of resolve to work toward mastery rather than try to race through everything. But it's a difficult choice. It's absolutely a difficult choice.

Bonni: [00:06:29] One of the ways I know you utilize, in terms of building mastery, is active learning. And in a recent article, Josh Eyler is someone who's criticized active learning as kind of being an overused word and kind of a catch all. I wonder, how do you define active learning? And maybe one way you might do that is to take us inside your classrooms and tell us what we would see?

Michael: [00:06:56] Yeah that is a conversation that needs to happen a lot. We were actually just talking about that in a CTE meeting at KU like yesterday. I'm going to give you my operational definition of active learning. And I really say that as opposed to passive learning where students are sitting and I'm the one responsible for driving the conversation, I'm the one responsible for providing that piece of information, and they are passively trying to grab whatever is going on. That as opposed to active learning, that can be either students are working at a bench or they're out in the field or they're working with some sort of apparatus on a desk, that can be one form but it's not really about the physical activity. It's more about the cognitive activity. Are they working on solving a problem or answering a question?

Michael: [00:07:40] And so in my classroom, like in my research methods course, there are times where we're working on a mathematics problem and if you were just looking in the window, we're writing and were talking but mathematics in this moment might be an abstraction that we don't put our hands on but we're cognitively engaged in trying to pursue the answer to a challenging or complex problem.

Michael: [00:08:03] And so my job is to provide the space and to provide the prompting for my students to be able to productively work towards that answer and so for me, active learning is more a description of the cognitive activities that are going on with my students as they're trying to identify relevant information, they're trying to collect observations or they're trying to resolve disagreements. If we've got some for a debate on two sides of a particular piece of some problem, they're trying to make sense of some idea in order to produce a prediction or produce an inference. And so really it's a cognitive process that stands opposed to students passively sitting and listening to me deliver some sort of information or some sort of instruction.

Bonni: [00:08:44] Can you take us inside of one of your classrooms and tell us what are some examples of active learning are that are happening there?

Michael: [00:08:52] So let me give you an example maybe from yesterday's class period where we were putting together trying to build some simulations using spreadsheet software to try to describe what happened as dice are rolled randomly. So we could try to describe if there was a loaded dye in our set. So we're trying to compare a given piece of data to a theoretical distribution. And so my job is to help the students build the tool. So here is how you use a spreadsheet to make this kind of- it's called a Monte Carlo simulation, we're making hypothetical data. And so I'm helping them use a tool effectively and

then they're making observations. Like oh man, look at all of these outcomes .and how do we describe the middle? Are we going to use the mean? Or maybe even median? And how do we talk about spread? I don't know. I don't know, this mean of 8 seems weird. Is this really weird or is this just kind of weird?

Michael: [00:09:40] And so they're having these debates of well how do we describe that idea or how do we set a threshold for how meaningful that might be? And I know the answer to some of these questions. The field has some consensus on the amount of weirdness that is necessary to make a claim. But I'm not telling them that, I'm letting them make observations and form an argument. And so my job is really just to make sure, if they are trying to do something and don't know how, I make sure they've got the resources and they've got some prompting to be able to keep moving forward rather than me telling them what direction forward might be.

Bonni: [00:10:14] I love that as an example because one of the things that so many of the expert teachers that have come on this podcast or that we've had a chance to read their books or what have you talk about is having students solve puzzles. And it is just more interesting to try to solve a puzzle because you mean you set it up where you're trying to figure out is this like a normal way that dice behave or is there something where someone could be trying to take advantage of you?

Bonni: [00:10:44] I mean it just builds it up where that's an example of igniting their curiosity. You've set up a question, but I'm sure they come up with more questions too like you said. And then where are some examples then in your teaching where then they can make it personal to them? Because I still remember when I had to go back and take an undergraduate statistics class because I didn't have the requirements when I got my masters for what I needed. And the guy did exactly what you're talking about. And I still remember what those- I mean that was 15 years ago and I still remember the basic statistics that that class was designed to teach me in very vivid thing because he did the kinds of things you're describing.

Bonni: [00:11:28] In his case, he would bring in- I remember when he was teaching probability he would bring in all these different gambling games. And I was never much of a gambler, so I didn't even understand sometimes how the game worked. It was so fun just to walk around the classroom and see how does this game work? And oh I've seen that on TV or in the movies but I've never played it. And then how would you use probability tools to try to figure out which

of the games are more advantageous to the house and which ones aren't and that kind of thing.

Bonni: [00:11:54] So anyway, but then how do you take it where I can take what you're teaching me and then make it even more personal to myself? What are some ways that you do that where we then can map it to our own goals and our own learning and our own dreams I guess? Do you have examples of that in your teaching?

Michael: [00:12:12] Yeah. That's actually the centerpiece of my research methods course is that they have these couple of, we call them inquiries, where they're doing exactly what you're describing, they're asking their own questions. And my job is to support them in pursuing it. Very similar to how we do research professionally.

Michael: [00:12:28] And one of my favorite examples is from one of my earlier teaching the course where I had a biology student who walked in, and we have a 3D printer in my lab amongst all of the other stuff because of something that I like to do, and I had the 3D printer running and she walked into the room and said "oh cool. I've always wanted to learn how to use one of those". I said "great let's find a way to make that happen at some point." And so during a couple of our work periods, I got to provide her just enough support to start looking at oh that's interesting. Oh that's how that works. And I sort of made an offhand comment at one point about how it's I don't like the machine we have in our lab as much as I like my personal machine that's back in my workshop and I was like oh it's just not as good. And she kind of looked at me and said well what does that mean then? Well it doesn't produce prints as high of quality. And she said well what does that even mean? I was like you're killing me because you're asking questions I'd be asking myself.

Michael: [00:13:17] I said well you know I don't know. What are the measures of quality? And that was really all it took. And as you mentioned that enjoyable feedback loop. The biologist in me wants to talk about the neurochemistry of once we get that feedback loop of being good at something feels good. And so as she started to identify well these are the questions I should be asking to address this quality issue. What she ended up doing was she learned enough about 3D printing that she found her own work around software to work with the printer in a way that I had never done before. She found a way to print calibration part and use a scanner to measure variations in the intended quality of this piece. And then she learned enough computer science to understand the code that was coming out to be able to make it print this calibration part.

And so what she did. I still remember one day walking into the lab and she had been there early and on the white board she had written out the entire I don't know 40 or 50 lines of code with a marker. She had written out the whole thing and she was annotating it as what she was doing to try and describe what were the different pieces of code doing. And she was using some of the references that I provided her to start that process. And so I was like oh my gosh look at this. And she said well I think I figured out what the code and what it is doing.

Michael: [00:14:31] And so she walked out with a deeper understanding of not only making in 3D printing and fabrication and computer science, but all of this is done driven by her own curiosity and so I think the most important piece of applying it to our individual students is that the best news we can get is that we don't have to make them be curious and we don't have to make them enjoy their discipline. If we just convince them that this feedback loop is going to lead to them getting better and developing greater mastery, mastery feels good at a biological level. So they take it and run with it and it's so much fun to watch them do the things that they do because they can really surprise you with the kinds of projects they're willing to complete, IF they've got the right support and they believe that their mastery is going to be recognized and supported.

Bonni: [00:15:16] If I'm understanding your story right, it seems almost though that this wouldn't have happened without her. In the sense that this wasn't something that you had spent a ton of time- I mean you knew that you liked your one that worked better, but you hadn't spent a lot of time exploring that from a scientific standpoint, you didn't go to the extent that she now has gone. But you were able to give her enough feedback to get her started on her OWN mastery journey I guess. You know what I mean?

Bonni: [00:15:51] And to me that really is an important way that I see all of us faculty needing to evolve is out of thinking we have to be the expert about everything and just becoming more of an expert of the guide to help people start those journeys. But I hope to goodness gracious our students are going to go places we haven't gone because there's a lot that needs fixing in this world.

Michael: [00:16:17] Yeah and that came up in a meeting recently- especially because that's the difference right between K-12 level and the higher ed world is we need to be a high level experts. And so that's going to take some expert guidance in a way that isn't necessarily always true in some of the other education settings out there in the country. And one of the things that I have found to be the most important is we've got some fantastic faculty support from around the university.

Michael: [00:16:41] And so my job and my focus is to give them that good foundation, a conceptual understanding of populations and samples and a conceptual understanding of why do we build models in the first place but then when I get hit with a question about mathematics that I haven't explored yet, I've got Dr. Agusto, a mathematician who has been fantastic and so generous with her time and her expertise whenever I have questions or we've got a faculty member from the biology department, Dr. Alexander who co-teaches the course with me every other semester. We had Dr. Joe Heppert with a chemist who coached on the course for a number of years. And so the different faculty partners let us loop in the experts that can help keep those student interests going whenever they exceed my level of expertise. I think it's an important piece of this process.

Bonni: [00:17:29] I hope some of them exceed even the ones of your co-teachers. That's really the aim of education that they can take it even further than we have. And there's so many more inventions to be had and diseases to be cured. And there's so much more to do. So it's exciting when they even go beyond us.

Bonni: [00:17:48] But you do have to have a pretty healthy confidence in your role or otherwise it makes you feel like you're kind of useless right. If your goal as a professor is to be the one who knows more than everyone else in the room, you're going to shortly either be talking way too much and not employ this active learning that will lead other people toward mastery or you know it's a tough thing, I've seen some people make that shift and some of them can do it and some of them it's just hard to let that go. It's a big part of some of our identities.

Michael: [00:18:17] Yeah it really is especially if it is something new or for something that's unfamiliar. Yeah it can be it can be a difficult place whenever a student asks a question and I'm not sure. And yeah it really is a tough way. But I think it's important to verbalize that whole process for our students because modeling for them how to engage with my own ignorance on some topic or my own inability to answer questions off the top of my head I think is is a skill that we can model for them as part of professional interactions to begin with. So I think it's its own skill to be able to navigate our ignorance on some questions. And so I try to tell myself that that's what I'm doing and I'm going to be a really good model of ignorance in this moment and try to work forward in a productive way.

Bonni: [00:19:02] So one of the other things I don't want to miss asking you about are some of the things that you're doing around helping students be able to stay with their major, persist through that and then also to persist in the teaching profession. I know you're doing some innovative things there and I wonder if he could tell us a little bit about that.

Michael: [00:19:20] So all of this story in this research methods courses is sort of set within a larger UKanTeach program, which is a program operated by the Center for STEM Learning and we train STEM teachers in their undergraduate work. And so all this discussion of active learning is really one piece of a larger puzzle where our goal is to train our undergraduate students to be able to create these kinds of experiences for their students, for those of them who may end up in a classroom eventually. And so that modeling process of here is how we do it is even more important than it may be in other settings because I want my students to be able to do the things that I'm trying to show them I'm doing in the classroom.

Michael: [00:19:59] And so we find that as our students get more training in navigating this uncertainty and building uncertainty for their students, we find that we're improving our retention of STEM majors, we're improving our production of STEM teachers for the K-12 classroom. And so all of these improvements seem to be part in partial of helping our students understand the nature of the inquiry process and the nature of using effective active learning methods in STEM classrooms.

Bonni: [00:20:29] That's fascinating because one of the things that we've talked a lot about on the podcast is just the importance of being transparent. I think that I used to probably employ a decent amount of active learning techniques, but I didn't describe why and probably because I didn't always know why. But you know why am I having them for example do retrieval practice? I wouldn't have even known what retrieval practice was. But now he can explain oh if we spend more time in class with you trying to retrieve information out of your brain and creating those neural connections, then you're going to be a lot more likely to remember it. And also we can do more of the problem solving in class. And if we need a lecture, which sometimes we do, sometimes we don't, but those things can happen sometimes via video or it could be that you go and do some sort of a web exploration. There's lots of ways where we can take in information, but we also want to be then doing it. So I'll never for example have students teach back to each other. Yesterday I had them in class break up and there was a five step model of getting things done, it's a productivity approach. I'm teaching personal leadership and productivity class. So there was one example

of GTD was laid out just in bullet points. You know the five steps and then another one is a graphic that they have, they sell these things on their website that explains it very visually and so I had them take the two things and merge them together, like where did where did the five steps map into that graphic? And then where were they different? Where were they the same? And it was really just a fascinating thing where they noticed things about the graphic that I hadn't noticed when I looked at it. That's fascinating. They had questions about stuff. One of the groups in the room couldn't even map the first thing and the other ones were done. It was just fascinating to see how that all worked.

Bonni: [00:22:11] But then they came back and they explained you know why are we having you teach it back to each other versus me just teaching it to you? And how that helps again build the retention. I'm a lot more transparent. And what you're describing with that UKanTeach, it sounds like these are you know most of them want to go into teaching but it's also spilling over to others that maybe don't want to pursue teaching but it's helping them with their learning. Is that correct as well?

Michael: [00:22:36] Yeah thank you. I love the story you just told, that was fantastic. And your word "transparency" I think is an excellent way to describe it. It's something that I try to do throughout all of my work. Just kind of verbalize how I'm making choices and why I'm making the decisions I'm making as we move through whatever the content may be. And it's a habit that I've done enough now by this point that maybe a couple of weeks into the semester this semester we had done some peer review of a draft piece of work that the students had done and so we were circulating and leaving comments. And so by the end of it, they come back and they're looking at all their notes and I sort of colloquially said what do you think? And we had practiced enough by that point that based on this, like well this process helped us visualize what we're doing, but I feel like the feedback might have been a little more productive this way. And they went into like a three minute critique of my teaching choices, which was fantastic.

Michael: [00:23:25] And so what ended up going to what they're designing what their next peer review session is going to look like. So they believe it can be more effective in doing what they're trying to do. And so it produces this culture of metacognition, this culture of productivity and of refinement. And so even just again Monday we've been doing this practice work working on these simulations and I have sadly used up all of our class time where we struck 10 till and we needed to leave. But I hadn't carved out a couple of minutes for consolidation in their journals to kind of re-crystalize what they did know and

rewrite it in their own words. And not one single person left until they spent five minutes doing their consolidation in their journals. And I didn't give them a single word of prompting, but they believe through transparent conversation of here's why I'm making the choices I'm making and here the development of mastery that you're achieving by engaging in these behaviors that they were sold, they were convinced. And so they all took their own personal time to do this activity that at the begining of the semester I had to prompt and that so many times it feels like pulling teeth to try and convince them to do it in other settings. But if we're transparent about how we make those choices and we justify them and we reinforce them with these mastery loops, eventually students believe, they buy in and they're ready to do it and they're willing to do it. And so it's a pretty encouraging moment to see them making those kinds of choices on their own.

Bonni: [00:24:49] The more that we can give our college students agency the better too. And but sometimes it's not always as transparent like we don't know what's going wrong in a class because you're like I've been telling them to do this journal and they just won't do it. But you've been telling them why. And it's all from a very student centered approach, because we care about you, because we care about your learning, because we know that this works. You've described it as really becoming embedded in the culture in that classroom. Such that you didn't- you were probably just hey how's it going? Actually I'm going give you a metcognitive thing that you've- trained is really the wrong word but even engrained it, it's become a part of their learning process and now they value it whether or not you are their teacher and that's just the most powerful kind of transformation any of us could ever hope to have as a teacher.

Michael: [00:25:37] Yeah it's really exciting to watch them take control for themselves and so yeah it's pretty validating. We work so hard as educators. Some days it's harder than others but it seemed to make those kinds of twists on their own really puts gas back in the tank.

Bonni: [00:25:52] One of the things that we did in my class this time- I'm going to say I'm perfect at this but I'm I'm always working at getting better. Cathy Davidson has really inspired me to think more about she calls them a class constitution. I have not done anything quite so formal, but a lot of times it comes up with regards to the use of laptops or cell phones and devices in a class. And on one hand, we know personally how distracting that can be to our own learning let alone someone else's learning and then but at the same time there's that question of agency so it's tough.

Bonni: [00:26:28] But one of the things we just talked about it really openly talked about what I know about learning. And I asked them how do you see it contributing to or taking away from your learning? So it really became a great healthy discussion that we had and I told them why it was important to me that some of the times we use it when it's a good time to use them but some of the times we put them away so we can really be present for one another and be present in a community.

Bonni: [00:26:55] So we came up with a 95/5 rule that five percent of the time if you got something going on because your life is bigger than this class and so you are trying to arrange dinner or arrange with a friend that has come in from out of town or whatever like that or something's going on health wise someone in your family you know that kind of stuff, then by all means check out you know 5 percent of the time that is A-OK.

Bonni: [00:27:18] And you just let let us know maybe as a community that you might be a little more checked out today than usual. But the reason I bring it up is because that's become code for us. If you came in and sat in our class and someone was like 95/5, I know exactly what they mean. But the person wouldn't because it's become a part of our culture. And so you've made a culture of metacognition in your class. That is so fun to hear about. Congratulations. That's really cool.

Michael: [00:27:42] Well you underlined that you said WE created this thing. And that's I think an important piece of this is if I try to impose upon them whatever it may be without their by and or without their use the word agency if they don't the agency and make those choices there's a lot less likely to be effective. So pointing out that you've got this WE component of here's how we have decided to do this particular thing, I think is a pretty great part of that story.

Bonni: [00:28:07] I know your work is in faculty development, just as mine is, it's kind of the same thing telling faculty they quote on quote have to do something. Good luck with that.

Michael: [00:28:16] Yeah.

Bonni: [00:28:18] Maybe change the culture into one of inclusion and include them in making these guiding principles to make or teaching more effective. That's just one idea.

Michael: [00:28:27] That was like the very first thing that I learned during my education training was in one of my theory classes was Glassr's Choice Theory just resonated with me so much. There are very few things that we have to do. You can't make people doing things. I think that was an important component early on that I'm not making them do anything.

Bonni: [00:28:49] Mm hmm.

Bonni: [00:28:50] This is the point in this show where we each get to give our recommendations and I just have a quick follow up. I did a blog post a while back about some design resources. And as I do and many of my blog posts, I invited people to say what design resources do they have. And there were a couple that I left off which just hadn't made their way into my bookmarks I guess. One is Echo Rivera. She has a wonderful Web site with a bunch of different ways we can learn to design power points from a lot of different perspectives and she's also got a YouTube channel. So I'll link over to Echo Rivera's web site on the teaching notes which will be at teachinginhighered.com/229. And I definitely suggest people check that out.

Bonni: [00:29:32] And then R.V. Warren on Twitter also recommended academic slide design. And that is a free eBook that you can download to teach about how to have better slide design. And I'll just read some of the chapters are: the power of white space, selecting illuminative visuals, layout and composition, good digital citizenry, and the academic slide design method. So it's a great when you can download it and read it on a device. There are some videos up there and other things you can check out. So to resources this week to help us all be better at design and that's important to all of us in every discipline to help the transfer of learning.

Bonni: [00:30:17] So Michael, I'm going to pass it over to you now for your recommendations.

Michael: [00:30:21] Yes. Thank you, that design reference is a good one. It's something that I have to be getting better at in my current responsibilities that hasn't mattered quite as much in my past career experience. So thanks for that.

Michael: [00:30:32] Mine is actually kind of prompted by one of your recent episodes on open textbooks because open source educational resources and open source materials in general programs, software, and other intellectual property is something that I think is really important for making sure everybody has fair access to what they need to get better at the thing they want to do.

Michael: [00:30:53] And so there is a piece that was provided by our State Science Coordinator, Dr. Lizette Burke. And she put together these STEM resources for teaching in a unified holistic manner. So it's really conducive to trying to design active learning experiences. And so the actual link that I want to reference is for a sequence of small little case pieces that you can discuss or consider to design a small problem or phenomenon based lessons that might fit into various STEM classrooms. It's designed primarily for K-12 educators, but I think that it's useful for higher education folks in trying to think about how do I assess active learning experiences? Or how do I approach designing? How do I put together a framework for creating active learning experiences in my in my course sections or in my particular circumstance?

Michael: [00:31:43] And so she's got a whole list of resources that are available along with some videos to discuss some of the underlying philosophies for why we would do this. And all that can come along with the sort of data I think are the most action will be if you're looking to use something soon. I think this is the piece you can use. They are called Teaching Sools for Science, Technology, Engineering and Math Education. And they are all open source which is the reason why I want to underline it. So I chose this one to share.

Michael: [00:32:08] I saw that Make It Stick has already been referenced. I just want to bump that one as well. That was an amazing book and I want everybody in the world to read it. So I'm going to bump that one and then reference these open educational resources.

Bonni: [00:32:19] Oh thank you so much. Some people may have read the blog where I talked about my job has changed a little bit in my institution that got broadened a little bit. So I was over in my colleague who is now serving as our provost and he had all these books that really now belong in my department and Make it Stick was right on the top of the stack. I have an electronic copy, but now I have a paper copy too to pass on to other people to share more with on our campus. It's kind of it is really a classic isn't it?

Michael: [00:32:43] It is. I did the same thing I read it digitally and then I bought a paper copy because I wanted it sitting on my shelf and it currently out. One of our pre-service teachers has it and I think she was reading it. So, yeah it's a good one for sharing.

Bonni: [00:32:56] Fabulous. Well Michael Ralph, it's been so great to talk to you today. Thank you for coming on the show and I know you said you've been

listening for a while, so just thanks also for being a part of the Teaching in Higher Ed community.

Michael: [00:33:07] I think it's important to discuss what we do so I really appreciate you having me on and letting me join the conversation.

Bonni: [00:33:15] Thanks once again. to Michael Ralph for being on today's episode of Teaching in Higher Ed. It's Episode 229, so if you want to get access to the show notes for today's episode they'll be at teachinginhighered.com/229.

Bonni: [00:33:31] If you want to not have to always remember to go look at those show notes to get the links to many of the great things that Michael Ralph talked about andd other guests, you can get an e-mail sent to you automatically once a week with the show notes as well as an article about teaching or productivity written by me. You can subscribe easily at teachinginhighered.com/subscribe.

Bonni: [00:33:52] And if it's been awhile since you shared the show with someone else, why don't you send it to a friend and tell them we should listen to a certain episode and talk about it on a walk next week. So spread the word. Thanks for listening and I'll see you next time.

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