

Ep. 013: Test What You're Teaching

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Ever have your students complain that they were caught off guard by your exam or quiz? They may actually have a point. In this week's episode, CTLT's Julie-Ann McFann explores ways to ensure that your tests actually measure what you are teaching. She takes the fear out of scary concepts like alignment, tables of specification... and unicyles. Plus, learn how to avoid the very real pitfalls inherent in test banks.

Transcript

JIM: Hi there. I'm Jim.

JULIE-ANN: And I'm Julie-Ann.

JIM: Let's Talk Teaching Welcome to Let's Talk Teaching a podcast from the Center for Teaching, Learning, and Technology here at Illinois State University. I'm Jim Gee. Joining me today once again, Dr. Julie-Ann McFann, our program Team Lead here at CTLT. Hi, Julie-Ann.

JULIE-ANN: Hi, Jim, how are you?

JIM: I'm great. And you know what we're following up on something you mentioned in your debut podcast.

JULIE-ANN: Yes,

JIM: Your debut episode, I should say, of Let's Talk Teaching, which is essentially talking about making sure that when we give students a test, that we're actually measuring what we want it to measure.

JULIE-ANN: Yes.

JIM: And that sounds simple. But I suspect it's not as easy as it sounds

JULIE-ANN: It isn't. Because what happens a lot of times, and I know this, because I get emails from faculty members saying, so I'm giving this exam tomorrow, could you look it over. And I realized that they wrote it like five minutes ago. And what happens all too often is that we realize, oh, I have to give this exam. And I better write it. And then they just kind of pull questions out of here and there and everywhere. And then the students get it, and then they hand the exam back. And the students are like, this is so not fair, and other things like that. And, and it can all be avoided. And we'll talk about how.

JIM: Yeah, and we're not talking about teaching to the test kind of in the way.

JULIE-ANN: Nooo.

JIM: Yeah, kind of in the way that it's in the last decade or so that we've talked about that, especially in K through 12. What we're really talking about is thinking ahead,

JULIE-ANN: Yes

JIM: About the assessment, as you are teaching or as you begin to teach that content, right?

JULIE-ANN: Correct. What's, what most people don't realize is that you actually should create your test, or at least a draft of your test before you actually teach your lessons. Because if it's worth testing, so to speak, it's worth teaching.

JIM: Right. We're also not just talking about very basic knowledge questions, like you're just going to make sure that they know that the answer is A and C and then B. And then A again, you're talking about what are the open questions that you're going to be asked?

JULIE-ANN: Correct.

JIM: What are the application questions or the or the ones that require some creative thinking or some critical thinking? So, it does, it doesn't just dictate, you don't write the test, and then use that as your lesson?

JULIE-ANN: Correct? Correct. I use a word that is really kind of jargony. It's alignment, we want to make sure that our learning outcomes, our assessment, and our instructional strategies are all in alignment. And you notice what order I used? I did that it was figuring out what's, what's important for them to learn? And then how will you know that they've learned it? And then figuring out oh, how will I get them there?

JIM: And students' kind of pick up when there's a disconnect in that process, right? Because you and I have talked, we get feedback from students when we go in and talk to classes that this test was unfair. I wasn't prepared for that. We didn't we didn't talk about any of that stuff.

JULIE-ANN: Correct. In fact, I had a group of students tell me that just yesterday saying we were learning a lot, we love our instructor, but she spent four weeks talking about this topic. And then it was like the test just talked about stuff from the book. And we asked her what should we know? And she says everything, and it just doesn't seem fair. It's like the instructor was just choosing picky answers. Instead of looking at what all we've learned,

JIM: I have to confess, I occasionally, having written a test, I find myself certain topics are easier to write questions for and they're not always the topics that I really want my students to emphasize, I can't help it because it's easy to write three different questions on topic "X". But but you know, the depth is really a topic, "Y"

JULIE-ANN: Yes. And it is easier to write certain types of questions. And it's easier to write questions. If you haven't planned, it out in advance. It is much easier to write questions on topics you've just taught because it's fresh in your head and you're thinking. Hey, I want them, kay, we talked about this, and we talked about this, and they should know about this or that. And also, if we use test banks, and I want to come back to that, the fact that we shouldn't use test banks, but if we talked about it in class, when we're looking through a test bank, it's like, oh, this is good. This is good.

This is good. And we don't keep in mind what we taught a couple of weeks ago or whatever was at the beginning of that assessment period.

JIM: And that's not given a flaw in someone's teaching. It's human nature.

JULIE-ANN: It's human nature.

JIM: The primacy, recency effect. We talked about that communication, too. So, you remember the first thing and then you remember the most immediate thing? Yeah. So, we I think we've done a good job kind of framing what the problem is. So, what do you do about it?

JULIE-ANN: Okay, so then there's this word, this phrase, that always when I say it in my workshops, you know how frogs have that extra lens that drops down when they're underwater? Okay, when I mentioned the term table of specifications, and then I look around the workshop room, I see, all these faculty members extra lens dropped down over their eyes,

JIM: Right.

JULIE-ANN: And they look terrified and...

JIM: Right.

JULIE-ANN: And it's just, you know, a \$500 word that really means thinking about how your assessment is in alignment with your learning outcomes. And it's almost like creating a map. So, a lot of people also like to call them exam maps. But me being the geek, I want to call it table of specifications, because that's what I learned 20 years ago.

JIM: Right, right. So, I think exam map may be a little more.

JULIE-ANN: Yeah.

JIM: I think it's a little a little more approachable. But I understand what you mean by a table of specifications? Because you're actually laying out, right?

JULIE-ANN: Exactly.

JIM: Your, your, your, your, your plotting out? Well, I guess mapping out. Okay, so isn't it great seeing the light bulbs?

JULIE-ANN: It's and, and let's be clear, we will put examples in the show notes, right? So that you can, if you need to stop the podcast and pull out these examples, so that you kind of get an idea of what we're talking about.

JIM: That's perfect. That's perfect. We can certainly do that. So, what, walk me through what, what does one of these things actually do?

JULIE-ANN: What it does is you identify what you're learning outcomes are for each of your lessons. And each lesson should have about two or three learning outcomes. And I want to be clear that a lesson does not necessarily mean a class session, you could have a lesson that lasts several class sessions, but shouldn't have more than two or three learning outcomes, because then you're trying to cram too much in. And so, you're just listing what those learning outcomes are. And then you're deciding how important is that learning outcome. So, you're prioritizing this outcome is more important. And I'm going to spend more time teaching this than I am this particular learning outcome. So, for instance, about stages of development, I'm going to spend more time talking, and I'm teaching grade school teachers, I'm going to spend more time on the stages of development that are important to them. But it's still important for the students to learn about the earlier stages. I'm going to ask more questions. I'm going to spend more time on the elementary level stages of development. I see. Is that clear?

JIM: Yeah. Yeah. So, what you're doing is you're prioritizing your targeting, you're prioritizing exactly what information you're going to teach on because these are the outcomes that you want them to rank explain anyone to measure with this assess yes exam that you're coming up with.

JULIE-ANN: And so, then when I go to write my test, I'm going to say, okay, I've spent more instructional time on these learning outcomes. So, going back to my example, I've spent more time on stages of development related to elementary students. So, I'm going to ask more questions related to the outcomes I've spent more time on and less or fewer questions on the ones I've touched on but aren't as important.

JIM: So, it sounds to me like this, this tool we're talking about this table of specifications isn't like a one and done sort of thing. It's something that you create, before you begin teaching to inform your teaching, and then you have to revisit it again, in order to create the exam.

JULIE-ANN: Yes. Okay. One of the reasons why I like mapping out or coming up with a draft of an exam ahead of time, is that then I know, okay, these are the things I think are important enough, right to test on. So, I better make sure that my students are learning about these things. I better make sure that I'm teaching these things when they see the exam. It's not the first time they've encountered it.

JIM: Exactly. Okay. What we're probably talking about when we're talking about these types of exams, this is more going back to our past episode. More of a summative assessment usually, yes. So, explain how formative assessment which we talked about last time, can that inform what's in this this map? That will create it.

JULIE-ANN: It can inform it. In fact, there's no one correct table of specification format. And so when you create your table or your map, you could say, Okay, here's the assessment pieces, I'm going to use with these learning outcomes, to make sure that my students are learning this information. So, this is, here's the types of formative assessment things I'm going to do. And then here's the type of summative questions or assessment that I'm going to do. And then you also, when you're creating this map, you also think

how complex does their learning need to be, because there's some things that just need to be memorized. And so that's not very complex. And then there's other times we want the level of learning to be quite complex, which is, if we're thinking of Bloom's Taxonomy, it's the crate level. And so, if you're, if you are thinking about the kinds of questions or activities that you want your students to be able to do, then as you're figuring out the activities, your lessons, you can say, oh, I better make sure I teach them enough so that they can create and don't just stick to the factual.

JIM: Right, right. In fact, I think, you know, you had said something very, very interesting earlier, when you were talking about what is a lesson, which we're getting really into the end of the atomic structure of teaching. But. but now that I think about it, you know, in the back of my mind, I asked myself, okay, well, if it's not by day, it's not by class period, how would I break up a lesson? And I think it's probably one criteria could be the complexity of the lesson, because there's there is less complex information that students need to know, before they can move on to correct the more complex information. So, that makes a lot of sense to me. And it sounds like using this sort of map, or this sort of table of specifications, can help me make sure that I'm not concentrating too much on the one even though the one existed really only to get them to the other correct lesson.

JULIE-ANN: Okay, if you don't mind, I'd like to take a moment to talk about my analogy, is that the right word of how to think about like levels of complexity, I like to use when I'm explaining Bloom's Taxonomy, and the levels of complexity, I like to think about how the less complex levels are like a tricycle, okay. And children can ride the tricycle without any help. But then there comes a level where they're going to need training wheels. And so that's a little bit more complex, but still don't need quite so much help from the instructor or parent. And then there comes a point when the training wheels come off, and we're getting more complex. And this is where instructors really need to use what's called the zone of proximal development.

JIM: Wow, wow, I think you just went for jargon overload, you just pegged the jarg-ometer.

JULIE-ANN: It's flashing in the red zone.

JIM: What was that? Again,

JULIE-ANN: It's called zone of proximal development. It just means it's kind of that sweet spot where students can learn, but they need that little extra help from you. And so, using the bicycle thing, it's when the parent is running along behind the kid as he's learning how to ride his bike holding on to the seat.

JIM: And what does that mean? Right.

JULIE-ANN: And then you let go of the seat.

JIM: Right.

JULIE-ANN: And the child is still riding and they're going, this I'm riding, I'm riding and then they crash into a tree.

JIM: Right. But in my case, it was a telephone pole.

JULIE-ANN: Oh, yes. And then the most complex level, of course, would be them being able to ride by themselves, but a unicycle?

JIM: Okay.

JULIE-ANN: So, I mean, so yeah, you know, when you're thinking about your test, do you want it to be at a tricycle level? Or do you want it to be, or the question Do you want it to be at the unicycle level? Right?

JIM: And I would imagine the answer is somewhere in between, right? Well,

JULIE-ANN: it depends on what that learning outcome is, what do you want them to know? Or be able to do or feel as a result of that learning outcome?

JIM: That's a good way of thinking about what this continuum? Yes. Looks like that we're talking about here. A good way to relate to that. Yeah. Especially since I had training wheels on my bicycle. Till I think I was like eight years old or something. I think Dad had to craft from out of like, hardened steel or something like that.

JULIE-ANN: I was afraid you're going to say 18 and I can say oh, dear.

JIM: No, no, no, no. Okay. So, now I think I understand what your answer is going to be. When I asked this, you wanted to go back and talk about test banks. Why can test banks then be problematic when we're talking about really taking steps to make sure that we're measuring what we intend to measure with a test?

JULIE-ANN: One of the major problems with test banks is a major problem is that they are written by people who don't know how to construct test items. A lot of times, you know, the, the textbook author is told by the publisher, we need to test bank to go with this. And so they have somebody, maybe they have a research assistant or graduate assistant, who may be fresh out of college themselves, okay. They don't understand how to construct test items. And they're just usually poorly written. And that's also why a lot of them are targeted for the less complex levels of thinking, because those are the easiest ones to write.

JIM: They are the knowledge level questions, name three things, right. Yeah. Okay.

JULIE-ANN: It's just all factual right? Now, what I like to use with test banks is to look through it and get the juices flowing in the brain and say, oh, this kind of question might work with this learning outcome at this, and I can fine tune it to this level of complexity. Sure. So, don't take them at face value, but go ahead and use it to get ideas.

JIM: So, it's more of a quality issue, issue with test banks, because you could conceivably, because for example, in ReggieNet, you can create your own bank of questions for, for a quiz. That's it's not the, it's not the idea of different students answering different questions, as long as all of the questions are well constructed, well germane to the lesson. Okay,

JULIE-ANN: I am. One time I was teaching in a graduate level assessment course. And it had testbank associated with it. And none of the test items followed the best practices that were being taught in this assessment.

JIM: And so, I like my irony.

JULIE-ANN: Yeah, it was kind of like, Oh, dear. Yeah, yeah. So, just be very cautious. Even even the psychometric people can get in trouble sometimes.

JIM: We've talked a lot about a lot of concepts today. From a practical standpoint, I have an exam I'm giving at the end of the semester. Yes. Whether it's the final exam, or it's the last exam of the term or whatever. What can I do right now, it's already we're already eight or nine weeks into the semester at this point, maybe a little later, when people actually hear this, this podcast, or this episode? What can I do right now, to make sure that what I measure at the end of the semester, is what I should be measuring,

JULIE-ANN: I would first start with creating a list of the learning outcomes that you're teaching between now and the end of the semester, really prioritize and think about how much time instructional time and instructional time can include students actually reading the textbook doesn't necessarily mean you talking, right? And make that list and figure out what's more important, what's most important, what's less important? And then start thinking about percentages. And, and then from there, you can start thinking about how many test items or what kinds of questions you want to ask.

JIM: So, so just to kind of hammer home the point, if the answer to that question, you know, what is more important? What is less important? If the answer is it's all equally important?

JULIE-ANN: You're doing it wrong.

JIM: Yeah. Okay. Thank you for saying that. I didn't want to be the one to say that. But, but then then you're you're approaching it the wrong way. Yes. You know, in other words, you have to make a decision,

JULIE-ANN: you have to everything is not equally important in life, right? I don't care what your kindergarten teacher told you.

JIM: If it's too late, and you've already taught some of that stuff, I think, like in my case, I think I would really have to sit down and really think, okay, what did we cover? And how did we cover it? And maybe look at the individual assignments?

JULIE-ANN: Yes.

JIM: And what not. So, were you talking about reading time, for example, included in instructional? What were they supposed to read?

JULIE-ANN: Yes. Yes.

JIM: You know whether they read it or not a whole another whole another discussion. But what are they supposed?

JULIE-ANN: Yes, in my, in my magical pony land. Everybody actually is overt about writing learning outcomes at the top of their notes for each lesson. And the reason that happens to my magical pony land is because it makes so many things so much easier. If you take the time to just think about these are the two or three most important things, I want them to know or be able to do or feel as a result of this lesson. Yeah. Because then you'll know what's the best activities and what's the best assessment and, and I know I keep going back to that, but it really does make life easier if you do that. Because then even if you have taught it, you can go back to your notes and say, oh, yeah, here's the learning outcomes for this lesson.

JIM: So it sounds like obviously then taking a look at your learning outcomes. And then the other thing to do to prepare for towards the end of the semester, and to make sure you're measuring what you want to measure. Sounds like to go ahead and, and put together a draft of that exam now don't wait. Yes. And then be brave enough to go back and edit that and revisit it based on how the rest of the semester progresses.

JULIE-ANN: Yes, yes. And, again, it'll just make your life easier if you make that draft now, instead of 15 minutes before you have to give it. And then because I'm not going to review it.

JIM: Right. Yes, exactly. Right. It's like when I have students who are they have a big writing assignment. And they and I always offered to look at a draft beforehand. But when it's like, you know, a few hours before the due, I'm like, wow, there's really nothing you're going to get out of this.

JULIE-ANN: Yeah.

JIM: At this point. So, one, one final question. And I'm curious about like, the long-term process of teaching, because we teach the same class over and over again. So, once we go through the process, a semester and, and teach this course, and we create meaningful assessments of what students have learned, and what we want them to learn the learning outcomes, the learning goals, once that happens, what do I do with that material the next semester? Because I don't want to, should I? Should I be in the mindset of rewriting the test every semester? Or re editing the test? At least? Or? Or do you find eventually that you can kind of get one that you just dust off, and it still fits nicely, and the engine still runs? And I'm mixing metaphors here. And I can just put it in gear and let it go.

JULIE-ANN: Um, you know, if it's working, why not keep it? I don't think we always have to start from scratch. If you are using a test that is, can be scored using Opscan.

JIM: Right?

JULIE-ANN: You can do item analyses to find out if you have questions that should be just tossed out because they have, they've not really measured what you thought they would measure. Sure. Or, or perhaps you forgot to teach what you wrote a test item on. I've done that before. I've done that, too. And it was like, Oops, and

JIM: they weren't Opscan tests, we would go over the quiz, even grading it because I because I you know, typically I'm teaching smaller courses versus like, 20. Yes. Even grading it. I'd be like, oh, no one got that it was item D, you know, did we talk about that?

JULIE-ANN: Yeah.

JIM: So I so yes, yeah, that rings true to me.

JULIE-ANN: But with Opscan, they can actually give you some nice statistics related to it. And you can really get all geeky.

JIM: So that so you can use. You can reuse your stuff. You have to think about it before you put it back in the field again.

JULIE-ANN: Yes, yeah. Be mindful, mindful teaching. It's, um, what I like. I would like everybody to practice.

JIM: Well, we're going to have to end it there. Julie-Ann, thank you so much for joining us.

JULIE-ANN: Thank you. I know we went to some lofty concepts, but it was fun talking to you about things I'm passionate about.

JIM: I can tell you're passionate about it. It was well worth it. Thanks.

JULIE-ANN: Thank you.

JIM: So that's all the time we have for this week's episode of Let's Talk Teaching. You can find out more about what we talked about today about assessments and making sure that you're measuring what you intend to measure with your exams, and much much more on our website at CTLT.IllinoisState.edu. Click on the podcast link at the top of the page. You can also search for us and subscribe to Let's Talk Teaching on iTunes for Julie-Ann McFann and everyone here at CTLT, until we talk again, Happy Teaching.