Ben Kahn: You're listening to UP Tech Talk, the podcast from Academic Technology Services and Innovation at The University of Portland, where we explore the use of technology in the classroom, one conversation at a time. All right, welcome to UP Tech Talk. This is Ben Kahn at The University of Portland. Today, I'm joined by my cohost, Maria Erb.

Maria Erb: Hey, Ben.

Ben Kahn: Hey, Maria. And today, lucky listeners, we have for you in our studio, Dr. Loretta Krautscheid. She is an associate professor in our School of Nursing. And of course, our faculty in residence with us here in Academic Technology Services and Innovation. Thanks for joining us, Loretta.

Dr. Loretta Kra: I am happy to be here, Ben. Hi, Maria.

Maria Erb: Hi, Loretta. We love having you on the podcast, and we love working with you. You've been such a wonderful addition to the department. And we want to talk today about the Untethered in the Classroom project that you've been instrumental in. Can you tell our listeners what that project is about?

Dr. Loretta Kra: Yes. So the Untethered Lecture Capture has a couple of different components to it. To be untethered is to be freely mobile within the classroom. And so in order to achieve that we're teaching from a tablet, and what we've chosen is an iPad for a variety of different reasons. And there's a software package installed on that, it's called Explain Everything. And we've chosen that because it allows us to have whiteboard space to draw on when we want to draw out complex processes for students. But we also chose it because you can import other learning resources that you've created and use those to help enhance learning in the classroom. So that's the untethered part. I think the big idea about being untethered is that, instead of teaching in front of the students, you teach from among the students. And so it also encourages active engagement through different strategies that you can move. And then the Lecture Capture part is using the Explain Everything software to capture audio and visual components of what is occurring during the classroom.

One of the things I love about that is that I don't have to be assigned to any specific classroom where there's hardwired cameras or microphones. I can teach in any classroom across campus, because what I need to teach is in my tablet with my software. And then we project everything from the tablet onto the big screen in the classroom through another product called AirServer. What we end up creating in the Lecture Capture are reusable digital learning products that students can then revisit as needed to do personalized learning, and they can watch as much of it as they need to. Or some of the students are telling me that they're listening and watching all of it again. It just creates these learning resources that are extremely helpful for students as they're trying to enhance their own learning in the course.

Maria Erb: Yeah, it changes the dynamic in the class as well, right? I mean, you're kind of circulating among the students, as you mentioned. You're not in front, kind of tied to the podium as you probably were before. How has that dynamic shift changed your class, if at all?

Dr. Loretta Kra: It has changed the dynamic in the class. One of the things the students enjoy doing is case study work. So I may present some new information and teach them a complex pathological process in nursing, and that teaching may take about 15 minutes. And then I get them involved in case-based learning in groups. What this technology allows me to do, for example, I did this today, as the students are working in groups on their case-based study, they maybe have some pre-printed worksheets that I've given them with some scaffolded questions, some information about the patient, physical assessment findings, and lab findings. Things like that. And as they're working through it they, in the past, would've just been writing their answers in their groups on this piece of paper. Or maybe in the past, sometimes we had them write it on a whiteboard, or the chalkboard, or something like that. When they did that, that piece of paper, or the whiteboard, or the chalkboard, was just a static learning product. And then sometimes in the past, what students had to so was take a picture of something. Like take a picture of the whiteboard.

But instead, now what I do is I randomly choose a group. I've already prefaced this in the classroom, that this is a learning environment. If they knew everything they needed to know about nursing they wouldn't be in my class, and so we have to understand that learning is messy, and we're all going to be struggling. And we can learn from each other's struggles when we help each other clear things up. So they've already understood that it's okay to make mistakes. So I hand a specific group the iPad and give them the Apple Pencil, and they're starting to write out their rationale, and their thinking, and their processes about the situation related to this case-based study. And, as they're writing that out, what they're thinking is showing up on the big screen, and it's also being recorded into the comprehensive Lecture Capture resource. And then, once we're done with group work, all together as a class we can validate the correct thinking and why that's right. And then we can also modify things that are kind of right, but not totally on board.

And then we can also use the software to erase things that aren't quite congruent with what they need to know, and then modify that and rewrite over top of that. And by the time we're done with all that, I've actually saved class time because I don't have to pause and wait for people to take still shots of the whiteboard, or the chalkboard. So I hope that answers your question. That's just one way that this technology invites student engagement within the total package of the Lecture Capture product. One student today, she goes, "How did you learn to be so tech savvy? This stuff is so amazing." She said, "It makes me less anxious. I don't have to have everything perfect on this piece of paper that I'm writing because I know that I can go back later and re-watch just that 10 minutes, and fill in any of the gaps. Plus, the whole narrative explaining what

was right, what needed slight modification, what needed total modification, it's all there." So it's just a really nice resource across the board, across the diversity of learners to assist them all in the way they need help the most.

Maria Erb: Yeah, I can really see where it would reduce anxiety in the classroom. Just not having to keep up with what's being said. And you know, half the time you're wondering, "Did I catch that right?" Or, "Did I spell that right?" Or, "Did I miss a point?" And you know, not having to do any of that? What a great thing.

Dr. Loretta Kra: Mm-hmm (affirmative).

Ben Kahn: Yeah, I mean there's this whole swirling debate right now about laptops in the classroom, technology in the classroom. Should students be allowed to use laptops to take notes? And what a great way to address that, right? Saying, "The whole experience is going to be recorded for you to ten review later, so you can really be more in the moment." I'm sure some students still do take notes. But on thing that I know that we've gotten as anecdotal feedback is that students feel more in-the-moment, or more engaged in the actual classroom learning.

Maria Erb: Yeah. And do your students have their laptops out?

Dr. Loretta Kra: yes.

Maria Erb: And what are they doing typically on the laptops?

Dr. Loretta Kra: They're typing into the note section. The students who typically have out what we consider the traditional vision of a laptop ... I don't know what technology word to put to that, but anyway, they've pulled up the PowerPoints, because I also post the PowerPoints to the Moodle page, and so they've got it open, and in the note section of the PowerPoint they're typing it in. I'm seeing more and more students come with their own iPads, and their own Apple Pencils, and they're pulling up the learning resources from the Moodle page, and then they're annotating on top of that themselves. Oh, and this is something else that happened. This didn't happen today, it was yesterday in the Patho class. We were talking about different types of fractures, and how fractures heal and a student said, "Well, what can hinder healing of a fracture?" Because we were talking about dietary things that would promote healing. Well, what would hinder healing? And so one of the things that's listed in the textbook is excess caffeine intake can hinder healing, and so then they were wondering, "How much caffeine?"

Because, you know, a lot of these students are consuming quite a bit of caffeine from, not just coffee sources, but also those caffeinated drinks. And so, with this software, and embedded into the total Learning Capture resource, you can open up an internet browser in the software and type in "CDC recommendations for caffeine consumption." And so the answer shows up on the screen, and then we can have a discussion about that. But it's all still captured. So I think along the

way they're also learning that if they don't know the answer to a question that, in the moment, we can respond to that in the classroom and get that off their minds so that then they can start focusing on the next thing that we need to learn. Rather than everybody Googling at the same time, finding different sources with different answers. It's nice to have something to pull up [crosstalk 00:09:59].

Ben Kahn: Right. So you get a chance to reach a consensus about that as a class, but have it recorded?

Dr. Loretta Kra: Mm-hmm (affirmative).

Maria Erb: That is great. Well, now that you've kind of been rolling with this for a little while, can you imagine teaching that same class the way you used to teach it?

Dr. Loretta Kra: I can imagine it, but I wouldn't be happy. I wouldn't be happy with that at all. Last semester we were not using AirServer for screen casting everything from my iPad, to the big screen in the room. We were using a different product. And sometimes that product would drop us. And so then we would have to try to reconnect. One time I was struggling to get it reconnected, and so I had said to the students, "I'm so sorry, I just can't get this to reconnect. I do have my whiteboard markers. I'm just going to start doing ..." I do quite a few pathological processes. I draw them out on the board. Like relationships between heart failure, and what the does to the peripheral vascular system, and the kidneys. So you have all of these different color markers and you're doing all of that on the whiteboard. The students started raising their hand and are like, "Please, Dr, Krautscheid, don't. Can we just go on a bathroom break while you figure this out?" Because they just couldn't imagine what that would look like if they didn't have access to that pathological process.

Live time drawings, with live time narration that they could then review later. So that is one of the biggest strengths of using this Untethered Lecture Capture, whether I'm drawing them myself, or if I have a preplanned photograph, it puts the narration with the visual. And so that enhances learning. If you follow the cognitive theory of learning, it enhances learning because it eliminates extraneous processing by putting both of those things simultaneously together. It's called Spatial Contiguity. I didn't come up with that language, that language is from The Cognitive Theory of Multimedia Learning, published by Dr. Mayer. He has done some research on this previously, not technically with Untethered Lecture Capture, but with some of his own videos that he would make and then show in class, that people learn better when narration is shown simultaneously with animation. So spatial contiguity. It also links with his other theory about temporal contiguity. So temporal contiguity means that we have all these processing things that are going on in our head. Some of them are visual, some of them are auditory, some of them are reading/writing.

So you can imagine in the old method that I was saying something and I was drawing it on the whiteboard, and the students were trying as fast as they could to copy what I was drawing on the whiteboard because they knew that once I erased the whiteboard this thing was going to be gone. I've heard this feedback from the students. Let me just say this, last spring for the first half of the semester I didn't have Untethered Lecture Capture, and then after spring break I did. And so in those course evaluations what the students said were, "In the beginning of the semester we would have to try to remember what you said, and when you said it." So that uses one channel in the brain. "And then we would have to try to link that up with the drawings in our notes." So that used another channel in the brain. "And then we were flipping back to some other resource in the textbook trying to piece all these things together." So they were trying to use too many channels at once, and it was causing too much extraneous load.

So Lecture Capture again just puts it all together in one comprehensive package, and so it minimizes that load and promotes this contiguity within the cerebrum. Temporal contiguity. So what the students said was, "This is way better and much preferable." And I think the evidence in that, maybe Ben can talk about that, is how many times some students are watching each Lecture Capture.

Ben Kahn: Yeah, definitely. And I'm really glad that you brought up some of the cognitive and learning theory behind it, because it is easy to think of Untethered Lecture Capture as this cool technology, it looks really flashy, and students are telling us they love it. We also know that there's this really solid study that's been happening for years, and is really well researched, showing how it can actually directly impact the way that we intake and remember, and form new knowledge schemas. But getting back to your point about more empirical kind of data about student usage, and the way that they're engaging with the lecture portion of the project, all of our trial members that are participating upload to our media space, which is our Kaltura video site that we have on campus. And as part of that, we actually get rich analytics that show us who's engaging with these videos, how often are they watching? How many times? What parts of the video they're watching. So we really can see, and draw some pretty interesting conclusions that, in some cases ...

especially I think when more core things are being covered, or closer to midterms or to finals. We can really see these videos getting some heavy, heavy usage. Not only as a percentage of the class as a whole, but also some students are going back and watching those videos multiple times. So we know that we are creating some useful learning products out of this project.

Dr. Loretta Kra: They are definitely being used. There's not a concern about use. And people listening to this may be concerned about classroom attendance. I was concerned about that, "If I'm recording all the audio and visual associated with class, then what's going to happen with classroom attendance?" Other researchers who have studied that have documented that classroom

attendance does not drop. Students are still attending class. And I've been doing this for a solid year now and I have found the same thing, students still attend class. Part of that could be because of the case studies that we process and work through, and that's something ... so, momentarily while there's a lot of noise going on in the room and students are processing information, I'll pause the recording so that we don't waste Lecture Capture time on that. So if anybody's concerned about classroom attendance, I would say that the literature is showing that it does not decrease. Students still come. And also, how do we enhance attendance? You make your class interesting to attend. Make it meaningful, something that they need to know, right? Something that they can't just learn by watching Lecture Capture.

Speaking about that, I haven't had any students approach me about this, but the literature does say that when students must miss class, like we've just had a horrific flu season, if students must miss class because of illness, or accident, or something like that, then there is a classroom resource that they can use to help prepare them and help them with their learning, so that they don't feel horribly behind.

Ben Kahn: We've seen, going beyond the core kind of process involvement in the project. I know you have personally have found some other uses for the technology that are kind of ancillary to direct classroom instruction. Can you talk about those?

Dr. Loretta Kra: Yes. I am so excited about using the iPad and Explain Everything software for office hours. I started doing that last spring when I would notice that, in a two hour office hour session, I had repeated the same explanation like two or three times. And I'll just go back to this again. Heart failure is a complex problem. It leads to a lot of secondary issues, and so students kind of struggle with that. They can't quite learn it from the picture, and the reading in the book. It really is a process, so they want to hear the process explained again. So after I had explained that a number of times to different students I finally decided just to open up the iPad with the next student and have them draw on the Explain Everything whiteboard what they already know about heart failure. And then what I did was fill in the gaps. And we recorded the entire thing, and it ended up being an 18 minute office hour visit.

But, by the time we got done recording that, I could upload it to MediaSpace, and then send the student the link so they had a video of their personalized office hours, which then that student ended up watching six times. And so, post-discussion, little hallway discussion, that student, and subsequently others, have told me when they're in there during office hours, and they're in the moment of things being explained it's like, "Oh, this makes sense. This makes sense. This makes sense." Then they go to another class, then they go to dinner, then they go work their part-time job. Then at 10 o'clock at night they're trying to remember and restudy and they have forgotten things. Even though they're looking at what was drawn out for them on a blank piece of paper, when it comes to learning processes that static image on a blank piece of paper doesn't

narrate or animate the process. But Explain Everything, creating that reusable learning product, really does help them rehearse the process.

And so we've expanded that. There is a collaborate feature. So for a student athlete, who could never attend office hours because of their schedule, I was able to hold off campus, or remote, office hours with that student. They just needed the Explain Everything software on their digital device. I think she used her phone. And then I sent her a collaborate code. She could hear me, and see everything I was drawing. And I could hear her and see everything that she added to the Explain Everything drawing. And then we can save that and send that digital resource to them as well. I think there's a lot more to explore about how this technology can be useful to enhance learning. I think we've scratched the surface, but now we get down to the subcutaneous layer.

Maria Erb: Yeah, well those were some great examples that you just gave us, and just those applications alone are really impactful and valuable to students and professors.

Dr. Loretta Kra: Agreed.

Maria Erb: Anything else we want to cover?

Ben Kahn: I think that was pretty good amount of time.

Dr. Loretta Kra: Could I just add something real quick about how to get started?

Maria Erb: Yes.

Ben Kahn: Yes.

Dr. Loretta Kra: Something that we've learned in working with different faculty across campus is that you really do need to rehearse with the software. You need to be very comfortable importing your learning resources, or adding learning resources in the moment. And you need to be really comfortable with switching colors, so that you can signal important content, or draw their attention to important content along the way. So people just really should rehearse with whatever software they're going to use ahead of time and become fairly comfortable with that. And then also, make sure that they embed the cognitive theory of multimedia instruction within their slides, because these slides can get overwhelming and messy by the time you start adding a whole lot of things to them, and then that's going to cause extraneous load, and that will cause frustration for the students. So there does need to be attention to the purposeful integration of resources within the Lecture Capture resource.

Ben Kahn: I think that's a great point. Just also to know we do have some getting started resources. We've got 15 faculty trained up on this process. That includes the hardware, software, and some of the foundational multimedia learning theory, so we can post some reading chapters to be assigned along with this podcast.

Maria Erb: We'll definitely do that.

Dr. Loretta Kra: I think that's it on my end.

Maria Erb: That's good. Yeah.

Ben Kahn: Okay. Thank you so much for listening to UP Tech Talk. Thank you, Loretta, for joining us.

Dr. Loretta Kra: Yes.

Ben Kahn: And, [crosstalk 00:22:31] thanks for co-hosing again. And we'll see you next time.

Maria Erb: UP Tech Talk is a bi-monthly podcast with co-hosts Ben Kahn.

Ben Kahn: That's me.

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