Janice: You walk down a hallway and what do you hear? Do you hear a lot of students talking or do you hear the professor talking? The answer was, "You hear the professors." And it takes a while to leave what you know. Now, what's exciting to me just sitting here is that most of the room is engaging in active teaching. And that's where I want to go.

Liesel: Welcome to the Magic Mountie Podcast. This is a podcast that's dedicated to helping faculty and other college employees as they try and navigate the challenging fabric of serving students, especially at Mt. San Antonio College. But everyone's welcome.

Christina: Hi, it's Christina, and we have another mini-series for you taken from what we captured on Inspired Teaching Day. We heard from a wonderful keynote, Jennifer Imazeki, who's the director of the Center for Teaching and Learning at San Diego State University, a Senate Distinguished Professor and Professor of Economics with a passion for teaching and education at all levels, she's an advocate for active learning, especially with the use of team-based learning and technology in the classroom. And this is what we will be exploring today in this podcast.

Christina: The goal is to learn how to engage our students more, and therefore increasing their success by increasing retention. In this first episode we will go over some pedagogy that Professor Imazeki uses to employ active learning with the participation of the faculty in attendance. Here's Professor Imazeki.

Jennifer: Good morning. Thank you for inviting me to speak with you guys. Probably the most fun thing for me is when I get to spend a day talking to faculty about teaching and learning.

Jennifer: I am the director of San Diego State Center for Teaching and Learning. I'm in my fifth year in that position. I started at San Diego State straight out of graduate school in the Economics department. In that role I have taught a wide range of courses from introductory principles courses that, when I started, were about 40 students, and then we converted a gymnasium on the campus to a 500-seat classroom. I was convinced by my chair to try and take on that challenge, which was really when I started learning about all of these techniques, because when you teach 40 students having your students talk and do things is a lot easier than thinking about how to do that in a class of 500.

Jennifer: I also teach a number of upper division courses for our econ majors. One of those is called Economics for Teachers, which is actually for students who are getting their social studies credential, planning to be high school teachers.

Jennifer: But my favorite class is a data analysis class that's again for econ majors, but it's really focused on data literacy. And I teach it using an approach called Team Based Learning, capital T, capital B, capital L, TBL. And that approach is ... I refer to it as flipped on steroids. The entire class is done with students working in permanent teams. So they get put into teams of five or six students and they stay together in that team for the entirety of the semester, and spend almost all of the class time working on problems in those teams. And there's a particular structure to it. But I learned a lot about group work and how to make that work better through teaching that course.

Jennifer: I will say that I have always been a bit of an early adopter in the sense that I am fairly risk-loving, I guess one would say. I don't mind taking risks in the classroom. Because of that I would say I'm a bit unusual for an economics instructor. Econ is not a discipline that is known for amazing teaching. The most common approach to teaching in economics is referred to as chalk and talk: stand up, talk, write, make a bunch of graphs on the board and things like that.

Jennifer: When I started trying to figure out how could I teach a 500 seat principles course using more active learning techniques, I didn't have a lot to go on from my own discipline. So I learned a lot from events like this on my own campus with people from multiple disciplines. One of the things that I think is really great about active learning is that many of the techniques are not necessarily discipline specific. There are a lot of things we can do to make our classrooms more active that are sort of methods that transcend a particular discipline.

Jennifer: The other thing I think is important to point out, and why I like to give folks some information about my background, is I think it's important to remember ... and I always talk about teaching as part art and part science. There are aspects of teaching that are science in the sense that we have research; there's scholarship showing what different methods are effective for helping students learn. But what method's going to be most effective for you in your classroom, given who you are and who your students are, may be very different. So remembering that part of the art of teaching is choosing the methods and thinking about pedagogy that is right for you and your students.

Jennifer: I want to give you a little bit of a preview, as a good academic always does, of what we're going to do today. I want to start with a conversation about what is active learning. I tend to use the term interactive classroom more than active learning for various reasons. But there are lots of different terms that get used to talk about active learning, active teaching, interactive classrooms. So I just want to make sure that we're all on the same page.

Jennifer: And then I don't think this is going to be necessary in this room from what I've heard so far, but I do want to talk a little bit about the why. Why is it important to create interactive classrooms and to get our students using active learning techniques.

Jennifer: I also want to talk about what some of the barriers are. I am an economist, so we think in terms of costs and benefits, right? So we're going to talk about the benefits of an active learning classroom, but I think it's really important to also think about what are the costs. Why don't faculty do more of this? What challenges can we expect when we start trying to teach this way? In particular, how do we minimize those challenges and reduce those costs?

Jennifer: I will be asking you to be active, to participate, to talk to other people around the room. An interactive classroom can be an uncomfortable place for our students. It can be uncomfortable for us as instructors, but it can be uncomfortable for our students. It's important to remember that emotion has an impact on student learning. The part of the brain that controls emotion is connected to the part of the brain that controls memory and processing. So when students are uncomfortable and fearful and trepidatious, it actually impacts their ability to learn. So we need to think about how we can mitigate that. One really good way is to make sure that they know the other folks in the room. So before you ask them to start working in small groups or talking to people next to them, giving them opportunities to know who those people are, that can mitigate at least some of that.

Jennifer: There's a little bit of that, particularly for people who are super introverted, that it will always be a little bit uncomfortable. So to the extent that you can give students an out, let them know that they will have other ways to participate that maybe won't require that kind of interaction, can be one way to help make sure that all students are feeling comfortable in our classrooms.

Jennifer: So what is active learning or an interactive classroom? I'm going to ask you what is active learning or an interactive classroom.

Speaker 5: The professor is more of a facilitator rather than a lecturer or instructor, and also the students are more interacting with one another on projects or to solve a problem.

Jennifer: Great. Thank you. Somebody else.

Speaker 6: We came up with the idea that interactive learning involves students supplying concepts, being interested in being hands on, doing some kind of hands on activity.

Jennifer: Great. Thank you.

Speaker 7: We talked about a process of learning, analyzing, and then applying what they learned.

Jennifer: So some of what I'm hearing is what students are doing. Some of it is what the instructor is doing, right, instructor being a facilitator instead of standing at the front. What did you guys come up with?

Speaker 8: I was thinking about students kind of discovering the material, rather than being given it.

Jennifer: Awesome.

Speaker 9: I put processing as the last step, so that's when you know ... Instead of just doing it, you process what just happened so that you know what happened.

Jennifer: Awesome. Great. Thank you. And that's a really important thing, right? It's one thing to just have students do, but sometimes, depending on what it is they're doing, they may not actually understand why you're asking them to do what they're doing. It can help to set aside a specific time at the end to process, to figure out how can we take what we were just doing and what you were talking about and move forward, connect that to old things and move forward to the next thing.

Jennifer: Great. So one of the reasons that I like to do that particular exercise is because, especially in a room like this, I don't need to tell you what active learning is, right? You guys already have some ideas. But as a good friend of mine likes to say, "Never tell when you can ask." So asking students questions is, I think, the most fundamental part of creating an interactive classroom, getting the students to do the thinking.

Jennifer: The easiest way to start easing into an interactive classroom is to just stop every once in a while and give students 30 seconds, a minute, to look over their notes of the last 10 minutes and see what they saw, see what questions arise. I think many of us who are used to lecturing, we might do this in an informal way. We stop and we ask, "Any questions?" And what do we typically get when we do that?

Audience: Silence.

Jennifer: Silence, or nods, or kind of, "Okay." But when you do it in a formal way, where you say, "I'm going to stop for a second. Take 30 seconds and look at your notes from the last 10 minutes, and even another 30 seconds to compare those notes with the person next to you. Now what questions do you have?" You're much more likely to get a response, get something. And if nothing else, you've given them some time to sort of catch up and take a breath, and then they'll be a little bit more ready to move on.

Jennifer: So I do like to point out that part of interaction, or part of active learning is the brain being active, right? It doesn't necessarily mean being physically active. It doesn't necessarily mean talking or group work or running around the room. But it means actively engaging our students' brains. And sometimes all we need in order to do that is simply time, giving them time and space where they are thinking instead of trying to listen to you talk.

Jennifer: Can somebody give me some explanation of how can learning occur without teaching?

Speaker 11: Well, I was thinking just from personal experience, if you make a mistake you can learn from that even though no one told you what the correct way should have been from the beginning.

Jennifer: Okay, great. Other thoughts or approaches to thinking about how learning can occur without teaching?

Speaker 12: We learn every day through our experiences, so we get feedback from outside sources on how to proceed.

Jennifer: Okay. Right. Learning is something that happens constantly, right? And we don't necessarily have to have somebody proactively, formally teaching us, but we can in some sense teach ourselves through our own experience. What about this one: teaching can occur without learning. Somebody want to explain how can there be teaching without learning?

Speaker 13: Just students completely tuned out, just staring off into the ether.

Jennifer: I'm sure all of us have been in classrooms where we've had students who were just kind of staring out the window or somewhere or at their phones.

Janice: I'll never forget a short video I saw for a flipped classroom, and it was a Harvard educator. And he said, "I am involved in what I'm teaching," and he was excited about it. And he was looking at the students and they were looking at him, and they were all interested. And then little bubbles above their head: "What am I having for lunch today? What am I going to do?" And it's so classic for people who are just ... I'm talking and I'm sharing and I know they're engaged, and they look like they're engaged, but no.

Speaker 15: I think in the classroom it's easy, when there's silence, to just assume that everybody's on board, and I think that's not a good presumption. I think teaching doesn't imply learning, just like if I'm reading something, I may not be understanding. If I'm listening, I may not be hearing. If I'm looking, I may not be seeing. I can look around the room but not see who I'm looking for. So I think it's good in the classroom to keep that in mind.

Jennifer: Absolutely. My favorite representation of this ... Have folks seen this before, this comic? So "I taught Stripe how to whistle." Stripe is the dog. "I don't hear him whistling." "I said I taught him. I didn't say he learned it."

Jennifer: I think part of the reason this is so important is it's key for us as instructors to remember that teaching and learning are two separate things. Teaching is what we're doing; learning is what our students are doing. We can't learn for our students. We can't make our students learn. And yet if we are teaching and our students are not learning, I think we would all agree that's a problem. That gives faculty an out to say, "It's not our fault," somehow, when our students are not learning. But it is a problem, because it is our job to ensure that students are learning. And that it is our job as instructors to do everything we can to ensure that our students are learning through our teaching.

Jennifer: My favorite definition of good teaching ... Andrew Milne is an educational consultant. He came and did a keynote at San Diego State probably about 10 years ago now. And I wrote this down because I just thought it so captured the way I think about teaching and learning. "Good teaching is the purposeful structuring of experiences from which students cannot escape without learning."

Jennifer: Tom Angelo, who is a sort of assessment and course design guru ... Some of you may know he has a book with Patricia Cross. Angelo and Cross has a classroom assessment techniques bible about assessment. He talks about the bear trap model of teaching, which has that same idea that students have to gnaw off their leg if they want to get out of your classroom without learning.

Jennifer: This is where, I think, thinking about what we're having students do, or what students are doing in our classroom, becomes super important because if all you're doing is talking to or at your students, if all your students are doing is listening, even if they are actively listening which you hope they are doing, it is still entirely possible for them to walk out of the room without having learned. It is possible for them to easily tune out mentally, those bubbles, and thinking about what is happening after class or what happened last night, those sorts of things.

Jennifer: So I think that the best way to ensure that students can't escape without learning is to make them do stuff and ensure that they don't have as easy access to the tune out, that they are actively thinking, writing, talking, interacting with each other, with you, with content. The more you can ensure that they are doing those things, the harder it's going to be for them to walk out without learning.

Jennifer: On top of that, I do like to point out that there is a lot of scholarship showing active learning techniques are positively correlated with student learning. In many of the scholarly studies that have been done, the techniques range. So active learning can be defined in different ways for each of these studies. Learning is usually measured with performance on end of term exams or things like that. Sometimes it was standardized concept exams.

Jennifer: But probably the most quoted and most cited paper about this is a meta-analysis by Scott Freeman and a number of authors. They did a meta-analysis of the scholarship on active learning in the STEM field. So this is focusing largely on STEM fields which are not disciplines that traditionally are known for particularly active learning, but where a lot of work is being done to encourage those faculty to do more active learning and to sort of study the impacts of that. So they did a meta-analysis of a bunch of different studies on this. And what I always refer to as the money quote here is, "If these experiments were conducted as randomized controlled trials of medical intervention, they would have been stopped for benefit," meaning it would have deemed unethical to withhold the treatment from the control group. In medical trials if you get to a point where it's so clear that the treatment is beneficial, then you sort of are ethically bound to stop the experiment and just give it to people. So the evidence on the impact of active learning and active teaching approaches on student learning is pretty clear.

Jennifer: And then I also like to point out that ... They didn't spend a lot of time on this in the Freeman paper, but the other sort of result from the scholarly literature is that the impact is larger from students from traditionally underrepresented groups. Having an interactive classroom is particularly good if you're interested in closing achievement gaps. So it is an equity question. And there's lots of reasons behind that, but I think it's important to keep in mind.

Jennifer: And then finally, I always just like to point out that we talk all the time about the impacts on students and for faculty who care about student learning. That's a reason in and of itself. But there is self interest involved. It is more fun to teach in an interactive classroom. It is so much more interesting and fun to be in a room where there is energy and buzz among your students than to stand at the front of the room and be talking and looking out at those sea of ... Even if there's some that are interested, you always look for those people who are nodding along with you and getting that body language feedback, but there's also always people who are looking around and you're like, "Are they with me? Where are they? Are they trying to check their phones?" Every time someone looks down you wonder what they're looking at. So it's just more fun for me as an instructor to be in a room where my students are doing stuff. So I do think that it's worth pointing out that there's some self interest going on.

Jennifer: So then finally I mentioned that we do have to talk about the cost associated with this, because interactive classrooms do not just happen. They take time, they take energy, they take effort, they take thought on the part of the instructor. So what are the reasons why faculty might not want to do this and how can we get over those? So on an index card for each person, just write one challenge or barrier, either that you in particular personally feel or that you just think in general, just one that faculty might face in creating interactive classroom.

Jennifer: Okay, now I'm going to ask you to try and exchange cards with as many different people as you can.

Audience: [mingling conversation]

Jennifer: Okay. Just out of curiosity I'm going to pop around a little bit, and I just want folks to read off what is on the card in front of them.

Speaker 19: Physical or space limitations, like furniture, classroom layout, size, et cetera.

Jennifer: What do you got?

Speaker 20: Time versus content.

Jennifer: Time versus content. Okay.

Speaker 21: It takes a lot of planning and work to pull off correctly.

Speaker 22: Certain content's difficult to convert to activity.

Speaker 23: Students get off track.

Speaker 24: Loss of control as the instructor.

Jennifer: Ah, that's a big one. Okay. I'm going to ask you to brainstorm some solutions to those particular challenges.

Speaker 25: I sometimes think when you have a heavy participation class that students don't perceive the class time as valuable. They don't have notes to account for it. And there'll be students who just don't come because they'll be like, "Well, I already understand everything. I'm getting no value out of talking to my fellow students." Or they just think, "I'll just show up for the tests." They kind of feel like it's more valuable if the teacher's talking. They don't find their peers that valuable. So that was one of my concerns.

Jennifer: Did you come up with some solutions?

Speaker 26: I think that having students work in groups actually brings them to class a little bit more, because they have that sense of a cohort mentality or that I'm in this together with other people. I have a flipped classroom and so they're watching the lecture outside of class. And I feel like they come to class more because they know they're going to work with other people, and also because there's a quiz at the end of class. So there's this sense of like, "Let's do it together. Let's explain it to one another."

Speaker 26: I mean, there's always going to be people who don't understand why we use groups, but I think that we should explain to them what is the purpose behind having you work in groups. Right now one of our group members was just saying in any workplace you're going to have to work in collaboration with other people. When do you ever just have a job where you're working just entirely by yourself on a whole entire project? So exposing them to that life skill of working with other people and telling them that's why you're doing it, could potentially help alleviate that problem.

Speaker 27: For me, I encourage them to come to class because the group work activities is way beyond what I've posted on lecture notes. So it is a flipped classroom and they get the basic with the lectures, but how you apply, the higher critical thinking, the Bloom taxonomy of application, that is way beyond what they can extract on their own. And I tell them, "I don't expect you to get this on your own. So come to class. We'll do problems together, and that's how you find out the answer. If you don't come to class, oh well." And then of course the quiz always help with a few points to encourage them to come as well.

Jennifer: Yeah, one key thing, and I heard it from both of you all, the quiz. So building in some accountability, it can be an incentive to come to class. I use clickers and audience response systems a lot. And they're just worth a couple of points, but we all know students will do really weird things for just a couple of points, right? So simply having that as the accountability mechanism, it makes them come to class. And hopefully once they're there you're having them do things. It might take a while for them to see the value in that.

Speaker 28: We talked a lot about certain disciplines lend itself to the classroom being flipped, where other disciplines it's more of a stretch and more work. And we talked about that a lot.

Jennifer: That is absolutely true that there are some ... not even just some disciplines, but some courses, right, within a discipline. Personally, I find it harder to think about flipping my introductory principles course, for example, than upper division classes. But I think it's simply a matter of thinking about different types of activities. The types of activities that you would have students do when your course is primarily focused on introductory level material, those activities are going to look quite different, presumably, than a more advanced class where you're having them do more stuff with that material. Or again even just a later point in the semester when they've already gotten the baseline definitions down, now you really are going to get into the meatier application stuff.

Jennifer: So the biggest concern that I hear from faculty who are just getting started, or who are not already doing a lot of active learning in their classrooms, is the time concern. And there's two aspects to this. There's the time it takes us to prep, to figure out what to do, to decide how you're going to do it, all of the stuff that you have to do ahead of time. So if you aren't sure about this, the biggest suggestion I can give folks is start small. You don't have to go from primarily lecturing 90% of your class to a flipped classroom where you're not talking at all. There's definitely a ton of spectrum in between. So like I said earlier, simply stopping once in a while, pausing to give students time to process, that doesn't take any prep work on the part of the instructor.

Jennifer: It's important to remember teaching is an iterative process. You don't have to do everything this semester, this class. You have many, many classes and many semesters in the future to try different things. And in fact, doing things one step at a time can be really useful for making sure that you're doing it most effectively.

Jennifer: On the question about making time in class, this is the hard one for a lot of faculty to think about because it does take more time. It is more time consuming to have an interactive classroom than to simply lecture at students. The trade off is when you lecture you can cover a lot more material, you can get through a lot more content, but are your students actually learning it? It's that question of covering a lot, got a lot of breadth, and students' understanding is only about that deep. Or do you pare down what you're covering so that you can ensure what your students are learning is truly being learned?

Jennifer: From this perspective the best suggestion and advice I can give to faculty is to think carefully about your course design. Course design is not something that faculty typically get trained in. Course design refers to how are all the different pieces of your course put together, from your learning goals to the activities you plan for your students to your assessments that you're having your students do. So how can you make sure that all of those pieces go together the way that they're supposed to, so that you are getting the evidence you need to know that students are actually learning what you want them to learn, and that the activities you're planning for students are actually helping them develop the skills and knowledge that you want them to develop?

Jennifer: That's what course design is in general. Most of us do not purposefully design our courses. I'm guessing many of us, when we first teach a class, the first thing we do is get the syllabus of the last person who taught the class. We start from there. Or we figure out what textbook is most commonly used for this class and we look at the table of contents. That's how many faculty approach course design.

Jennifer: I encourage my faculty to think about something called backward course design, which means that you start with where you want students to end up. You start with your learning outcomes. I'm not sure about the culture on this campus, but on my campus talking about student learning outcomes leads to lots of eye rolls because on my campus for many years it was this thing that you just had to do for assessment. It was something you had to put on your syllabus. And what I have been working for five years to do on my campus is just shift faculty thinking to recognize that your student learning outcomes are the most important piece of your course design, because if you are not clear about what it is you really want students to learn and know when they walk out of your course, how can you decide on anything else about the class? So as they say, if you don't know where you're going, you're probably not going to get there.

Jennifer: So identifying your student learning outcomes is the first step, and then you can back up and say, "What does it look like for my students to actually achieve those outcomes?" If my learning outcome is, "Students will be able to use the supply and demand model to analyze markets," how will I know that they can do that? For a lot of us that's giving an exam, a quiz, maybe write a paper, things like that. That's fine, but what exactly does that look like? And the reason that question is important is because if you know what evidence you're looking for, then you can back up and say, "Okay, what are the component pieces of that? What are the concepts, the definitions, the ideas, the skills that my students need?"

Jennifer: So course design refers to thinking through these steps in an intentional way. In my mind that's the most important thing for thinking about how you can still cover all the stuff you need to cover, and make time for the things you want to do in class.

Speaker 29: I thought it over carefully and I realize that I could not escape here today without having learned something. So I want to thank you for that.

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