Transcript - Transform Learning: Leveraging Learning Analytics and Peer Collaboration

5/8/2025

NORMA HOLLEBEKE: Welcome to the Every Learner Everywhere Transform Learning webinar series. It's a pleasure to have you with us today. My name is Norma Hollenbeke, and I'm the associate director of innovation and programs with Every Learner Everywhere. I want to give you a few quick housekeeping notes. We are recording this session for those who cannot join us today.

Throughout the presentation, we do welcome your questions and your comments in the chat, and there will also be an opportunity at the end of the presentation for you to come off mute and ask questions and engage with the panelists.

Before I introduce our panel moderator, I'd like to take out just a few minutes to tell you a little bit about Every Learner Everywhere and the mission of our network. Every Learner Everywhere is a collaboration of higher education organizations with the expertise in evaluating, implementing, scaling, and measuring the efficacy of education technologies, curriculum and course design strategies, teaching practices, and support services that personalize instruction for students in blended and online learning environments.

Every Learner everywhere is sponsored by the Gates Foundation. And here at Every Learner, we work collaboratively to advance access to higher education centers that centers on the transformation of post-secondary teaching and learning. We build capacity in colleges and universities to improve student outcomes with digital learning. Our mission is to partner with institutions to harness digital learning technology, driving innovation in higher education to improve outcomes for every learner.

And now, to our moderator. Dr. Christine Latulippe is a visiting associate professor at Linfield University. Throughout her faculty experiences at a public Hispanic-serving institution and at a private liberal arts college, Christine has promoted equity and worked to advance inclusive excellence, facilitating learning, which applies to and enriches the lives of pre-service and in-service teachers alike.

Many students have never known how strong their mathematical skills are because they were never given permission to share their own strategies and come to their own

understanding of mathematical concepts. Christine strives to change that experience, allowing for student success and opening doors to populations who may not have yet recognized themselves as part of the higher education communities. Now I'm going to turn it over to Christine.

CHRISTINE LATULIPPE: Thank you, Norma. Welcome all to our second webinar hosted by Transform Learning. This project is focused on digitally enabled teaching and learning as a mechanism for improving mathematics learning across post-secondary institutions. My role on the project is community manager of the Transform Learning community.

The goal of the project, in addition to being a hub for instructional examples, is to engage with the academic community. The recently developed Transform Learning website offers resources and best practices across pedagogy, curriculum and technology, as well as a growing body of evidence to support the use of technology in the classroom to support learning and improving equity.

Digitally enabled, evidence-based teaching practices refer to instructional approaches that integrate technology, tools, and platforms to enhance and support teaching methods grounded in empirical research and data-driven insights. These practices leverage technology in order to collect, analyze, and apply evidence to inform and improve the effectiveness of teaching strategies, ultimately leading to more successful learning outcomes for our students.

Our eight DE EBTs are active learning, decreasing professor lecture time, and increasing student participation in their learning. Assessing and activating prior knowledge. Determining what our students already know and integrating their experiences into learning. Data-informed instruction. Adjusting instruction based on real time student data. Formative assessment and practice. Deploying a frequent, low stakes way to monitor student learning.

Fostering a sense of belonging through an inclusive learning environment. Creating a safer and more welcoming spaces for learning. Instructional transparency, where we share the why and how behind our instructional decisions. Metacognition and self-regulated learning, where we help students learn how to learn. And peer collaboration where we create opportunities for students to support each other's learning.

Ways to implement our DE EBTs. Thinking about starting anywhere. So these eight practices are not sequential. You can really start anywhere. We also want to be taking small steps. So these eight practices do not need to be implemented in full in order to make positive changes. And then considering that different practices drive different outcomes. So as we implement different practices, we can reach different and specific teaching and learning goals.

And to this end, we'll be joined today by two experienced educators who will lead our discussion and share insights and strategies for leveraging learning analytics and peer collaboration.

Jennifer Reed is an experienced mathematics educator and curriculum specialist with over 20 years teaching at secondary and higher education levels. Currently, she is a full time lecturer and graduate student coordinator in mathematics and statistics at UNC Charlotte and is pursuing a doctorate in curriculum and instruction from Gardner-Webb University, researching collaboration and community in virtual environments.

Jennifer has taught diverse mathematics courses from algebra to calculus at institutions, including Gaston College and Asheville-Buncombe Technical Community College. She also contributes to faculty development through research and presentations on learning analytics, online engagement strategies, and instructional technology.

Heidi Echols has 25 years of experience in higher education as an educator, instructional designer, and adaptive learning specialist. She is committed to fostering collaboration, innovation, and excellence in teaching and learning. Heidi previously served as a full professor, director of a Center for Teaching Excellence, department chair, and QEP co-chair, gaining deep insights into academic challenges and opportunities.

Currently at UNC Charlotte, Heidi partners with faculty to create innovative, research-based learning experiences that enhance student engagement and success. She champions a collaborative teaching environment, empowering faculty to explore new instructional strategies and effectively meet students' evolving needs. You can read their full bios on our workshops page. But now, please help me in welcoming Jennifer and Heidi. Thank you.

JENNIFER REED: Thank you so much for that introduction. So in this session, we're going to explore how to create an engaging and collaborative classroom environment

through active learning strategies. So we'll start with an interactive activity for you all to define what our classrooms look like today. Then we're going to review some key evidence supporting active learning. And from there, we'll dive into building meaningful collaboration, using learning analytics, and boosting student success, and share some practical strategies for implementing these ideas in your own courses. Then we'll wrap up with a few reflections and some Q&A to connect everything that we've covered.

All right. So before we dive into today's discussion, let's take a moment to think about your classroom environment. When you picture a typical day, how would you describe what your classroom looks and feels like? So I want to give you four options. We're going to have a poll launched here. And I would like you to choose the one out of these choices that you feel best matches your current classroom setup, OK?

All right. So your choice A, the instructor lectures at the front while students sit in rows, taking notes. There's no group work or discussion, just focused listening. Your choice B, the room is buzzing. Students are in groups, using whiteboards or doing hands on tasks. The instructor moves around and guides learning.

Your C choice. After a brief lecture, students pair up to solve problems. Some asked for help as the instructor circulates, offering support. Choice D. Students sit in a circle. The teacher asks some open-ended questions, prompting whole class dialogue. Ideas build, and students refer to readings or notes. So I'll give you a minute, and you guys can answer what you feel out of these four best fits your classroom.

About 30 more seconds. All right, let's close that poll, and let's look at our results. All right. We have-- oh, very good. So we have about 21% who are in choice A. 24% in choice B. About 45% there in choice C. And 11% in the last one with our choice D. Awesome. Well, I'm glad that we have some of every single type. That's wonderful. Thank you for sharing that. So now, let's talk about what those types of classrooms actually were representing for us. So if we go to our next slide there, looking at our choice A, this is our traditional lecture based classroom, OK? And our choice B, this one was more of an active learning classroom on most days.

Our choice C was a blended format with lecture and some guided practice. And our choice D was a discussion-driven classroom with occasional group work. All of the tools that we discussed today will be able to be used in any of these classrooms. So you might want-- I mean, it'll enable you to shift your classroom from one style to

another if you choose to or at least make it even more engaging for your students in the style that fits you best.

And one of the things I wanted to bring up for all of you is we saw that this poll was used in Zoom for a classroom setting. Sometimes, we don't have a poll readily available for Zoom, but we could launch a poll to gain access and information from our students easily by using either a Google Form. Or we could also, instead of using Google Form, we could also use Poll Everywhere.

For some institutions, Poll Everywhere is readily available. For others, if it's not, and you don't have that access to that program, then you could easily set it up in a Google Poll with a Google Form and show results that look very similar to this one. So this would be an example of what you could link in your presentation in a Google Form, and you would click the upper right hand corner once students have responded, and it will refresh your graph and show exactly what the student responses were.

All right. So let's go on to our next slide and take a minute to look at why active learning is so important. Unlike passive learning, it engages students directly, boosting our retention, critical thinking, and collaboration. And so here's why it's going to make a real difference. So in gateway math courses, they often have high failure rates. They lack clear relevance to students' future careers and remain a major barrier to degree completion and equitable outcomes for millions of students.

One compelling piece of evidence that came from a large meta analysis, published in proceedings of the National Academy of Sciences, reviewed 225 studies comparing traditional lectures with active learning in STEM courses. And these results showed that failure rates dropped from 33.8% in lecture-based settings to just 21.8% with active learning incorporated, and that's significant improvement. It's a very powerful argument for rethinking how we teach on the everyday.

Now, our research has also consistently confirmed that active learning works. Not just one subject area or educational level but across many different contexts. And so when we look specifically at STEM fields, the evidence is powerful. A major study by Freeman and colleagues in 2014 found that active learning strategies can reduce failure rates by as much as 33% compared to traditional lecture-based teaching. And that's major improvement. And it shows just how powerful these strategies can be when they're implemented thoughtfully.

Active learning doesn't just help students pass their courses either.
It also helps them build critical thinking skills become more engaged in their learning.
And research by Doolittle and colleagues in 2023 showed that critical thinking skills improved by an average of 42%, and student engagement rose over 50% when active learning strategies were used.
And what's even more exciting is that when digital tools are thoughtfully integrated into the classroom, these benefits become even stronger. So now, I'd like to share with you one of the ways that I use active learning specifically in my classroom, and this is through project-based active learning.
One of the things that I usually assign my statistics students is they have a project that they have to work with other students. And so in order to keep accountability and making sure that all students are participating, I use Google Docs to facilitate that active learning. And I provide students with a link to the document. Students are put into groups.
And on the document, each student is represented by a color coded piece for their name. So if they were to be number one, they might be blue. So throughout the entire document, they would be typing their answers to the questions in blue. Someone else might have written their name or typed their name in the slot number five, which was red. They would then have all of their typed pieces that they're contributing in red for the document.
Makes it very easy to quickly look over the document, first of all, to see that all students contributed. Second, it allows me to keep them held accountable to each other in the group to ensure that they're actually doing it. And I know there's usually one question. I'll go ahead and address it now. Some say, well, how do one person is not just changing people's colors on the document?
Well, that's the great thing about Google Docs, is because if you go into the history, you can actually see when students contribute. So that piece, I tell them up front. I'll know If just one person typed it because it'll be in the history piece of it. So that also is another great way for holding them accountable.
Moving to the next one. My students have also used Google Sheets or Excel to do collaborative work on calculations. Students were given a template to work with, and it was kind of all set up, as you see in this little picture here with the areas for them to answer.

And so this was shared with them through their LMS. They were then given the opportunity to work together. And in this one, it lacked the color coding piece of it with Google Docs that Google Docs had. However, you can still look at the history of the document as well if it was through Google Sheets. If it was used with collaborations in Excel, then you can also pull up and see how contributions were made as well.

But for this one, it was very easy to then have the calculator pieces of it since Excel would support the mathematical pieces by doing the calculating for them. That was a nice one. And the last part for my projects that I do has to do with having poster projects basically.

All that they would have done within this project, where they talk about, answer questions, do a proposal. They then do some calculations to figure out the mathematical pieces of it and how it's related to their questions that they're trying to answer. They then put all of their content into a poster.

Many of them like to use Canva because it allows for that collaborative piece, and they can build their poster and collaborate through Canva together and use these visual representations to show exactly what they've connected mathematically to what they are trying to answer as, and most times, it's relating it to a global goal that they're trying to find some type of solution for.

And I'd like to let you look now at what the classroom kind of looks like when they're in active learning. It's just a few seconds. But if you'll hit play for me if it'll play. Or did it just come through as a picture? I hope it plays.

There we go. Now, there's no sound on this one because I wasn't sure about how our sound was. But you saw everybody was up, walking around. It was just a few seconds. But that particular piece, it's energizing. It's buzzing. There is excitement. And they are getting connected with one another. So I want to let you know how that particular piece peace went.

So this is what the active learning looks like in practice. Students have all of these pieces where they're energized, engaged, and they're collaborating. And they came up with a question to gather data about how they could run their hypothesis test. They discussed with their group their questions to make sure that they were meeting all the qualifications of it being quantitative data. Then they were given 10 minutes in the classroom to collect the data.

They then analyzed their data together in their groups, and each member put their data in a Google Sheet and then sent it to another group member to then analyze. So they were able to do their analysis themselves, and they were then able to share and let someone else check their analysis and ensure that they were doing their calculations. That was a really fun activity to be able to do. But those digital tools allowed me to do it very easily in the classroom, in a very timely manner as well.

All right. And then our next example of active learning was something I call green sheet problems. And they're green sheets because it all started out because I gave them the problem literally on a green piece of paper. But I used ChatGPT to generate some application problems for a topic that I needed.

Students were then given a choice between three of these different problems that I generated, and they could choose which one they wanted to complete. They then worked through the problems, and they submitted it for a grade. This could easily be done with Google Docs or Google Slides and graphing if they had graphing with it.

This particular one was dealing with rational inequality. So there was a problem given. And these three students, as you can see them over there on the side, they just-- and it didn't matter that they didn't have tables with chairs around it. They went together. They talked with each other about the mathematics. And they then had to write their problems, show their calculations, and then write out their explanation of why their answer was what it was.

And in doing this, it was a very easy way at the end of class for me to look at their sheet. And I was rotating as they were working through these problems. And I could then look at this sheet and say, OK, this works. You got something right here. Let's look at it.

So when they would bring it up, they came as a group. I could literally say, all right, this looks great and know that they were doing well. Or if there was one place that I had to clarify something, I could clarify it right then and there before they ever left class. And so then they knew that there was something else that they might need more clarification on at a later date or may need to come to office hours for some extra help.

And then we have partner chats, where one of my last ones, we went from big projects down to a little bit smaller ones. Sometimes, the best place to start is just having students turn to a neighbor and have a partner chat. I would put up a problem underneath the document camera that says, now you try. I set a timer for two minutes. Rotate throughout the room, answer any questions if somebody gets stuck on

something. But I told them they can't ask me a question until they talk to a neighbor and ask them the question.

So as they're going through this, they're working through step by step. They're able to ask somebody else near them, is this what you got? Did I do this the right way? And sometimes, you have students that don't really want to talk to each other. However, once they saw that I said nope. You have to. You cannot ask me a question until you at least ask someone else.

When they did that, it opened up a whole new world for some of those students who were a little more introverted, but they knew that there was somebody sitting right next to them that they could ask. They didn't have to go halfway across the room. They didn't have to do any of that piece of it, but that it was very easy to just say, hey, I think this is how I'm supposed to do this problem. Can you look over it and see if I did this right? And then have that conversation.

And I've taught this in person and online for classes. And incorporating these methods into both formats can be done. I will tell you that sometimes, it's not necessarily turning to a partner. But it may be opening a discussion room, where somebody can post a question, and other students can then post responses, where they give them an opportunity to talk to one another.

And also to show, depending on if you have classes that are online or if they are in person. One of the things, I don't know if you noticed or not, but as I showed you pictures of my different setups of students in their classrooms, hopefully you saw that the active learning styles were in all different types of rooms.

The first room that you saw with the video, that one had tables and chairs in little small groups already. The other one where I had the three students, where they were working together, those had straight row tables with built in chairs. This one has like a semicircle type of auditorium format to where it's really hard to get around to students, but it still can be done.

And so I just wanted to make sure that you all knew that this is something that it doesn't matter your layout. It doesn't matter the number. If you start small, you can actually get this incorporated, even in tiny steps, so that your students can really take off and go the next level. Now I'm going to turn this over to Heidi to go into our next slide.

HEIDI ECHOLS: Thank you so much, Jennifer. And thank you, everybody, for being here. I know it's the end of the semester. And this is a wonderful way to maybe reflect on your teaching. And hopefully, we're going to give you some ideas to think about.

So we at UNC Charlotte are working on analytics and looking at what our teaching pedagogy and what impact we're making in the classroom. And one of the ways we're doing that is with the DFW, which is a drop fail withdrawal rate. So you can see on the image, we're depicting how the drop fail withdrawal rate has decreased in our Statistics 1222 class.

And that class is something that Jennifer teaches. Her and other colleagues teach in that course. And they are implementing active learning. They're implementing adaptive learning. And they're also implementing course coordination. So the course is tightly coordinated, so that every student gets a similar experience.

So in 2022 and to 2023 academic year, we had an enrollment of over 2000 with a DFW of 20.9. The following academic year, '23 to '24, similar enrollment over 2,000. And we had a decrease in that drop fail withdrawal to 17.6. So we know that incorporating active learning has impacted our student success, and we are pleased to see that DFW rate decrease this academic year as well.

So I want to talk to you about the importance of peer collaboration. As you saw in Jennifer's images, the students are working together. And that is really a big piece, can be a big piece of active learning. So let's look at peer collaboration in action. On our next slide, we're going to think about how group work and peer to peer interaction really does improve several things, not just student outcomes in terms of understanding the material, in this case, maybe math, statistics, or another STEM field. But it really fosters essential skills like communication, empathy, and a sense of responsibility.

The students gain accountability and a deeper comprehension. We've always known that if a student has to explain something to someone else, they're going to know it in a different way. So with generative AI and all of the conversations we're all having about that, the importance of these soft skills has never been higher. The peer collaboration can really change your student's experience in your course and hopefully improve their success.

So as you think about peer collaboration and things we're going to talk about, you want to make sure that you have group goals, that you're really helping them work collectively. And using digital tools is a very clear way to help them do that. Individual accountability is another component. And again, using digital tools can make sure that everything is transparent. The students can see the work, and you can see the work as well. So digital tools that you might use, certainly Jennifer has shown you examples of using Google Docs. So any type of shared document, whether you're looking at Microsoft or Google, that is really important.

And so you can see, this is a table that is illustrating what are some of those digital tools and why. Why use them, what they do. And so online student communities, we have also found to be very powerful. Those can be for courses that are fully online, blended, face to face. And tools that are named InScribe, Piazza, and Yellowdig are some examples.

So if you haven't checked those out, maybe looking at those because they can really help foster belonging and connection between your students. They enable peer support. So giving the opportunity for students to help one another. It's also great at 3:00 AM, when a student has a question, they're not necessarily emailing you. They're going to their student peer community. And that gives them that 24/7 engagement. And we also know that if it is sponsored by the institution, then we've got equity and access for everyone, and that's something that we really value.

Brainstorming. One of the things that we want to do is give them an opportunity to really ideate in real time and see what they're doing. So using something like Zoom Whiteboard or Mural. There are certainly others. These are just a few examples that we offer to you today. But those can capture and prioritize student ideas.

It also enables remote participation. It also enables in-person participation. So all types of participation. You can certainly use Whiteboard in your face to face classroom. And it helps them integrate multimedia by providing a space for them to give links or to actually embed different materials that they want to have captured as they brainstorm about a project or an active learning assignment.

I've already mentioned the shared documents, and Jennifer certainly did an excellent job talking about accountability and how it supports transparency and access. And Jennifer also mentioned creative tools. So Canva, you saw an illustration of how Canva can be

really powerful because it offers these professional, well-designed templates, so that students do not have to feel like they're graphic designers. They can find a way to illustrate the work that they're doing in active learning and project-based learning, and it allows multimedia integration. So Canva is one, and Gamma is another if you haven't utilized that. Both of those can use generative AI to assist you. Gamma is for presentations, so it can help you generate slide decks. The deck that you're looking at, Jennifer and I used Gamma to brainstorm and start this process.

So to emphasize the skills that are really around the content, learning that students are doing in whatever discipline you're teaching, peer collaboration really does emphasize essential workplace skills. So I've already mentioned communication. So they develop articulation and listening and structured exchanges. When students collaborate with their peers, they practice these skills while deepening their academic understanding. And research shows that explaining those concepts really does solidify learning, and it requires students to reorganize information and identify gaps they might have in their own learning. Peer collaboration holds our students accountable, helping foster responsibility. And that deeper comprehension we know is there.

And also to point out, bottom left, inclusive perspectives. So hearing diverse viewpoints, experiencing diverse human beings enriches their critical analysis and their problem solving skills as they work together in these peer groups.

So let's talk about how do you measure this impact? Because we want active learning to be part of the student experience. But how do you know that it might be working for your students and what changes you might want to make?

So as we go to measuring this impact, I wanted to just mention a few things about why would you even collect and analyze classroom data? It really does assess the effectiveness of your teaching strategies. And Jennifer and I want to honor that this takes some vulnerability.

This does mean that you are digging in and looking at your teaching. But we all have a growth mindset. We want to have a growth mindset about our teaching and with our students. And we all know that we're lifelong learner learners. So continuing to learn how to meet our students, where they are and what they need is a big piece of that. Identifying what works for student success, I don't know if you've ever had this experience, but I certainly have. One section of my course was performing way

differently than another section of the exact same course. So you have to assess, OK, what is different? I need to know. I should figure that out. It's my responsibility as their teacher, facilitator, faculty instructor.

Demonstrate improvement over time, that's really powerful as a faculty or instructor, that you are demonstrating where you started and how you've improved in your teaching. You can also use data to align with institutional goals and standards. You can promote that continuous improvement and growth mindset, and it really enhances your own faculty reflection and development.

So certainly, as you think about if you have to do some review at the end of the year, having that information can be really critical in helping you understand the impact of your teaching. Also really important to see and recognize, wow, I tried this, and it did not work right. So being vulnerable and willing to try something and understand as long as it's not negatively impacting your students, we should be demonstrating that to them that we're trying new things. We're exploring, and we're being curious about how we can really meet them where they are and what their needs are in the classroom.

Before we move on, I do want to also say, you might think about the resources that you have on your campus and leveraging those resources. At our institution, we have teaching assistants. So utilizing those teaching assistants can really help you as you think through applying some of these active learning strategies.

As Jennifer said, use whatever classroom you have. It does not have to be a classroom that you feel is set up for active learning. You can make any space active learning. And creating the groups, you can use generative AI to help you create groups, depending on your LMS. Your LMS can help you create student groups. And then another resource is to survey your students, to really take the time to hear from them and listen to them. And we're going to talk a little bit more about that on our next slide.

That student sentiment piece, again, is really important. And so as you think about what is the data you can collect? We certainly can collect a lot of data, but we want to focus on the right side of this slide, those responsive actions. And that's where leveraging your resources can benefit you.

So if we think about student sentiment, we can do, if your institution does early alerts. Type of system or software that's set up to let you know that a student is having some difficulties. You can gain data from that. Polling your students. As Jennifer mentioned,

you can use Poll Everywhere. You can use Google Forms. You can use Microsoft Forms. But hearing from them is really important.

Student surveys. Another way to hear from them. You could do anonymous surveys, where you just ask them one simple question. What can I do to improve your learning experience? Just ask them anonymous on your LMS as a quiz. And then you want to respond to those results. And then a discussion board, as Jennifer mentioned as well.

So how do you analyze all of that data if you get it? Generative AI is definitely a resource that you could use for that, along with the human-centered generative AI. So you looking at the data but letting generative AI assist you in analyzing the trends. And you certainly could use your TAs to help you.

So once you have this data, bring it back to your students. Email the students who need support. Ask your teaching assistants to connect with all of the students. There's great research on near to peer connection. So normally, your teaching assistants, not always, but normally, your teaching assistants are a little bit closer in age to your students. So that again, there's research that shows that near to peer connection can be really strong.

Create inclusive check-ins for your students. So come to them and say, I heard you. I heard that you're feeling stressed about several things. Let's have some check-ins. And again, the whole point of our discussion is engaging pedagogy. Pedagogy that brings them to your classroom, whether it's online or face to face.

You can also look at your LMS for some learning analytics for student success. So on the bottom row in the middle under data collection. Maybe you have the capacity or capability to see assignment completion and time spent, depending on your LMS. That can be very telling. If you know that a student should be spending about two hours on something and they're spending eight hours, again, reaching out to that student to say, look, go, come in and see me. Let's talk about this lesson.

Of course, your grade book is a space to gather data. Quiz analytics can be a very important space to gather data, so that you can see how students are performing on potentially individual questions, which is that next bullet point assessment question analysis. So no matter how you give your assessment, whether it's across multiple sections or just in your section, see where they're struggling and see where they're doing very well.

Recognize where they're doing very well and where they're struggling. And then look at, do you want to change your lesson to meet them in the moments that they're having

pain points where they're struggling? Video viewing analysis. If you offer videos in your class, whether it's face to face, hybrid, or online, be honest with yourself about who's watching it and how long they're watching it.

So we know best practice is to chunk that video into about 10 minute increments or less. As we see students coming through more and more, we're hearing them say they need a shorter-- they have a shorter attention span, the Generation Z student. That doesn't mean we don't expect the same things of them, but we meet them where they are and the way that they learn. And again, student surveys.

So evaluate your lessons. Bring it back to the students. Let them know, hey, these were the top three areas of the assessment that everybody struggled on. And watch them talk to each other and try to understand what they can do to understand it better.

Scaffold your assignments. Really align your lessons with the assessment and connect students. Maybe creating those student study groups. Helping them on maybe that communication board that you give them or a way for them to connect with each other to maybe find study groups together.

So measuring the impact. Think about baseline data. If you're thinking, I'm going to try Jennifer's partner tracks. Could you gather data on that? If you implement that, what is the baseline data for you? Then you want to track that engagement. So monitor what is happening with that pedagogical-- in that intervention that you're using.

Gather the student feedback. Maybe you say to the students, we're going to try this, and I want to hear from you. It's new for me. It's potentially new for you. But let's do it, and let's see if it works. And then of course, iterate and improve. That's always something that we're looking at the data and making those adjustments to enhance effectiveness.

And so demonstrating the impact of your teaching and innovations and continuously improving your approach can really be a powerful experience for you and for your students. So we, of course, always want our students to succeed, but we also want to enjoy the journey too, right? We got into teaching because of a passion for that. And so having that information and being able to improve your teaching can feel really good and be really powerful.

So we've given you a lot of ideas, a lot of things to consider. And we just want to say start small. If all of this is new or some of this is new, begin small. Maybe it's a single 15-minute active learning segment in your existing lesson. So maybe you're thinking if you're teaching a summer course, or you're not, and you're thinking next fall. What can

you do to begin small? And utilize that baseline and measuring the effectiveness of it. So iterate around that too. Like how do I know if this is working? And scaffolding. So create structured workspaces that guide collaboration. utilizing those digital tools can be really important for your students to have that successful experience with active learning and peer collaboration. And integrate reflection. Again, asking yourself and your students to think about their process, the experience, and asking them to think about working with a group and what could they do differently next time, what went well, and what might they change as well, and their participation and reflection.

And then expand gradually. So incrementally increase active learning portions as you and your students become comfortable. So that potentially every class is active learning, and you are really just a facilitator and guiding that learning experience for them and with them. And you'll see that valuable experience that the students are having.

JENNIFER REED: One of the biggest things too, like Heidi mentioned, is that starting small is the best place where you can begin. Just try something. Don't be afraid to try something. Will there be some crash and burn and failure times? Of course, there will be. All of us experience that.

But the key is you can't be afraid of, oh, well. It didn't go great, so I'm never going to do it again. You have to have the courage to take that first step and to try something. Because your students will be the ones that benefit from just you trying and taking that first step.

The more times that they can have to interact with one another and talk about the content of whatever it is you're teaching, the greater they're going to have as an experience in your classroom and the greater it's going to be for them to remember that content later on down the road.

HEIDI ECHOLS: Yeah. Thank you, Jennifer. And you can leverage AI. So if we move to the next slide, you'll see some-- these are more high level ideas about how you might leverage generative AI. So if you're thinking I'm going to give individual case studies or multiple problems to different groups, ask generative AI to help you create those problems, to create relevant, real world problems or case studies with diverse perspectives.

You can even use generative AI to tailor the difficulty level, depending on the students and student group. And then you can generate industry-specific challenges. So maybe you have a partnership in your department with a certain industry, a certain corporation or company. You can generate those industry-specific challenges and problems for your students.

You can also ask your students to use generative AI as a study partner. So use AI to create practice assessments for themselves, study guides and learning conversations for themselves, particularly with content that they are having a challenge grasping.

And so that is offering them some personalized learning support and really helps to reinforce the learning experience. We want to recognize that students might be using generative AI in unethical or irresponsible ways, but it is our responsibility to teach them how to use it ethically and responsibly and to talk about it in the classroom because we're all learning what generative AI can do.

And they know that asking it to solve the problems for homework is not using it ethically and responsibly. But asking generative AI to give them practice questions so they can understand for their assessment coming up is a great way to use it as a study partner.

And then lastly, leveraging AI. And Fabiana, I see your question. I'm going to go ahead and answer it if that's OK. I do mean any generative AI. ChatGPT seems to be the largest example that everyone knows. But certainly, there are other generative AI out there that people might be using Copilot, and there are so many different ones.

I'm saying anything that you can go into and ask a question, and the AI generates a prompt or generates a response to your prompt. I hope that clarifies for you. And so process-focused assessment. And yeah. You're seeing the Chat Notebook LLM is a good for study guides. Yeah. There's a lot of different generative AI that we can use and our students can use. And there's so much that we don't want to feel overwhelmed. But certainly talking about generative AI with them and being transparent is important.

And then focus on how students approach your problems in your class to promote critical thinking over just memorization. So generative AI can help you create rubrics for collaboration or for any of your assignments. And you can ask it specifically to help you create something that is assessing critical thinking skills. That would be an assessment for them that you could use generative AI to assist you in the process in creating.

So we want you to play, to experiment, to be curious. Jennifer is always so curious. I'm in the Center for Teaching and Learning at UNC Charlotte. And she always has ideas. And she needs a thought partner to talk about it, and we are together on that.

And so just talking things out with your colleagues, if you have a Center for Teaching and Learning, talk then with them. Another colleague at another institution. Don't be afraid to be curious, to experiment, to try. And like Jennifer said, do a tiny thing. Start small and then see how it works and what it feels like.

And building that supportive community of practice is really key. So the second level of taking your next step is really connecting. So you've got the idea. You want to experiment. Connect with others, to iterate, discuss, brainstorm. And then the last piece is to transform, right? Really transform and reimagine your teaching approach to meet the students that you teach.

And remember that the most successful educational innovations often emerge through an iterative process of thoughtful implementation and reflection. So we're excited to see what you do next. We're also excited to answer any questions that you have.

CHRISTINE LATULIPPE: Thank you both so much. If anyone would like to enter questions in the chat or in the Q&A area, we can do a few questions before we are closed on time here today. While people are thinking perhaps, I would like to start us off with a question. I'm sort of wondering about the quiet class, those reluctant students. And I know Jennifer mentioned the partner talk being a safer starting point. But how else have you approached that quiet class that would just rather wait than talk to a peer?

JENNIFER REED: One of the ways that I did was I literally gave out numbers 1 through 4 to every student as they came through the door. They sat down in their normal seats, whatever. And then I said, OK, group 1, if you had a 1, go over here. And they had to go, and they had to get up and they had to move.

And then I gave them a task of just, OK, and it was a simple question. It was one that I knew that they could all do. And I said, I need you guys to see how long it takes you to work together and solve this particular math problem. I said, let's see who can get it first. Let's check it. And they went.

And then I said, oh, but here's the kicker. I'm going to get to pick the person to explain it to me. And they were like, uh-oh. And I said yes. So that means every single person has

to make sure that all the others understand and can tell exactly what that process is before I will then say, OK, you're good.

And there was one person, and this was one of the ones. She was real quiet, and she was just like, I really don't know how to do this process. And one of the other says, it's OK, I'll show you. And they worked through it together. She felt more confident because a peer was willing to tell her, instead of her having to come to the professor to professors say, oh, how do I do this? And she felt more confident.

And I was over when I was watching. And then I said, so I heard you. Do you think you could tell me how to do that problem now? And she said, I think so. And I said, good. You can get any two teammates to help you explain it as soon as we go through it. And that's exactly what happened. She felt more confident. Her teammates only had to help her like one or two times, and they were encouraging her.

She felt so happy and excited at the end of that class. And I think we have a whole lot who say they're introverts but may not truly be introverts if they have the opportunity to explain things on a broader scale, I guess.

CHRISTINE LATULIPPE: Thank you so much. And I do see a question in the chat. There are many great classroom techniques that are very difficult to document and measure. An example of shared problem solving. Should the ability to document and measure ever affect the choice of technique? Is it better to do something invisible and immeasurable that you know works, or should you focus on what can be measured and documented?

JENNIFER REED: I think that's a very good question. Personally, I ask the students to write down how they're doing it and show me a process. And if they don't feel like they can write it in sentences, I'll say, tell me about it. If they can verbally explain what they did, and then I'll ask them why, then I would count that as a win.

Because some may not be as great at writing, but others may be very good at verbally communicating. Because there are the different skills that students come with. That's why having them in a group where someone else might be better at being able to put something down in steps, let's say, of 1, 2, 3, 4, 5 of here's how I would solve this particular problem.

Whereas someone else might not be able to write steps, but they could verbally talk it through and do that particular one. So I would say it really depends on what you are

wanting to grade. But always have them justify why they're doing what they're doing, so that they understand their processes. I hope that answers that question.

HEIDI ECHOLS: It does, Jennifer. I want to add too that you can always simply ask the students, what was your experience with this exercise? And just hearing from them can be a way that you might be able to measure the success of it and gauge their experience would be really important.

CHRISTINE LATULIPPE: Thank you for those responses. It looks like we do have a hand up. Angela Torres, would you like to turn on your mic?

AUDIENCE: I just want to compliment you guys for saying-- as a current student myself actually, as an undergraduate taking these math courses, just hearing ways how you guys explore and how to make those connections with your students, it really works. As somebody who's like in the Gen Z generation, I say it definitely works.

I experienced that many math courses are just mainly just like lectures, silence, and then you go on. You barely have that connection anymore, where students can help you. And I would say like I would really recommend any professors, period, try to collaborate, get those students talking to each other. Because trust me, it does help a lot.

And especially in math courses, something that really helped me was like package, packets. So you go within the class to fill out the package, but then you give out homework and you come back. I think that's also one way you can measure it, like explain to the student, like for example, the homework package, and you only see the answers, but you don't see them actually working it through. Also as well with that verbal explanation, how did they get the answers? I think that's a great way that I saw to measure.

JENNIFER REED: Wonderful. Thank you so much for sharing.

CHRISTINE LATULIPPE: Thank you. I'm excited to have a student on. That's great.

HEIDI ECHOLS: I am too. And thank you for being willing to, in front of probably not a lot of students on this call, share your experience and your ideas. We love hearing from the students.

JENNIFER REED: Yes.

AUDIENCE: I know I saw it on LinkedIn, and I was like, oh, my god. A great-- because I want to learn more about learning analytics myself. And I also come here as a representative for Florida Southwestern State College with the FSW Online department.

So this was also very interesting for me. But also like I wanted to give out my feedback as a current student. And everything that I'm hearing now, it's just awesome.

JENNIFER REED: Wonderful. Thank you.

CHRISTINE LATULIPPE: I think we have time for one more question. And I think going back to this idea of small steps, I know I mentioned that at the beginning, and Heidi also did. I'm wondering if you have a suggestion or two. What is a good small first step, maybe for faculty who are just thinking, I want to do something. What's the easiest-- the low hanging fruit, that little win that we can find success with/ What would be your top pick, Jennifer and Heidi, both?

JENNIFER REED: My top pick is definitely to start is Partner Chat, where they will turn to somebody close in close proximity to them and try something together. To where they have a problem that they have to work out. They have to agree on how they're going to tackle the problem, and they have to agree on their final answer and be able to explain it. And that could be turned in any number of ways. It could be just you going around to each set of students to look at it. It could be turned in via Google Doc if you wanted to have it that way. It could be turned in on a piece of paper to where you're seeing it right there instantly, to see did it work? Did it not? Talking to them together as a unit.

I think that is probably my absolute favorite first step starting. Because once you see how just a couple of students can interact. And then if you give them an opportunity to work in a little bit larger groups of four or more, then when you see them start talking and even more ideas coming together on, well, I think we should do it this way. Well, what if we did this? Oh, yeah, I agree with you.

And those conversations start to develop. And then any misconceptions that there might be about content will easily get fixed when they have those conversations with each other. when there is someone super solid on the content, where you might have another student who's not so super solid. They'll help each other, and it'll fix on its own without you having to go to each individual student.

And I have classes of, I mean, let's see. My largest class this semester I think was maybe close to 120. And so it's been done in large classes. It's also been done in small classes. But that's one of my favorites to get everybody comfortable with each other too.

CHRISTINE LATULIPPE: Thank you so much for that example and that enthusiasm. Heidi, if you have a quick one?

HEIDI ECHOLS: Yeah, I would say really quickly, the idea of scaffolding something, so that you take a week or two of class, the last 10 minutes of each class is a group project. And they scaffold that experience, so that they're doing that group work that Jennifer mentioned. And in maybe four or six or eight students, but they take 10 minutes at the end of your class, if it's an online class, you iterate that for them. So that they get the scaffolding experience of working multiple times with the same people and the same content and the same pace scenario.

CHRISTINE LATULIPPE: Thank you so much. And a big thank you again to Jennifer and Heidi for such a wonderful and enlightening presentation and those extra add-ons during our Q&A. There's been a couple of links in the chat. I'd like to encourage you to please visit the Transform Learning website and consider submitting an example of your own teaching practices that illustrate one or more of the eight evidence-based teaching practices.

We also invite you to join our community of practice, which will focus on digitally enabled teaching and learning practices in gateway courses in college mathematics, and that will be starting in just about a week to 10 days here. And with that, I'll turn things back to Norma. Thank you all again.

NORMA HOLLEBEKE: Thank you all so very much. For our audience, we ask that you just take a few minutes out to complete our survey for today's webinar using the link that is being posted in the chat for you. And if you've got something else going on immediately after, don't worry. We'll send you the link to the survey in a follow through email within the next couple of days for you all to do that.

And the video will also, for those of you who have colleagues who want to watch the video because they couldn't make it today, that will be posted up on the website and sometime next week. So we really appreciate our speakers, the time that they've given to us and the expertise that they've shared with you all. And we hope that you all will come to our website and check out the resources and things that we have to offer you. And we hope that everyone has a wonderful weekend. Thank you to our audience for participating. Have a good day.