

## Scaling Student Assessment Podcast Series

### [Episode 1 – Exams and Quizzes](#)

Intro

Sarah Browne: It's been quite scary thinking about like adding new materials, new assessments and being able to make sure that it's the works in such a board environment. how it's possible to be able to scale. Like even though it's a small increase of 20%, it's still a lot of students to grade, engage and help buy-in to the new activities and as well as my new big cohort of graduate teaching assistants teaching as well.

Drew Vartia: I'm Drew Vartia, I am a documenting learning specialist at the Center for Teaching Excellence at the University of Kansas. With me today is...

Sarah Browne: Sarah Browne, and I'm an assistant teaching professor.

Drew Vartia: This series is on scaling assessment. I was lucky enough to have a conversation with Sarah in the Union over the summer. During that conversation, it came to light that there were concerns broadly among faculty about how to handle assessment with such an large increase in student enrollment. And I think one of the things that stood out to me from that conversation, a couple of things, actually, one of them was taking updated teaching techniques like two stage exams and figuring out how to handle those with so many more students. For some reason, I latched on to that. But also and the reason that we're here, you had this fantastic idea. You said, could this be a resource that you put together and CTE hosts somewhere. for faculty more broadly. Sarah and I hoped to talk about some of these assessments that tend to be more summative in nature, and specifically how those can be dealt with with high enrollment in already large courses. So what courses are you teaching?

Sarah Browne: This semester I have Math 115 Calculus one, which is about 900 students, it's taught in small classes of 30, 35. So it's manageable in that sense. and then the other class is math 126, which is calculus two in the other sequence of engineers, and that is 300 plus. So, a lot smaller,

Drew Vartia: Smaller. But in total, you are one person overseeing 1200 plus students and that number has increased from previous semesters.

Sarah Browne: Yeah. Last fall it was about 1000 total.

Drew Vartia: So that's substantial that that's a 20% minimum increase for you.

Sarah Browne: Yeah. It's been quite scary thinking about like adding new materials, new assessments and being able to make sure that it's the works in such a board environment. So It was great to talk with you about all of these things and actually rationalize how it's possible to be able to scale. Like even though it's a small increase of 20%, it's still a lot of students to grade, engage and help buy-in to the new activities and as well as my new big cohort of graduate teaching assistants teaching as well. So it's not just the assessment itself convincing that it's a good idea, engaging students, being able to participate, but also having our graduate teaching assistants teach with these new materials, all these new assessments.

Drew Vartia: So what does that look like for you? What are the things that you are using in your courses assessment wise, and how is it that you're working with your TAs to deploy those tools?

## Scaling Student Assessment Podcast Series

Sarah Browne: We meet weekly so that we can talk about the next week's materials, and I emphasize the importance of certain topics and where we're going with those. So, where they connect, what should be said and how we can motivate students in wanting to learn because sometimes they're not so related to their disciplines. And then we've been discussing the assessments as well in these meetings. The group work has been started by having these activities rather than just being everyone is getting groups that's working on these problems. It's being everyone is getting groups and we have a specific problem that we're collecting today. And so this has been helping implement the flipped classroom for graduate teaching assistants who may not be accustomed to this. So that's been helping the engagement for the semester so far. The other thing is in these meetings we share our ideas on engagement and different techniques we can use and making sure that as we go for the semester, we keep students engaged. Because definitely as exams come up, exams happen, we need to keep that engagement high, but also keep students motivated to succeed in the class.

Drew Vartia: So that sounds like a really good strategy to. make sure that this larger number of students are participating in their own learning. You had touched on students getting ready for exams. My understanding is that historically you've used two-stage exams?

Sarah Browne: I haven't actually. I wanted to. I really want to do two-stage exams, but I am extremely worried about scale. I know that people have done it in similar scales. Trevor Rivers has been involved with that and he has been doing it for some time. He has a lot of undergraduate TAs as far as I understand it. So that helps with the process. But yeah, that's something I really want to do because I think it would aid in student success but also encourage the group work throughout the semester. And talking about mathematics is a way people can really understand the material. We've seen it. Discussions have encouraged students in being able to problem solve and critically think more in these classes. And the success rate has increased.

Drew Vartia: So, for anybody who doesn't know, the traditional two-stage exam is something of a traditional exam, but pared down to about two thirds the length students use part of the exam time working on that exam independently, just like a normal exam. And then partway through they hand in their individual copies. They are redistributed fresh copies that they then work on as a group. And the idea is that A) student learning is greatly facilitated among students and that B) you're catching students in an emotionally heightened moment when the learning that happens is likely to stick. Tell me what your concerns are in trying this in a larger than normal class.

Sarah Browne: I'm quite concerned about having buy-in firstly from the instructors. So, if the instructors are not convinced that this is the best plan, then being able to convince them that grading a bit more is okay, is challenging. And of course for the students it might be stressful putting them in groups they may not wish to be in groups. They may want that whole weighting to be their exam. And so you have this conversation often like, well, I would like this to be my whole grade. Why is this also taking part in my grade? Why can't I just leave now and not do the group work at the end? I think the other things that concern me is also being able to accommodate in situations of absences, accommodations, and being able to manage that. Such a large scale because it's not a small proportion of students is quite a big percentage of students these days. And with illnesses and just having absences, it's already a lot to deal with. So being able to make sure that people are in groups that are equitable for makeups is always a challenge. They may be with people they've never talked to. And so this makes it difficult on their part.

## Scaling Student Assessment Podcast Series

Drew Vartia: So, in terms of getting buy-in from GTA, who are the primary instructors in this case? You know, one thing to note is that the exam can be to some extent created to streamline grading. So that's something of an art form. And you're going to know how it works best for you probably after some trial and error, I think soliciting their opinions on how you might do it, incorporating some of that TA feedback can probably go a long way in terms of getting them to buy-in to the system. One would also hope, and this should probably be the primary point, that there are a lot of arguments to be made about why this is good for students, despite the potential for some level of extra effort. And we can certainly link to some resources on the website that outline all of those reasons, but they are many. And this has been investigated and researched pretty extensively. There's not a lot of question about is this good for learning? Some other considerations might be scaling the exam itself. Say you had an exam that had 12 and I'm making up this number, right? Like sort of 12 worked problems and some of them escalate in difficulty. But you're willing to sort of do that with a thousand students. Now your number is 12,000. Well, now you also have 1200 students. And so maybe you scale that exam back to be ten questions. And of course, the issue that would always naturally bubble up would probably be but 12 I was just barely to ask all the things I wanted to. And now I have to give something up which may be true. It kind of depends on your discipline and the extent to which you can get creative and how you ask things or the types of problems you develop. what do you think about them?

Sarah Browne: I think that's certainly possible. I say less is more often in this. It's not like you can test everything you want to an extent, but sometimes you just got to choose what is most important and how you want to test it. Like you have to have a separate question that tests one aspect. You could combine it with a different question, which is still testing two things, but in a way that you're able to associate a learning goal in two avenues of the course. You don't have to always go for that. It has one goal because it's attainable to do both at times, especially with how the materials can be covered in a class. Right. We don't have to have everything be in its own section. Actually, we don't want that to be the case. So definitely our assessments can only be designed in such a way that we're able to test each of that and go in maybe new ways or innovations in the class. That to me is less daunting actually, and hearing it in that way, you can put less questions and still test things, and then you have this additional group portion that's able to maybe test them differently and in a way that actually even a group you expect to be more attainable, even if it's a little more challenging, right? Thinking about it that way, you're basically creating the same number of questions. If you look at the mathematics, the thousand plus 250 if there's groups of four and you're basically assigning the same number of questions to everybody.

Drew Vartia: So, a different spin on the two-stage exam that people have leveraged. I think in its original inception, a two-stage exam was to give the initial exam and then an identical copy of that exam. Over the years, different instructors have put their own spin on it. I know some people will select a subset of questions or make sure that it's really the more challenging material that students work in that group format so that perhaps it's not A) taking the time for students to do the entire exam over, but B), in terms of grading, which takes a lot of time, it lightens that load as well. So you're really focusing on. The most difficult sort of content or concepts or ways of putting those things together while minimizing grading load. After the exam is done, I don't know if that would work for you?

Sarah Browne: That's definitely possible. I think all of these things are possible and I think I'm open to these logistics are always one thing that's regardless of the size of your class, you want to make sure that they're going to be smooth. And so you need to have a plan that's going to work regardless of scales. In some sense, this is something to consider, like making sure that everything's attainable, but

## Scaling Student Assessment Podcast Series

also making sure that the grading is something that first we want to give timely feedback to the students being able to do that on both counts, I would rather give feedback on questions built in certain ways to make sure that we're accounting for everything.

Drew Vartia: So those types of grading strategies might be able to help with that GTA buy-in, especially if they have concerns about this extra load that a two stage exam might represent in terms of students. And their buy-in and you know, what are your specific concerns?

Sarah Browne: I always have concerns on whether students will buy-in because part of them being able to succeed is all about whether they understand why they're learning these things or why they're doing an exam in this way. And so being able to explain this takes time is always nice to be able to show the students pedagogically why this course has been taught and the way it is, why we're teaching stuff for them and why they need it. But sometimes we are fighting with time in these large lectures or on these classes across multiple sections because of the fact that we have content to cover. It's not so easy to be able to do that, making sure that they buy-in. In the terms of that group, the groups are very important, but if there isn't a group that they're not happy with, does this make them not want to participate in such a scheme? Now, of course we have all this group work in the class these days we have this initiation of flipped classroom, which basically incorporates a lots of problem solving and group work is the best way to be doing that. So there's a lot of buy-in, but of course it's always a bit of a gamble in the sense that you don't know how they will see this additional exam.

Drew Vartia: In terms of messaging. You know, why are we doing this? It makes sense that if we're asking you to learn in groups in class, that we also ask you to learn from each other, even if it's in an exam setting. And that feels unfamiliar in terms of students who say, will this adversely affect me? in general, this does not adversely affect somebody's grade. and you can show that mathematically, somewhat readily. For students who really feel deeply concerned that they will end up teaching the group. So what is in this? For me, I have already developed to whatever maximum I will develop in this course. And this is not a productive use of my time. A pretty solid line of thinking and this actually plays out in research is that there are a huge number of soft skills that are activated and practiced when you're the person explaining a solution and that those carry forward in time in some really significant ways. It may not be that they feel that they get a huge amount of mathematical benefit from having to, you know, function that way in their group. But there are, in fact, very tangible, measurable learning benefits.

Sarah Browne: Yeah, I also think that the engagement in the groups in the class will also increase if this was to be taken as the new assessment type for exams That's one of the reasons I'm so open to this opportunity for students, firstly for success, but also being able to explain is key and actually giving them a reason to work in groups more is always a helpful activity since it is always hard to work on a group. Many of us are so used to working individually and when we're in a group, sometimes we're often like or we have to listen to everyone and different things like this. Given the students the skills that is important, especially knowing that they're going into probably places where they're going to be working in teams and the way that they're going to have a successful project in their jobs is when they are working successfully as a team. And I'm also trying it for the first time. How is this going to go? Thinking about all of those things.

## Scaling Student Assessment Podcast Series

Drew Vartia: So, along the lines of communicating with multiple parties, if this is something that you are nervous about, you can try it with some type of a lower stakes activity. Maybe that's solving a specific problem in class. I want everybody to try tackling this and then getting them together in their groups to tackle the same problem, asking for their feedback. So you had to do it then you had to do it collectively in your groups. What was that process like? Do you feel like you'd be interested in doing this again on something like a quiz or eventually an exam and maybe even baby step people up to say, okay, well, you know, we've tried this with a few problems over a course of a couple of weeks and your individual sections this week, we're going to try it with our quizzes. In that sense, it might not even be about walking the students up. Many of them are familiar with this format, but as an instructor, I think it can be useful to build that confidence that yes, I can actually deal with this at this large scale.

Sarah Browne: I like the quiz idea, actually. That's something you can just do. It takes an extra 10 minutes, say 20 minute quizzes, 10 minutes for the extra group activity. I like that a lot, actually.

Drew Vartia: Yeah. And again, you can think about pairing that quiz down. You know, if I were going to ask five questions, do I ask for instead rather than have four twice? Do I have three of those problems chosen as the collaborative group part? So again, there are a lot of ways to kind of tweak this.

Sarah Browne: That's a nice way to trial it. You can always trial it in this setting because this is low stakes for you, too.

Drew Vartia: Thanks Sarah, for having this conversation with me around scaling assessment and specifically two-stage exams getting by in for trying new things, especially working with both TAs and audiences.

Sarah Browne: Thank you, Drew, and good luck to everyone who wants to try these new activities.

Drew Vartia: Good luck to you. Thanks again for being here.