

TEACH.LEARN.SHARE

Season 2, Episode 4: Using authentic assessments and flexible grading schemes in a large science course

TRANSCRIPT

Jasmine Parent: Hi, everyone and welcome to Teach.Learn.Share, a podcast that thoughtfully explores teaching and learning practices in higher education. I'm Jasmine Parent.

Margo Echenberg: And I'm Margo Echenberg. Jasmine and I work together at Teaching and Learning Services at McGill University and we're recording today from Montreal, Quebec, on unceded land, which has long served as a site of meeting and exchange amongst Indigenous peoples, including the Haudenosaunee and Anishinaabeg nations. We honour their stewardship as we live and work on these lands.

Jasmine Parent: So, one of the themes that continues to crop up in our discussions on this podcast is flexibility in assessment. We've seen it in the form of allowing students to drop the lowest scores on a set of assignments, allowing students to choose the deliverable of exploring a particular topic, or allowing students to customize the weight of certain assessments. And all of these strategies really give students, and instructors, an opportunity to tailor each experience towards the students' interests and their strengths, and this is incredibly valuable, not only when it comes to their learning, but when it comes to fostering inclusivity and equity in education.

Another theme that we may have touched upon in the last miniseries, and this one is the value of authentic assessments, which I ... is one that I'm personally very interested in. Authentic assessments engage students in tasks that mimic authentic, real-world application and prepare them for something beyond the academic environment that they're in. And it also gives them the tools to move beyond understanding concepts and apply them, which is the type of learning that is, in my opinion, going to stick in the longer term.

And that's really, I think, what we're ... what we should be here for. We're equipping students for both academic and real-world pursuits. But I do know, and can appreciate, how difficult that can be for instructors who are teaching large courses that have hundreds of students. So, I'm looking forward to our conversation today about a strategy that uses both flexibility and authentic assessment methods to promote various skills in a large class setting.

Margo Echenberg: Thanks, Jasmine. I'm really looking forward to ... to today's episode, as well. I think, as we ... we consider the strategies, the examples of assessment strategies that we're talking about, that are happening on campus, at McGill today, in this new season of Teach.Learn.Share, I think thinking about giving students choice in assessment can certainly—in addition to the advantages that you talked about—it can also speak to assessment literacy. That is, how assessment is tied to learning, and encourage students to think about the way that they can best transmit what they've learned. So, allowing students to play a part in deciding how their learning can be assessed, possibly can make them really excited and give them a sense of agency about their own learning. So, these are really advantageous elements, I think, to ... to the kind of flexibility you're talking about.

I think there's an interesting connection as well between giving students a choice and [Universal Design for Learning](#), for example, because flexible assessments inherently afford students multiple means of demonstrating



what they've learned. And this is a key element of UDL. So, in other words, when instructors provide students with assessment options, they increase accessibility and inclusivity in their classroom.

But flexible assessments are not for everyone. I think students should be able to opt out of deciding and let the instructor choose for them when that seems most appropriate. And I think instructors also have to keep their workloads and well-being in mind as they contemplate the logistics of giving students choices. So, there's never just one path forward when we're talking about assessments, and the context of your course and where you are in your teaching career will also play really important roles in making those decisions.

Jasmine Parent: So, today we've invited Giulia Alberini to the show. Giulia has a PhD in cryptography from McGill. She's been a Faculty Lecturer in the School of Computer Science since July 2018. She mainly teaches large introductory courses with more than 500 students in computer science. She's happy to be involved in any activity related to teaching and learning and learns a lot every semester, which leads her to constantly update and refine her courses. So, welcome Giulia! Giulia and I actually worked together many years ago in the Exam Office, and we've kind of come full circle now that we're both full time at McGill and [laughs] kind of in the realm of teaching and learning. So, it's kind of fun to have you here for that reason, too.

Giulia Alberini: Yes, thank you. Thank you for having me, Jasmine and Margo. I'm very happy to be here and on the podcast and discuss with you some teaching strategies that we might try to implement more widely across campus. Even though I cannot say that I have my own workload in mind often when I design new teaching strategies. Though it's definitely very important too. And I should pay more attention to it.

Margo Echenberg: Thanks, Giulia. We're really pleased to have you on the show today, and happy to be able to remind you—and everyone out there—to ... to think about that, because it is ... it is a key piece. So, I wanted to ask you, too, as a first question, if you could please describe for us the assessment task, or the assignment, that you're going to be talking to us about today, and if you could let our listeners know a little bit about the context of your course, as well; so, what subject is it, the class size, maybe the year in which the students are studying, and those kinds of things.

Giulia Alberini: Yes, absolutely. So, this assessment strategy, I've been using it for COMP250, which is an introductory course in computer science. It's the first or second course students take when they study computer science. Either they are majoring, minoring, or sometimes they're just trying it out. We have roughly 600 students each semester in the course. Yeah, so, they learn a little bit about the data structure and algorithms. This is their very first course where they get to it ... be exposed to the topic. It's a course that expects them to already know a little bit about programming. So, we start by assuming a certain comfort level with programming, but we also learn a lot of Java, because now the programming ... the intro to programming courses, have been switched to Python, so we cannot assume familiarity with Java, per se, which is a programming language. So, we spend the first month of the class transitioning to Java and then we start to learn about data structure and algorithms. Often, students after taking ... after their U1, they always attempt to blend some sort of internship in the summer. It's very early for them to do so, but you know some students do try, and if they don't do it in the summer of their U1, they generally do it for their U2 summer.

And, you know, when trying to do so, they will have to experience having to go through what are called technical interviews. So, interviews in which they are asked to demonstrate their technical knowledge, which generally is about basic algorithms and their knowledge of basic data structures. And so, I thought, let's try to have ... to expose the student ... and give them this type of experience already at ... in our courses, right. It would be great if once they have to go and do their first technical interview, this wouldn't be the first time that they have to perform in such a way in front of someone else. And so maybe they want to try to get that type of



experience already, while they are learning the material that generally is part of technical interviews, like in [COMP]250.

Like Jasmine was saying, I do tweak and redefine and [laughs] ... my courses every single semester. So, this strategy has been changing quite a lot. I started to think about it when we first moved to remote teaching. So, when we switched during Covid, in Fall 2020, when we moved to online, and there was so much focus on making sure that the students kept engaged in the course, and especially for these first-year courses where students came in not really knowing anyone else, there was so much focus on making sure that they get to know one another, and they kept being engaged. And so, I thought, okay, let's introduce some sort of presentation assessment. And, back then, I used to have these weekly presentations, I gave students some problems to prepare, they would come in during class and present to each other solutions to the problems. I had weekly presentations, but they would do it twice a semester, and all of the other times they would, kind of, give peer feedback to the others that were presenting. So, they would rotate. It was easy to do on Zoom because I was able to have breakout rooms, right. So, I have this very large class, but I was able to have breakout rooms, and so in each of those rooms different groups of students would be able to present. And I was also able to put in each of the breakout rooms a different TA, which would also be able to lead them through this presentation and give them actual, you know, feedback from someone that knew a little bit more than students taking the course.

Once we moved back on campus, this ability of having breakout rooms in a classroom disappeared, right? And so, I thought that keeping this up would not ... would have not been as feasible as I would have liked it to be. But I really liked the presentation idea and students really enjoyed it. And so, I decided to switch a little bit and keep this idea of having a presentation that, kind of, like, covers problems that are in the same style of a technical interview, but instead, have it once a semester, and be it optional for the students.

I tweaked a little bit around with what I was doing, and I think what I landed on this semester, it's my ... the version that I'm liking the most. And so, what I have now, this semester, I have two different grading schemes, and I ask students to choose from ... they ... they choose the grading scheme at the beginning of the semester, so that this allows me the time to adjust where the TA should spend their hours on. And they choose between a grading scheme that I call "code crafter," which has three assignments, two midterms, and a final project that is a final coding project, or a grading scheme that I call "problem solvers," where they still have three assignments and two midterms, but instead of the final coding project, they have a technical interview at the end.

The weight of the assessments is also different depending on the two grading schemes. If they choose to be "problem solvers," and this means that at the end, they will have to come and do a technical interview with us. I provide them with 40 to 50 questions ahead of time that they can prepare. So, it's not that they come in and I give them a completely new problem that they have never seen. I pick out of those questions that I ... they were able to see ahead of time. And then, during the interview, they will, you know, go over their solution. And I'm able, we—me or the TAs—are able to actually ask more questions, more in-depth questions ... we can ... just like what would happen in a technical interview.

I also added the possibility to ... for each of the assignments ... so, I have three assignments across the semester, and I ... for the "problem solvers," I give them the possibility to use 1% of each assignment to come and do a mini presentation to us, a 5 to 10 minutes mini presentation, that is pass/fail. It's mainly used for them to, you know, get additional practice before they come in for their real technical interview at the end so they can get some feedback from us. And for those mini presentations, they choose the problem that they will present to us. So, it's not us asking questions. They really choose a problem, then come, and, you know, practice presenting a solution to someone else other than, you know, their peers.

I provide a grading rubric for the students so they know how they will be graded. And I have TAs give some mock technical interviews in front of the students so that they see how the interview would be carried out.

Margo Echenberg: It sounds really ... really interesting but also engaging for students. And I love the idea that they can choose, right, a more traditional grading scheme, or also have these practice opportunities. I love the way, too, that you build in all of those lead ups to ... to the actual final interview, because it really helps students prepare because you ... as you say, they're practicing for something that they ... they've never done before, and they might not even know what it entails entirely.

I was wondering, too, if maybe there's a goal, another goal that—you spoke about certainly being able to prepare them for the ... these authentic experiences of being in an internship, and eventually, a work interview, where they'll be asked to do something similar—would you say there are other goals that you feel ... learning outcome goals that ... that are important and that you're assessing with ... with this option?

Giulia Alberini: Yes, yes, okay. So, in terms of goals, there are definitely different goals. So, first of all, my ... the real goal that I have is that I would like students to feel motivated throughout the semester. And so, I feel that if I give them more autonomy and a choice in how they will be assessed, my hope is that they won't lose motivation as the semester reaches to an end, which is generally what happens, right, like, motivation usually it's a little bit lower toward the end. And so, I would like them to still feel engaged, and, you know, have something that they can look forward to when the end of the semester comes. In terms of learning outcomes, I do think ... and also in terms of how much each assessment prepares them for what comes after ... I do think that the two grading schemes both do, but in different ways. They both prepare them for whatever comes after, and they both assess their learning, but maybe in slightly different ways. So, the final coding project, for instance, this is a great opportunity for them to experience a little bit of a larger project than those that they have been experiencing up to now, which are also very useful, because, for instance, when they go out and look for a job, they generally have to put into their CV some, you know, if they ... if they have a coding project to put into ... in their CV it's, you know, it's good for them.

And so, I think both assessments do test their knowledge of the content. I think that it's mainly ... the difference is mainly about how students feel more comfortable displaying their understanding. And so, for some students, it's better to, you know, have lots of time at home on their own, working, grinding on some code and working on testing and debugging their code, having that time that they can sit and think about algorithms that they come up with ... they can come up with, maybe even discussing it with some peers, but more, you know, a ... a work that they do on their own, while others are better at simply, you know, explaining their ideas to others, and maybe they don't particularly do well, or like to spend a lot of time on their coding project, and instead they would prefer to simply explain their ideas and their algorithms in few minutes, like 10-15 minutes, instead of having to spend two weeks [laughs] working on a single project. So, yes, I think it's mainly about their personal preference.

Jasmine Parent: So, firstly, I really love that you gave the name to the two different grading schemes. I thought ... I find that so fun. And it's kind of like a video game, like, choose your own adventure, and really, I don't know, allow students to play on the skills that they ... they want to pursue. And with that, I also really appreciate the way that you can empathize with the student experience. And you talked about, you know, different students having different skills and different comfort levels and giving them the opportunity to ... to possibly stick with doing activities or assessments that align with those comfort levels. But also, I think, it's interesting that you give them the space to practice, maybe, a skill that they're not that good at but interested in growing. You're not just throwing them in the deep end of doing an interview and giving a presentation. You have those little 1%, you know, low-stakes presentation opportunities that are pass/fail. So, it kind of opens up, not only for the students

that are really good at already presenting, but maybe somebody who wants to work on that, and they know that it's a skill that they will need, you know, coming out of the ... their academic, kind of, experience, and ... and want to improve. So that is great!

Margo Echenberg: I just wanted to say, too, that I think having the TAs do the mock interviews is also really cool ...

Jasmine Parent: Yeah!

Margo Echenberg: ... because it's having them practice something that maybe they're not asked to do very frequently in their responsibilities and could potentially really be a learning experience for them, too.

Jasmine Parent: And also model, like, this is what it's potentially supposed to look like. Often, students don't know [laughs] what ... what the instructor is looking for or, you know, what a good assignment, whatever it may be, whatever form it looks like. So, yeah, that is also really interesting. I appreciate that, too.

So, it is a very large class. You have 600 students, which for some [laughs] they'll think that's ... that's wild. Talk about ... a little bit more about the logistics of this kind of strategy, like, how you ... how you implement it, in a sense of, you know, tracking which route students take for the grade scheme, and tracking, you know, the people that opt out and whatnot. So, some of the more practical things that you have to consider, and how you ... how you do them.

Giulia Alberini: First of all, I want to say that all of these different things that now I'm doing, like, the way that I tweaked the assessment, I have done it because of ... I received feedback from the students, right? And so, it's just from their feedback that I was able to actually change the strategy and hopefully make it a little bit more accessible for them. Because, yeah, I think that in the very first implementation of it, maybe it wasn't as accessible as I wanted it to be. And now, with, like, this optional 1%, with the mock interview, I think, yeah, it helps them feeling more comfortable about taking on such a task. And, in fact, another ... the funny thing that I experienced this semester is that when I talked about it, I received students coming, asking me, "Can I choose to be a 'code crafter,' so do the final project, but still come for those 1%, just to get the experience?," right. And I'm like, "Well, I cannot do it for 600 students, unfortunately." Because this is the problem, right, the problem is that if they were all going to choose the "problem solvers," I wouldn't be able to handle it, right. I wouldn't be able to offer this experience to all 600 students. Thankfully, you know, different students like different things. And so [laughs], I don't have to offer it for everyone.

But yeah, so how do we do it? How do I, you know, how do I go about handling this? So, for keeping track of who chooses what, I have a quiz at the beginning of the semester that it's due a few days, maybe a week, after the add/drop so that everyone can get the add/drop deadline ... so everyone get a chance to do it. And in this quiz—it's more a survey than a quiz—they tell me things, like, what is their ... what is their comfort level with programming, and which grading scheme they would like to choose. And so, through [myCourses](#), I ... I have this survey, and then I can simply download the results, and this tells me who chose which grading scheme and I can keep track of ... of that in a spreadsheet.

And then, yeah, the real ... the real workload [laughs] comes into assessing these technical interviews. So, I have a rubric, because I want to make sure—since I won't be able to sit in every single one of them—I want to make sure that we all follow the same way of assessing the technical interview. And we ... I schedule it so that in ... for every interview, there is at least two of us. So, it's either me and a TA or two TAs. And each of us will evaluate the interview independently, and then we take the average of the two grades. And we possibly discuss if the two grades are very far apart. But generally, this hasn't happened. In the past, even when we grade independently,



because the rubric is there, we end up with a grade that is very, very similar. And so, the average is practically the two grades ... whatever the two grades were.

What is nice about the technical interviews and students really appreciated this, for instance, last semester, is that because we sit there with them, and we go through all of this, you know, of course, interview, and we have the rubric and everything, we do take also detailed notes about what's happening in ... during the interview, and this allows us to give back detailed feedback to the students, which we cannot do with the final projects, because the final projects are generally auto-graded. And so, yes, we give back, you know, "Here are all the tests that we ran, and you can see which failed and which didn't," but there isn't, you know, some personal feedback on their work; while with the technical interview, they actually receive, you know, specific feedback on how they can improve, what we liked, what we didn't like, and things like that. And students last semester really appreciated having ... receiving this feedback, actually.

It's a lot of work. And it's a lot of work, because ... in the sense that it also ... if I ... if I have to think about it, it doesn't take away any of the other work that I have to do for the course. But it's a lot of work that I would ... it's the same amount of time roughly, that it would take me to create a nice midterm, a nice test, [laughs], and then grade it, okay. But it gives me much more satisfaction having to ... like, it's ... it's much more rewarding being able to sit through the interviews than actually—it's ... it's a different way of rewarding, I guess, but because I do like creating a test ... sometimes ... the grading, per se ... it's not really rewarding—while the interviews are ... they always are, because you can really see ... it's great to see how students think, the way that their thought ... the way that their thinking evolves, and how, you know, all the things that they've actually learned throughout the semester. So, I find it very rewarding. And even though when the week, 10 days, in which I have to sit in a room and evaluate these interviews approaches, I'm thinking, "Oh my God, next week, I have to work so much." [Laughs] Then, when I actually have to sit through the interview, I always end up being quite happy at the end of the day. And also, my TAs really enjoy doing it. It's really a different experience, right, compared to just grading a midterm; it's more personal.

Jasmine Parent: I feel like that's something that's tough in a large class. So, you really get the opportunity to get to know some of your students in ... in a much different way than you would in a midterm, of course, and, you know, 45 minutes together is quite a lot, and there's a lot of opportunity there for them to get direct feedback from you, which is really cool.

Giulia Alberini: Yes, and I also ... I have to say that I am lucky in the sense that if I ... this started with the pandemic, and so I was able to, like, introduce this idea to my chair, and hence receive more support in terms of TA hours for my course. And so, I do always have a little bit extra TA hours just to be able to administer this, right.

Jasmine Parent: I wanted to ask, just before we move on to the last question or two, how many TAs do you have?

Giulia Alberini: Right, so how many TAs do I have? This is a good question. [Laughs]

Jasmine Parent: It must be a lot if you have to think ...

Giulia Alberini: Yes. I mean ... I can actually do a quick computation here, because I have a lot of TAs, but I also have a lot of TEAM mentors. And so, I think I roughly have ... this semester, I have 18 TAs. It's a little bit of a managerial position mine, right. I also have to make sure that everyone is on the same page, and we have weekly staff meetings to make sure that everyone knows what we're doing every week. And, yeah, and I think that having an assessment strategy like this one also requires you to be able to choose TAs that you can trust

evaluating such an assessment and also possibly having to train them to do so. And so, I would sit with them, discuss what are possible questions that we can ask the students, and, you know, make sure that, again, we're all on the same page when evaluating these interviews. And so, I also make sure that I would sit with each one of these TAs at least once during the ... the interviews.

Margo Echenberg: Absolutely ... I think when you said there's a managerial aspect to it, that there's no doubt, especially, for, as you say, for a class that big. But at the same time, it feels to me like one of the experiences ... from a student perspective, first year classes tend to be very large, and they can be a little alienating, and you feel somewhat alone, and sometimes overwhelmed by that ... that many people being in a class with you. So, having an opportunity to be not only one-on-one, but two-on-one, is really an extraordinary experience, right, like, it's one student with ... with the professor *and* the TA. So, that's a really extraordinary experience, I think, for students that can ... yeah, it might... it might make a difference that we don't ... that we can't track, but that could very well impact them in terms of their ... their future studies, and then what they go on to do, and so forth. So that's really, I think, commendable. And I am ... I am conscious of time, and I think we're going to wrap up now, but I ... just before we do, I wanted to ask you, Giulia, if there was anything else you wanted to add that we haven't asked? Or maybe ... if you have a specific recommendation or a tip for another instructor who might be thinking of doing something similar, what would be your advice for them?

Giulia Alberini: I think what's ... what's important is to be able to actually find a group of people that you can brainstorm this type of ideas with, especially, like, when you're trying to implement it in your own course, I think it's a great to get some feedback from students and TAs. I do that often with my TAs, too; they have been recently undergraduate students, so they are ... they remember what that means. I also often bounce off ideas from ... with my [TEAM] mentors, who have recently been in my own course. This really allows me to tweak and change the assessment based on how students in my course generally feels, right. If someone would like to implement this idea of a technical interview, I think the most important thing to think about are things like, could you possibly get a little bit more support in terms of TA hours. Make sure to have a very detailed rubric, because you want to be, you know, fair in the way that ... when you ... when you evaluate students, you know, you want to do it equally. And enjoy it! You know that you will have to invest some time but, truly, it's very rewarding ... the time that you spend evaluating these presentations, this technical interview, yeah.

Jasmine Parent: Well, thanks so much, Giulia. It's really evident how much you really care about your students and their learning experience. And this has been really great.

Giulia Alberini: Thank you so much.

Margo Echenberg: Thanks for being on the show, Giulia.

Jasmine Parent: Please subscribe to Teach.Learn.Share, and let others know about it. Until next time!

