TEACH.LEARN.SHARE

Teaching in the age of gen AI

Episode 3: Check your sources: A low-stakes assessment task with an AI twist

Episode description

Can gen AI help students become better scientists? Dr. Jasmin Chahal thinks so—if students learn to question the output first. In this episode, Jasmin shares how she integrated gen AI into a microbiology lab course through a low-stakes, reflective assignment. Hear how her students learned to question AI-generated references, evaluate reliability, and develop critical thinking skills essential for the future of science.

Transcript

Jasmine Parent: Welcome to Teach.Learn.Share, a podcast that thoughtfully explores teaching and learning practices in higher ed. I'm Jasmine Parent, an Educational Development and Digital Learning Designer.

Adam Finkelstein: I'm Adam Finkelstein, Associate Director for Learning Environments here at Teaching and Academic Programs, otherwise known as TAP, here at McGill. We're excited for our latest episode.

Jasmine Parent: We're recording today from Montreal, Quebec, on unceded land, which has long served as a site of meeting and exchange among Indigenous peoples, including the Haudenosaunee and the Anishinaabeg nations. We honour their stewardship as we live and work on these lands.

So, welcome back to another episode of our fifth series of the podcast: Teaching in the Era of Generative AI. This series is off to a great start. We started with an episode discussing a few things instructors should be considering when making decisions about gen AI and how it fits or doesn't fit into their teaching and learning.

In the last episode, we spoke with an instructor who shared an example of how he's designed AI into one of his assessments. And I'm really happy to be hearing the details of these examples. I think it's something that the community is really craving right now. I think folks are just trying to navigate this kind of brand-new academic landscape, and it's sometimes hard to … to fathom what actually designing AI in or out of one's assessment actually looks like in practice.

So, luckily, we do have some trailblazers in the community who've gone ahead and started to experiment with different designs. So, we're really excited to showcase some of them to you folks who are listening.

Adam Finkelstein: And I … I think we can't stress enough how important it is to … to recognize that we're all learning here, we're all moving forward. And I think that's one of the biggest challenges with AI … that we're all wrestling with … is that, you know, instructors that are using AI never grew up using it, never taught using it, never learned how to use it, and are just sort of being thrown into a … into a sea where AI is now everywhere … and essentially being forced to deal with it in one way or the other.

So, I think it's an important thing to recognize … that that makes things very difficult, I think. We have to really respect any of the instructors that are struggling to figure out what the best way to integrate AI is. But I think that's the important part … is that idea that we talked about in the first episode … about being intentional, where we've got to … we have to be able to think about it. And we have to think about ways either to use it or not use it ... and if we're going to design our assessments and our strategies and our courses to design it for … design it in with AI or design it out.

Jasmine Parent: Absolutely. And things are just moving so fast that it's a bit of a hectic time. So, I do … I do empathize with the situation that instructors are in right now.

In this episode, we will be talking to another instructor who's designed an assessment that directly incorporates AI. We'll show or we'll explore how the assignment came together, why it made sense for the course, and what it's been like for students to engage with it.

Today, we are welcoming back to the podcast McGill instructor Dr. Jasmin Chahal. We had an episode with her series 2 of the podcast, episode 2 on flexible assessments. That was a really great episode. You should go check that one out, as well.

But we're … we're inviting Jasmin back today to talk about a completely different assessment and one that incorporates or designs AI into … into it. So, before diving into what that assessment is, Jasmin, do you want to briefly introduce yourself and tell us a little bit about your teaching at McGill?

Jasmin Chahal: Absolutely. And I'm so happy to … and honored to be back. Love this podcast.

So, I am Jasmin Chahal. I'm in the Department of Microbiology and Immunology [MIMM]. I've been at McGill for over 10 years. I was a student here, an undergraduate student, then did my PhD in the same department. And I started teaching in MIMM in 2020. So, I started on Zoom and then it went in person.

I am CAS - teaching. So, I teach many, many courses. I coordinate two courses in the Fall but lecture in three, and then in the Winter, I coordinate two but lecture in three, as well, and then take on some students in FSci 396, 397, MIMM 498 or 499 … so, busy teaching schedule … and the … the courses are lab and lecture based; so, I get it all.

Jasmine Parent: Yeah, you're … you're busy, and we're very, very grateful to have you here, and taking some of the time out of your day to be with us is … is not, you know, not lost on us. So, thank you so much.

I guess we can dive right into the assessment. Can you describe the assessment that you've created that integrates AI?

Jasmin Chahal: Absolutely. So, just to give some context, it is in my MIMM 212 Laboratory in Microbiology course. It's a U1 MIMM lab course. And in this class, students are writing lab reports. They're learning what are reliable references. So, what do journal articles even look like? What is PubMed or even Google Scholar? So, we are teaching students to reference and using outside sources that are reliable.

So, this assignment—it's a very low-stakes assignment, and it's optional. They have the option to either do a references assignment or gen AI assignment. The goal is the same—where they have to … for the references assignment — pick three primary research articles that they've cited in their lab report and justify the use of them. Why are they useful? Are they even reliable? So, just explain the use of them.

And then, in the gen AI assignment, students have the option of using one of two prompts that I generated and tested them throughout the summer. And I'll give an example: one of the prompts is, like, write a short paragraph on picking and patching method and use three in-text citations of references … something like that. And they have to provide a screenshot of the output. And then, they have to answer a few questions. So, the first one being: Are the references that are listed reliable? Sometimes they don't exist. And if they are reliable, do they actually align with what's written in the paragraph? So, for instance, picking and patching is of soil bacteria. Sometimes, what's referenced is a paper that's on bacteriophages, which are viruses that infect bacteria—nothing to do with what's written in the paragraph.

And so, students get to get their hands dirty a little bit with finding papers on PubMed, you know, researching what is a reliable reference versus not, but then also seeing a bit of how … the benefits and weaknesses of AI. And then, they write a little reflection.

So, many students, based on their reflections, said—especially for students who are … English is not their first language—wrote that the sentences are grammatically correct and really good examples of well-constructed sentences; however, the information is not always accurate. And so, we have to fact-check what's written.

I have to say, so, now the students are using Copilot. And Copilot, from what I've seen, is better than ChatGPT when I was testing the prompts. But still, there are some … some references that aren't reliable or are not secondary or primary research articles, which is what we discuss in class.

So, this is one way for students to see ... find reliable references—what are primary research articles, what are secondary research articles—and then also see how AI can be used for their benefit and their learning.

Adam Finkelstein: What I find really interesting is … is you sort of baked in AI literacy, like, right into the assignment itself. You know, so, it's knowing that, oh, it's a lab report. If I have to write a lab report, they may go and use AI anyways. You really made the effort to say, no, no, let's just start from the beginning and bake the whole thing in with that.

And I … and I find it … it amazing that you're, you know, you're pushing them to the evaluative level. Like, it's really moving … moving the lab report up, like, levels in the Bloom's Taxonomy. Like, you're getting them to think about, well, is this reliable information? Like, that real evaluation level, which is maybe not easy for a lot of students to get to. They're used to relying on what they see, what they read, you know, not double checking, not fact checking it, and sort of exposing, you know, some of the … the dangers of the … the sort of the "AI pleasing," you know, it wants to make you happy … so, it's going to find a reference to just sort of make sure that you're happy with it … kind of thing.

Jasmin Chahal: Yes, yes, so, I'm so happy you brought that up. I've told the students from the very beginning I'm training them to be successful scientists. So, we—it's a CURE [Course-based Undergraduate Research Experiences] lab and they're asking these questions and it's very iterative. And part of being a scientist is peer feedback and peer review. And they're, in a way, providing peer feedback to … to gen AI.

Jasmine Parent: What motivated you to design the assignment this way? I mean, you kind of already talked about preparing them to become real scientists, but can you elaborate on that? Like, what first, kind of, got you interested in exploring … integrating AI into your class?

Jasmin Chahal: Yeah, so, when I saw that it was up and coming … I'm … I'm never scared of using the tools that we have around us. I … I think it's more … I'm more uncomfortable when I don't know how to use something. I know it can be very scary, and it is scary, but then I don't like the uncomfortable feeling. So, if I see everyone's using it and students are using it—I know they will use it—I want them to use it appropriately. So, how do I help them with that?

And also, like you said, like, I've been training students to be scientists. AI is not going anywhere from what I can see. So, if it's going to be there when they are starting their careers, let's find a way so that they can use it appropriately and still also develop skills like critical thinking that does not rely on AI.

So, I really wanted to make sure that I touched on this as early as I could—so in a U1 course—and I'm never scared to try new things, especially with like low-stakes assignments. So, that's really what drove me … was the

fact that everyone was using it and it's something new. The students are using it. How do I bring this into the class and discuss it?

Adam Finkelstein: What, you know, as you saw the students starting to use it during your assignment, what surprised you in … in their use or … or maybe what didn't surprise you? Like, what sort of … what did you, sort of, find and … and how did you … how do your students experience it? Like, how did you react to the students—the way they experienced it and the way they used it?

Jasmin Chahal: So, what surprised me was that not everyone knew about AI or used it. That's why we have the option—they can do one or the other: the resources assignment or the gen AI assignment.

So, the fact that some students were, like, "Oh, I don't use it just for," like, "I don't feel good using it"—it was … it was pleasantly surprising to see. But then, what I really found amusing was when students were—so, in the labs they are in cubicles … so, that means there's 10 to 12 students in one room and then, we have 11 rooms, and I would go visit, and they're talking about the assignment. And they would say, "Oh, I was trying to look up this one paper and it just didn't exist." And like, they would be so surprised and they'd be frustrated. So, just hearing them discuss this was so, in a way, a little bit entertaining, but then, also, it was, I think, eye-opening for them that, oh, they can't just take whatever AI says at face value. They have to double-check the work. So, I think many of them were surprised with that, and some of their reflection answers addressed that, as well.

Jasmine Parent: I think this is so cool because it's really showcasing, like, the limitations of AI. And I think it's important for us all to see some of these limitations—and especially students, you know, who are kind of taking some of these outputs at face value and, you know, maybe submitting them—really seeing that, like, it's going to reference things that don't exist, even, you know, like, or reference the wrong thing for certain topics.

So, you've … you've given this assignment a few times—you said it's the third time. Can you talk about some of the things that are going really well with it and maybe some of the things you've had to, kind of, adapt, maybe, over the … the three iterations?

Jasmin Chahal: So, well, first thing I did want to say—AI is getting better. And, like, now that we have Copilot as a secure McGill AI, it is so much better than ChatGPT is in terms of finding appropriate references.

So, at first, that scared me, but then I realized that doesn't matter as long as students are checking, right? And that also gets them to see or evaluate what is an appropriate reference versus not. So, even if AI does get better, students are still, you know, being trained to fact-check and double-check, which still gets them thinking about the content.

I have to be honest, for this assignment—this 2% assignment—I didn't change anything apart from using Copilot because it was just working very well. And I say that based on my Mercury evaluations—students love this assignment. They said it … some of them said that it really opened their eyes or it was a good activity to look at references or lack thereof, but, like, try to find reference ... it was in a way, like, a fun activity for them and a good way for them to see, "Okay, wait, what is … is this website … a reliable reference? Oh, no, it's not. I need to find a paper." Like, it was a good activity, but then also a way for them to see how AI works. And a lot of them appreciated the reflection portion. So, it really gave them some time to think about it.

And there was no wrong answer—no right or wrong answer—in the reflection. And they would just get, like, a mark if they had an in-depth reflection. And so, many appreciated that … that they were able to take some time to think about it. So, I didn't really change any … anything because it was working. So, might as well keep it.

Jasmine Parent: Don't change what's not broken.

Jasmin Chahal: Exactly.

Adam Finkelstein: You seem to be hitting a lot of those, like, key marks. I mean, you've got, like, key marks in terms of, like, checkboxes, like, what makes an assessment a good assessment. You know, so, you look it up in a … in a dictionary, be like, okay, well, you basically have all of these things ticked off.

Like, it's motivating; they're interested in it. It's directly applicable to their real-world application and what they're going to be doing later on. You've got that option for reflection in there so they can do some meta thinking about, "How did you feel about it?" So, like, it really is ticking off all those boxes.

And, you know, I was going to add to that … I mean, it sounds like, also, like, there's nothing better than having students say they actually liked an assessment, which, you know, like, that never happens. See, like … when they like an assessment, you know they really … when they say they liked it, you know they really did, which is … which is really nice to, sort of, hear.

Jasmin Chahal: Some found it fun because they found it amusing because they would probably … there was one student who got their output, couldn't find the papers and said, "These are not appropriate" or "These are not real references. Please provide me with real ones." And then, AI was, like, "I'm sorry. I created new," you know, like, it just admitted to creating some non-existing references, and students are then, you know, talking about it. It's … it's really nice to see them engaged in an assessment.

Jasmine Parent: And, like, they can use what they've learned here beyond your class. This is something that's very … a very useful tool for other courses, especially in the sciences.

I … I have a question about the … the … the flexibility of the assignment. So, what percentage, you know, of students generally choose the AI one over the … the … the other option?

Jasmin Chahal: Like 80 … 80%. I always survey students. I didn't do it this year. Maybe I should because it's not due yet. I talked about it, but it's not due yet. I surveyed last year and the year before. The first year was around 85. Last year was around 80%. So, many, many choose it.

Jasmine Parent: The majority. Okay. Interesting.

Jasmin Chahal: Yeah.

Adam Finkelstein: Do you think actually … this is sort of a …. a side question … when it comes to, like, baking in that flexibility, I wondered how much … because you mentioned you started teaching basically in … in 2020 in COVID, in right in the middle of the pandemic ... how much of that, you know, experience from there is feeding into the way that you're using and designing your assessments now?

Jasmin Chahal: So, that's such a good question. I think there's some influence there. I just never really thought about it because we had to be very creative, right? All of our … I was teaching a lab course … I had to be creative with that.

And I think part of being creative and just trying new things really is something that I kept in mind for teaching now. And, also, I think it's the fact that when I was a student, I needed all these different types of assignments to really be able to check off all my learning outcomes. I always used it as a checklist for each class.

So, I think it's a combination of the fact that I myself just preferred those types … these different, you know, formative assessments or different types of assessments … and the fact that I had to teach online and be creative really influenced having these types of … of assignments … yeah.

Jasmine Parent: Yeah, in the last five years, there's been a lot of opportunity to grow our skills on adaptation and change agility.

Jasmin Chahal: And not be afraid if it doesn't work well, right? We just have to be okay with that.

Adam Finkelstein: I think that's the key … is that, you know, provided an opportunity … is … is one sort of positive way. Forced into change is … is another. But I mean, I think … any of … there's a lot of parallels in the disruption of the pandemic and the disruption that AI is causing. It's that same, you know, bringing you back to … okay, now I have to revisit my assignments and assessments again. And, you know, one of the things we hear from faculty, too, is that's an exhausting … it can be very exhausting … that, you know, constantly having to redesign and reassess your assessments, you know.

What do you do to … to, sort of, combat that exhaustion? Like, "Oh no, I have to redo it again," or … or "I haven't found it right; I have to change everything again." What do you do to, sort of, keep motivated to make sure, "Oh no, I got to change my teaching again," like, have it be a positive versus a negative thing?

Jasmin Chahal: So, I always tell my faculty, or I even tell my students, especially with the Mercury evaluations coming up, that I'm still learning. I'm always learning. And nothing should remain the same in our teaching. Yes, there's going to be some things that do stay the same, but you know, every year, there's something that's different, and it should be that way.

For all the faculty, especially like my colleagues who are struggling with this, I offer my assistance. I help them write a statement in their course outline, or, you know, I gave … I think I sent my assignment to I don't know how many people so that they can use it.

If I can help in any way, I'm going to. But I need them to also not be afraid to … to do something about it because if we don't do anything, it's just going to be harder. So, I … I try to offer my … my assistance wherever I can. And I think that's very important. We have to work together on this. It's a, you know, the … the entire campus, it's all of schooling, that are struggling with this. We should work together.

J**asmine Parent:** And along those same lines … so, you do collaborate a little bit with faculty and offer … offer your … your assistance … your insights. If you were to give a piece of advice to other instructors who are thinking about integrating AI into their teaching, what would that advice be?

Jasmin Chahal: I think seeking help is number one. So, I … I just came back from the retreat I hosted, and I had some of my colleagues say, "Well, where do I go? How do I learn?" And so, then we brought up TAP, and there's so much on the website, and there's some, I believe it's, like, recorded, there's some webinars that really discuss, I think, what Adam was saying.

So, okay, maybe if … if there's an assignment that students … like, students will use AI, so, if you really don't want them to use it, you have to create an assessment that does not, you know, require students to use, I guess, their computers or anything.

So, there are references or resources out there, but you have to go seek the help. And I'm more than happy to provide them with the references. So, I think that's the key is—if you want to know more about it, ask, and someone is bound to help you or lead you in the right direction.

Jasmine Parent: And I think there's a … an element to that, as well, of, like, openness that's kind of required, too. So, if you're going to ask, like, you may have to change things. And sometimes, that's really hard for folks

that have been doing something a certain way for a very long time. And as you said, the longer they do it one way, like, the harder it is to potentially have to … to rethink it in the future.

Adam Finkelstein: So, what's next for this assignment?

Jasmin Chahal: Honestly, what I've been doing is advertising this assignment to anyone and everyone, mainly because it was … it's been so popular for all the right reasons. And if it can help other instructors, please take it!

I think I even sent, like, my rubric and everything, and discussed with other faculty members in other departments. And I don't know if they're using it, but I took the time to give them everything they need if they want to implement it.

Maybe in the future, some questions will change depending on how good AI gets. But the premise and the goal will stay the same. I want the students to fact-check, be the reviewers of whatever AI's output is. So, it's going to stay—whether the questions change here and there, we'll see based on … based on AI. Again, we have to adapt with the times. So, that's the … that's the plan.

Jasmine Parent: So, just to … to wrap up here, if you were to sum it up, what is your biggest takeaway from … from trying this assignment? And I know we've probably mentioned many of the takeaways, but if you were to give one, what would it be?

Jasmin Chahal: Don't be scared to try new things. I … I think that's what has been working for me these past—almost six years … is I was never scared to try new things. Something might fail. That's okay, especially with low-stakes assignments. Start simple, start low stakes, but don't be scared to try something new.

Adam Finkelstein: First of all, that's a great response. I mean, I think, you know, that kind of openness is exactly what makes teaching better and … and how we all improve, you know. We don't … none of us know everything, and we're all learning all the time. And that's one of the nice things about being at a university … is that it's an environment for learning, and it really does, you know, is supposed to help promote that.

So, related to that, what can the University or … or TAP or … or the University at large or administration in general do to help you more, like, in using AI effectively in your course? Like, what could the University do more to help you out?

Jasmin Chahal: From what I've heard and all the hesitation, I think many can use more examples on how to … how to integrate it into the class or some assessment types that might not require it at all. And this is a discussion I had with a few people where, you know, if you change, for instance, like, students are going to write essays in class or write their lab reports in class … is that really … are we really hitting that learning outcome or that skill that we want the students to have?

So, I think aligning with the learning outcomes is sometimes missed and really important to emphasize. So, I think faculty can really benefit from more examples of how to implement AI into assessments, or how not to, or even course outline statements. I've helped quite a few people with that, as well. So, I think examples will … will really ease the … the hesitation.

Adam Finkelstein: And you … you know, it's interesting … you … you touched on, I mean, what's great is on all your conversations … is you're touching on all of the areas that are coming out in the research on assessment.

And what you just said, which was really interesting, is you're really going back to the idea of validity of assessments. Like, the whole point of an assessment is it needs to be valid, and it has to actually, you know, be able to determine whether people have achieved learning outcomes.

And in so many situations, you know, an instructor might alter and modify the assessment, and actually make it an invalid assessment. Like … and as you said, it's not valid anymore. If you're sitting there and madly scrambling to write out a lab report by hand in a class, yes, you're doing it in class, but it's now no longer valid. It's not actually getting to the outcomes you wanted, and it's not even authentic, either, because nobody's going to be writing their lab assessments or lab reports out by hand, right?

So, but yeah, it's … it's … it's absolutely great. There's a … that's exactly what the evidence is, kind of, pointing to. It does mean, in … in many cases, you have to work at it. So, there's obviously effort to put in, but you're obviously, you know, super interested and keen to do so. And I think that what you said about the idea of … of taking an approach of, you know, not being afraid to try anything, always wanting to iterate and try something new … that's what makes, you know, teaching great.

Jasmin Chahal: Yeah, and … and just being okay with failing here and there … that happens; it happens to everyone. And when ... I think as instructors, we need to remember that we don't want our students to perform, we want them to learn. You can perform and learn absolutely nothing. So, I think learning has to come first; performance comes with it. And so that's something that tends to be forgotten and needs to be reminded.

Jasmine Parent: It's making me think, you know, we talk about validity and performance. It's like we can sometimes get so attached to, like, the artifact or the output that we want students to produce. And when things change, you're really stressed about … how do I get them to produce this output?

And your … you … in that … in that haze, you can, kind of, lose, you know, how that output may have, in the past, helped them achieve the learning outcomes. So, yeah, it's a really good point that you make … like, we just need to take a step back here, remember what our learning outcomes are, and then adapt accordingly. And that output may not look the same with the new, you know, this new landscape that we're in.

Well, thank you so much, Jasmin. It's been a pleasure. It's always a pleasure. And we're … we're very grateful to have you on the show with us today.

I do want to say to our listeners, you know, we talk about examples, and we're … we're, you now, actively collecting examples from the community. But if you are listening, if you are an instructor at McGill and you know somebody who's designed AI in, or you have designed AI in or out of your assessments, please feel free to contact us at TAP. We're … we're very keen on learning what … what people are doing in the community. So, I … I just want to put that out there for… for those folks listening today.

And thanks, Adam. Thanks, Jasmin. Thank you, listeners. Please subscribe to Teach.Learn.Share and let others know about it. Until next time.