A SHOWCASE OF TEACHING PRACTICES
AT SIMON FRASER UNIVERSITY FROM THE
TEACHING AND LEARNING NEWS BLOG
SFU Teaching Stories is brought to you by the Simon Fraser University Teaching and Learning Centre.

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Simon Fraser University has a long tradition of thoughtful, innovative, student-focused teaching. The stories in this volume reflect the passion and skill of just some of our excellent faculty, and hopefully will serve as inspiration to others. The collection illustrates the diverse ways our faculty seek to better engage our students, to improve their learning, to address common concerns faced in the classroom, and to reflect and learn from their own practices. It’s a powerful testament to how much we value teaching.

Teaching is too often a solitary activity. This volume is all about sharing ideas, and so it is a small but important step towards building and strengthening our teaching community at SFU. To all of the people featured in these pages—thank you!
It has often been my experience that interesting and innovative teaching practices are going on all around us but we don’t very often know about them. For a number of years now the Teaching and Learning Centre (TLC) has been collecting teaching stories and sharing one to three per month on the TLC blog. These stories are wonderful examples of the thoughtful and dedicated attention that SFU faculty members put into their teaching and how important student learning is to them.

Through the telling of our teaching stories we contribute our experiences to a community of teaching excellence, through the reading and reflection on these stories we learn from these experiences and connect them to our own practice. It is the sharing that is so important and so useful.

In this volume you will find 24 stories from faculty members across disciplines that inspire and demonstrate innovative ways to approach teaching and learning. Some stories involve the use of technology, some media; some are about student feedback, and some engage students directly in the teaching. Each story is unique and yet has that commonality of teaching that we can all identify with. Our hope is to continue compiling stories and sharing them with you regularly.

I encourage you to see what your colleagues have been up to and to consider this volume a collection of useful strategies that you may want to try out yourself. As such it is a resource that you can return to from time to time for ideas and inspiration. Perhaps it will even encourage you to share your teaching stories!

Thank you to those who contributed your stories and thank you to those who make use of those stories in your practice.
Joan Sharp, Biological Sciences
These students are learning to argue—and that’s a good thing

For the past three years, teaching professor Joan Sharp has been teaching her students how to argue; that is, how to gather and weigh evidence, evaluate opposing points of view and arrive at defensible conclusions. She uses a visualization tool called the Dialectical Map that was developed by Hui Niu as part of her PhD research under John Nesbit in the Faculty of Education. Recently Sharp spoke about her use of the tool and why she thinks argumentation is an essential skill for post-secondary students. Here is a condensed presentation of her comments.

Teaching and Learning Centre (TLC): What is argumentation?

Joan Sharp (JS): I provide students with a statement (for my lower-division students) or two contrasting hypotheses (for my upper-division students), and ask them to carefully read sufficient trustworthy material that they can marshal arguments supported by meaningful evidence to basically argue both sides. And then—and this is really key—they have to weigh the arguments and the evidence that they have put together, come to a clearly stated conclusion, and justify their conclusion based on the arguments and evidence.

TLC: WHY ARE ARGUMENTATION SKILLS IMPORTANT FOR STUDENTS?

JS: I think weighing arguments and evidence and coming to a conclusion—or clarifying what additional evidence is necessary to reach a conclusion—is the most important thing we can teach undergraduates, especially in today’s world where there are so many critical issues and so much bullshit out there. Evaluating evidence and carefully thinking through the arguments is a skill students can learn, that they can get good at, and it’s something that will benefit them all their lives.

TLC: YOU USE A TOOL CALLED THE DIALECTICAL MAP. CAN YOU EXPLAIN WHAT THAT IS AND HOW IT WORKS?
“Argumentation is a verbal and social activity of reason aimed at increasing (or decreasing) the acceptability of a controversial standpoint for the listener or reader, by putting forward a constellation of propositions intended to justify (or refute) the standpoint before a rational judge.”


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JS: The Dialectical Map (DM) is a visualization tool that facilitates the teaching and learning of argumentation skills. Students create DMs by identifying and composing claims, evidence and warrants and filling them in an online map. They then draw an integrated conclusion by evaluating arguments and counterarguments in a visually hierarchical structure.

TLC: DO YOU USE THE DIALECTICAL MAP TO TEACH ARGUMENTATION FOR ITS OWN SAKE OR ARE YOU USING IT AS A TOOL TO TEACH SOMETHING ELSE?

JS: Both. I think in lower-division courses, my emphasis is primarily on teaching students to think critically, to assess evidence, and to distinguish between argumentation and evidence. In upper-division courses, providing students with the opportunity to learn those skills is equally important, since I find that they haven't yet learned to argue. I think we should increase opportunities for students to argue within our curriculum in science in general and in biology specifically. Ideally, by the time students get to third year, they would really know how to argue. Then, instructors would use argumentation tools to have students read scholarly papers presenting contrasting hypotheses and weigh the arguments that are made in those scholarly papers.

TLC: HOW LABOUR-INTENSIVE AND TIME-CONSUMING IS IT TO USE?

JS: I would say this is no more work than the other written assignments we have.

TLC: HAVE YOU RECEIVED FEEDBACK FROM STUDENTS ABOUT THE TOOL AND ABOUT HOW USEFUL THEY FIND IT?

JS: They like the tool. My favourite quote is from a student who said, “I thought I was skilled in argumentation before, but I found I wasn’t, and this tool has taught me how to argue.” The students are generally very positive about it.

TLC: IF AN INSTRUCTOR READS THIS POST AND IS INTERESTED IN THE TOOL, WHAT WOULD THEIR NEXT STEP BE?

JS: Anybody [at SFU] can use it in their classes. Right now, you can contact education doctoral student Qing Liu to get links that allow you to use the Dialectical Map in your classes and to see your students’ maps.

Contact Joan Sharp at jsharp@sfu.ca or Qing Liu at qla22@sfu.ca for information about the Dialectical Map.

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The Dialectical Map tool provides an online visual framework that enables students to consider arguments for and against particular propositions in order to arrive at a conclusion. Instructors can provide feedback, and all content can be downloaded in a structured, text-based format. The detail shown at left is from the updated 2019 version of the tool.
Lisa Higashi, Beedie School of Business

A novice takes the EdMedia Program and makes a video

Lisa Higashi took the EdMedia Program and left with a video that is being used in an introductory marketing course.
In 2016, the Beedie School’s Undergraduate Career Management Centre (UCMC) integrated the Networking and Business Etiquette workshop from its Business Career Passport program into the BUS 343 Introduction to Marketing course.

During the integration, UCMC manager* Lisa Higashi identified a need for course material tailored to the student audience. For example, she felt that videos illustrating the delivery of “elevator pitches”—short speeches used to define a personal brand—would be more useful if they showcased current students rather than mid-career professionals.

One obvious solution was to create that material, starting with the elevator-pitch video. The only hitch was that Higashi had never made a video and was “a little bit nervous around media and technology.”

A hallway conversation alerted her to the existence of the Teaching and Learning Centre’s EdMedia Program (EMP), which trains SFU faculty members and staff to create and use educational media, and last fall Higashi decided to take the plunge.

LEARNING BY DOING

She joined four other participants for seven sessions over a period of eight weeks. Each session was led by a TLC media or design professional and focused on a particular topic, such as graphic design, audio or video recording. In addition, participants worked on a personal project to develop expertise in a selected medium and produce a usable course resource.

Higashi was pleased with the experience.

“I think it exceeded my expectations [in that] it was quite comprehensive,” she says. “It [also] exceeded my expectations in terms of the support that we received from the staff members in creating a project from scratch and presenting it. I thought that was very valuable.”

For Higashi, one outcome of the program was a broader understanding of educational media. “When I went into the program I thought of educational media pretty much as PowerPoint and videos, but it introduced me to all of the different things that we can do.”

More importantly, it gave her the practical skills she needed to create her video, and a supportive environment in which to work. By the end of the program she had a rough draft, which she soon completed with the support of the TLC team.

CONFIDENCE, EXPERTISE AND A PRODUCT WORTH SHARING

Reaction to the new resource has been positive.

“The students have said that they like hearing from other students,” she says. “Our staff members—I’ve shared it with our team—have said that they were impressed with the quality of a video from someone who’s a novice and who is new to this process.”

The experience has given her an expanded skill set as well as greater confidence, particularly because of the ongoing support offered by TLC educational media manager John Born and his team.

“One of the challenges is not having access to the equipment that’s necessary for creating videos, and one of the good things is that they’ve shared with us different types of equipment that you can use [and] they’ve been very open to saying ‘Feel free to reach out if you ever want to work on another project.’”

Contact Lisa Higashi at lisa_higashi@sfu.ca

*Currently associate director
Mary-Ellen Kelm, History

A history professor invited her students to co-create the syllabus—and watched their engagement and creativity soar

When Mary-Ellen Kelm realized that her students had minimal interest in her course, she turned the tables by inviting them to help determine what they would learn and how they would be evaluated. The results, she says, have been “incredible.”

Mary-Ellen Kelm is offering a new kind of educational experience that puts learners in the driver’s seat. For the past two semesters, the SFU history professor and Canada Research Chair has invited students to co-create the syllabus, assignments and marking rubrics of HIST 326, a course that examines the history of Aboriginal people in North America since 1850.

“It was obvious from the work I was seeing semester after semester that the students didn’t care about the course material and were doing the bare minimum to get by,” says Kelm. “In some cases, the papers were so unrelated to the course material I had to wonder if they had purchased them online.”

Kelm felt the problem was that course content was not relevant to the goals and interests of her students and set out to change that by creating a participatory process that allows students to decide what content the course will cover and how they will demonstrate their knowledge.

“One of the strongest aspects of the course was that the students decided what the course would cover.”

– Student

The student response, she notes, has been overwhelming. Over the span of just two cycles, students have turned in products ranging from policy briefing notes to high school curriculum to Tumblr boards and even video games.

“The creativity and motivation I see now is incredible. All of the work that comes to me is first-rate.”

Kelm admits that her approach is not without some drawbacks.

“It’s risky. You have to really know the field you’re teaching in so that you can feel comfortable wading into areas that you might not have initially planned to explore. That can be scary for some instructors—and time-consuming. I might have a lot of experience lecturing on federal Indian policy, but if the class has a different topic they want to learn about instead, I may need to prepare something entirely new.”
This was the single best class I’ve taken in university. – Student

Kelm begins each class by inviting students to anonymously respond via coloured sticky notes to a series of key questions including “What skills do you want to gain in this class?”, “What questions do you have?” and “What do you want to learn in this course?”

She then combines the responses with material she feels is important for them to cover.

“What many students don’t know what they don’t know, which is why the syllabus is a collaborative exercise. I take their input and combine it with key course concepts, such as historical frameworks and Indigenous research.”

“Being able to help students really and truly engage with the content may take more time in the short term,” she says, “but one thing I have no doubt about is that it is time well spent.”

■ Contact Mary-Ellen Kelm at kelm@sfu.ca

“What I have learned from [Mary-Ellen Kelm] in this course has applied to so many other history courses that I have taken and it has changed the value of my degree.” – Student
Peter Liljedahl, Education Competing with the distractions: An education professor’s formula for increasing student involvement in the classroom

Peter Liljedahl found that students who play an active role in their own learning are far less likely to be distracted.

Peter Liljedahl is creating classrooms that make students forget all about their cellphones and tablets.

Liljedahl is an associate professor* in the Faculty of Education and co-director of the David Wheeler Institute for Research in Mathematics Education. While trying to understand why some students in K–12 settings were having a hard time focusing in class, Liljedahl decided to find out whether the same concentration difficulties existed at the post-secondary level. The results were not good.

BUSILY ENGAGED IN “STUDENTING”

“It’s really no surprise that our students are so susceptible to distraction,” he says. “Everything, from where instructors stand to how they answer questions, teaches students to be passive and receptive instead of active and generative.”

MOVING STUDENTS FROM PASSIVE TO ACTIVE INVOLVEMENT

Through 10 years of research into teaching pedagogies in the K–12 setting, Liljedahl has developed a framework, called the Thinking Classroom, designed to shift the student role from passive to active. The framework is composed of 11 tactics that fit into a three-stage implementation process.

For example, number 8 emphasizes the importance of maintaining a balance between the ability of students and the challenges they face. To help navigate this constantly changing dynamic, it offers a particular and structured use of hints and extensions.

Hints are additional curriculum insights provided to students struggling with the content in order to keep them from succumbing to frustration. Extensions are more complex approaches to the content that can prevent students who have already mastered the task at hand from becoming bored.
Liljedahl’s development of the Thinking Classroom was recently recognized with a $100,000 Cmolik Prize for enhancing educational practices in B.C.’s K–12 public school system.

**EFFECTIVE IN LECTURE HALLS**

Although the research that led to the Thinking Classroom framework was based on elementary and secondary settings, Liljedahl has since implemented its lessons in his doctoral seminars, teacher training classes, and more recently in Italian lecture halls.

“Last year I worked with a group of professors at the Polytechnic University of Milan to figure out ways to implement aspects of the framework in a lecture setting, and we made a lot of progress. We found that the aspects of the framework that were particularly relevant were those—such as hints and extensions—that help instructors share material in ways that make it more personalized and interactive.”

The result can be an in-class experience that competes successfully with those electronic devices—while offering tangible learning outcomes.

*Contact Peter Liljedahl at liljedahl@sfu.ca*

*Now professor*
The world is full of messy problems that don’t have multiple-choice answers.

Mark Lechner is helping students develop the skills they need to tackle those problems through a course-design approach that helps them see the complexity in things no bigger than a speck of dust—or, in this case, a drop of blood.

Lechner is a senior lecturer and director, undergraduate programs*, in the Faculty of Health Sciences: “The motto for our Faculty—Cell to Society—reflects our recognition that there are so many different factors that impact health issues and that any solutions need to take those into account.”

He explains that he was struggling with how to actualize that multi-faceted reality within a single course when he came up with the idea of a course structured entirely around the literal and metaphorical idea of human blood.

The result—HSCI 333 Red, Hot, and True: A Semester of Blood—has been offered four times, and Lechner plans to run it again in Spring 2018.

“This course has done a very good job at providing a comprehensive overview of blood using both biological explanations as well as social explanations ... This was a great way to learn in an environment which supported all kinds of learning.”
– Teagan Sorokan, student

“I want my students to see that blood is multi-dimensional—visceral, emotional, scientific—and that there are dangers associated with not recognizing that complexity. In the course I am inviting students to go 360 degrees around the concept of blood so that they can truly understand it. If they can do that with blood, they can do that with any concept.”

The course touches upon everything from the meaning of vampires to misconceptions about sickle cell anemia to lab-based analyses of blood types.

Exploring such a broad range of topics through the frame of blood, explains Lechner, provides students with the freedom to make connections between diverse content areas. To help them weave the knowledge they are acquiring into an integrated whole, he also facilitates in-class reflection activities on a weekly basis.
“One of the prompts I give them is to look for patterns. One example I share is how we often encounter crosses and quadrants in the course: Punnett squares (a tool for genetics), the four humours, the crucifixion of Christ on the cross (and all that attendant meaning of blood), a plus sign for certain blood types.”

“I think beyond blood, this is a great way to approach other things … Looking at it from multiple views can vastly help shape your understanding and that is the most valuable thing I have gained from this course.” – Adriana Kanlic, student

Lechner admits, however, that his approach adds significant complexity to his role as teacher.

“Part of recognizing that the problems of the world are not linear is encouraging my students to express their knowledge in ways that aren’t linear either. This means inviting them to turn [in] final projects beyond traditional academic products.”

“I cannot ignore my extensive history in fine arts, nor can I walk away from my love for sciences. Blood has shown me that one can be active in the world of arts and the world of sciences.”

– Carmen Saucier, student

The projects have ranged from CD compilations of blood-related songs to Frankenstein posters to self-produced claymation videos depicting blood clotting (created by Amanda Rowlands and Sandy Shergill).

Such a range, he says, makes it difficult to apply the same criteria throughout, and so he has had to develop multiple assessment rubrics, which takes time.

“The course can feel a little chaotic at times, but if I can’t grapple with that chaos in the confines of academia, how can I expect to train the next generation of thinkers who will do so out in the world?”

Contact Mark Lechner at msl19@sfu.ca

*Term concluded
The overall response rate for online course evaluations at Simon Fraser University is around 50 percent. So it’s remarkable that Tun Myint’s HSCI 211 course—an undergraduate class with 219 students—achieved a level of over 80 percent this past spring.

The exceptional result was no accident. Tun Myint, a Health Sciences lecturer, employed a novel strategy to encourage his students to complete their Student Evaluation of Teaching and Courses (SETC) forms. Although the strategy required some effort on his part, Tun Myint is convinced that the investment was worthwhile. Student evaluations, he says, tend to attract responses from those “who like you or who don’t like you—so there are two extreme groups of students. But we would like to get a more general overall picture of the course … One way to increase validity is to increase our response rate to improve representativeness.”

AN INCENTIVE—BUT WHAT KIND?

At the heart of his approach was a particularly creative incentive.

“In my view, students are always thinking, ‘Why should I do that?’” he explains. “Most things they won’t do unless they get motivated. One of the motivation factors is to give an appropriate incentive.”

For Tun Myint, “appropriate” meant an incentive that would align with the course learning objectives and “at the same time [wouldn’t] penalize students who didn’t respond.” He decided to offer his students a deal: If the class achieved a collective 70 percent response rate on the SETC forms, he would add an extra question—“not a bonus question”—to the pool on the final exam; in other words, instead of facing 12 mandatory questions, they would be given 13 questions, of which they could choose 12. If they achieved an 80 percent response rate, they would get two extra questions, and if they reached 90 percent they would get three.
The students found the offer appealing—but three days before the evaluation deadline participation was still around 60 percent, well below the level he wanted. Tun Myint sent an email reminding his students of the deal. “The next day I saw the response rate jump up to 70 percent.”

As the deadline approached he sent out additional reminders, including requests for those who had already completed their forms to rally classmates who hadn’t yet done so. On the day of the deadline he posted the updated response rate several times and watched the number pass 80 percent. As a result, students were given two extra questions to choose from on the final exam.

WHY IT WORKED AND WHY IT MATTERED

Tun Myint attributes the success of his approach to several factors, including the perceived value of the incentive, the incremental way in which it was structured, and the collective nature of the challenge, which mobilized students to encourage one another to participate.

While he believes end-of-semester evaluations need to be supplemented by other types of formative feedback (he also uses a simple survey tool to collect weekly feedback from his students), Tun Myint is pleased with the outcome he and his students achieved.

“SETC is one of the good ways to learn from the student point of view [about] the course, what I have done in the class, and what areas can be improved. This is my incentive or my motivation to get more valid feedback from the students.”

Tun Myint received two Teaching and Learning Development Grants from SFU’s Institute for the Study of Teaching and Learning in the Disciplines (ISTLD) in 2016 and 2017 to investigate reflection and teaching inquiry tools for improving student learning and instructors’ teaching effectiveness.

Contact Tun Myint at tun_myint@sfu.ca
Sherryl Bisgrove, Biological Sciences

Encouraging trial and error: A biology professor’s strategy for teaching her students how to evaluate evidence and think critically

Through a discussion with faculty colleagues at a Teaching Matters session, Sherryl Bisgrove grew interested in the idea of giving students the freedom to learn by making mistakes. Her students were excited to move beyond “just memoriz[ing] facts.”

Sherryl Bisgrove, an associate professor of biology, faced a challenge familiar to many instructors: students with a limited interest in the course content and underdeveloped skills for dealing with the material. She made the course meaningful and memorable for at least some students by emphasizing critical thinking and adopting an approach that encouraged trial-and-error. Here she describes her experience.

I regularly teach a third-year developmental biology course that has a reputation amongst our undergraduates for its level of difficulty. When I first started teaching this course its reputation took me by surprise, mostly because the same course was my all-time favourite when I was an undergraduate. I have very clear memories of how my excitement for the topic motivated me as a student, so I spent quite a bit of time thinking of ways that I could garner the same level of interest and excitement amongst my students.

CAN YOU GENERATE ENTHUSIASM?

One problem was that the course is required for graduation with a BSc in biology, which means that many students, particularly those who are more interested in ecology, feel that they are forced to take a really hard course on a topic that is outside of their main area of interest. So I devoted a lot of lecture time to trying to convince the students how fascinating developmental biology is and how the material they’re learning underlies many aspects of the biological sciences, including ecology.

This approach had only limited success. There were a few motivated students who, like me, had an inherent interest in the material and were easy to engage. But many still complained about the level of difficulty, and their evaluations of the course were mediocre. It was clear there was something else that I needed to do.

STRUGGLES WITH CRITICAL THINKING

Another facet of the course that was troubling for many students was the use of evidence-based critical thinking skills. Interpretations made from experimental outcomes underlie most of our discussions about the processes and mechanisms that control development in different organisms. When I explained these experiments, their outcomes, and the interpretations that scientists made from them, the students were very good at learning exactly what I told them. But they really struggled when I asked them to make their own interpretations from outcomes that were slightly different than the ones we covered in lecture.
In a Teaching Matters discussion with faculty peers, we had discussed an article that described how learning was really a process of trial-and-error and that students learned best when they were allowed to fail and try again. I decided to implement something that would facilitate this kind of learning in my developmental biology course.

**TEACHING, AND PRACTICING, A BETTER APPROACH TO LEARNING**

I did three things. First, I told the students over and over again that I thought the most difficult and most important part of the course was learning how to evaluate evidence. And I explained why learning how to do this was probably the most important thing they could learn at university—that this would be a skill they could apply throughout their lives no matter what they ended up doing.

The second thing I did was to provide an environment that allowed students to learn from their mistakes without being unduly penalized in terms of their grade. I told them about the “trial-and-error” theory of learning and that I wasn’t going to penalize them for doing what they were supposed to do when they learned something new and difficult. I also told them that I expected them to do poorly on their first exam and that I would not penalize them for this. Their final grade would be based on what I thought they had learned by the end of the course, not on how much they knew near the beginning (i.e., the final exam would be weighted more heavily than the rest if they scored higher on this exam than the others).

The third thing I did was to give students some extra time outside of the exam setting to adequately reflect on the more difficult exam questions. A couple of days before each exam I handed out a long list of possible “hard” exam questions from which I chose a subset to be answered during the exam period. This strategy greatly reduced complaints from students about not having enough time to think about the harder questions, especially for exams scheduled during a 50-minute class.

- Contact Sherryl Bisgrove at sbisgrov@sfu.ca

**WHAT STUDENTS SAID ABOUT THE CLASS**

The results of Sherryl Bisgrove’s modified teaching strategy were evident in the comments she received on student course evaluations. Below are some excerpts.

- “Sherryl is a great instructor, very passionate and committed to her students getting the most out of her class. This class really had us think about what we were learning, rather than just memorize facts ... I’m so glad I had this notoriously difficult class with Sherryl as an instructor.”

- “Dr. Bisgrove is very passionate about developmental biology and is very encouraging to students. Some exam questions were quite difficult and required some additional thinking, but the practice questions given ahead of time were helpful.”

- “Sherryl is a very approachable professor who cares about students learning. She encouraged questions in class frequently. I like that she focused on teaching us analytical skills rather than had us memorise material for exams.”

- “Topics discussed in class were quite heavy, but Dr. Bisgrove was able to keep me engaged during lecture. She definitely provided opportunities for us to think critically and analyze data from various experiments during lecture—which came [in] very handy when it came to exam time.”

- “Very difficult course but Sherryl tried to explain concepts clearly and would often spend extra time on concepts which were hard to grasp. Midterms were fair and allowed for critical thinking rather than memorization.”
Brenda Davison, Mathematics

Crowdmark: A more efficient way to grade student assessments

Brenda Davison has been using Crowdmark to grade tests and exams for several years. The time-saving tool is now available to all SFU instructors.
“It’s way less work!”

**That statement explains why mathematics lecturer** Brenda Davison is enthusiastic about Crowdmark, an “online collaborative grading platform” that makes it quicker and easier to grade student assessments.

Crowdmark was developed at the University of Toronto to facilitate the grading of large numbers of exam papers by multiple graders. Davison and a number of other SFU instructors, primarily in mathematics and biological sciences, were part of a pilot project to evaluate the tool. In September, the university acquired a site license that makes Crowdmark available to all SFU instructors and academic departments.

Crowdmark is essentially a system for processing digital copies of tests, exams and assignments. Paper-based assessments can be uploaded to the system as scanned images by departmental staff, Document Solutions, or even students using a smartphone camera. Each page of each student’s assessment receives a unique QR code so that specific pages or questions can be assigned to specific graders.

Grading can be done on a laptop computer or a tablet. Graders can easily add comments and annotations, and the tool automatically adds up the points from each question and calculates grades.

**TIME SAVINGS AND UNANTICIPATED BENEFITS**

For Davison, a primary benefit of Crowdmark is that it saves time. She estimates that her TAs devote 30 percent fewer hours to grading than previously, but says the real savings come from the automation of the logistical and administrative tasks that accompany grading. For example, the time spent on activities like sorting names alphabetically and passing papers from one grader to the next has been “drastically reduced.” Reaction from her TAs has been “overwhelmingly positive.”

Davison also cites unanticipated benefits. “I’ve cut down the re-marking requests by probably 90 percent,” she says, because students are less inclined to challenge grades when digital images of submitted assessments exist. As well, exam pages no longer go missing, and storage of paper exams in case of grade appeals is no longer necessary now that digital copies are available.

Crowdmark provides her with meaningful measures and statistics that she can act on. For example, Davison can compare the grading standards of different TAs and she can see at a glance which questions are causing the most difficulty for her students. Finally, grades can be shared with students immediately via a link or exported to Canvas at the push of a button.

Although Davison’s assessments generally use a short-answer format, she feels the tool could work for longer formats, including essays: “I do not see what would be any different than marking on paper.”

Instructors and academic departments interested in trying Crowdmark are invited to contact the Teaching and Learning Centre’s Learning Technology team at learntech@sfu.ca.

Contact Brenda Davison at bdavison@sfu.ca

*Now senior lecturer*
Mark Blair, Psychology

Mastery grading: How one professor uses tests to help his students learn

Mark Blair rethought the role of tests in his course. The result has been a dramatic improvement in student engagement and learning.

**HOW TESTING IS DONE IN COGS 100**

Mark Blair’s COGS 100 course covers eight major topics. For each topic, students write a test worth 10 percent of the final grade (the remaining 20 percent comes from a final test and various assignments).

The tests are available in the Canvas course shell, but access is restricted through an access code to a 20-minute block of time built into almost every class. During that time, students can take or retake tests until they achieve a grade of 90 percent on each one. Between test periods they focus on the problem areas; Blair uses a flipped-classroom approach with videotaped lectures, which gives students the opportunity to replay lectures on their own or ask for clarifications in class.

All test questions are multiple-choice and are randomly drawn from a question bank to minimize repetition during test retakes. The testing technology was implemented with the help of learning technology specialist Robyn Schell from the Teaching and Learning Centre.

Blair is quick to emphasize that his tests require critical thinking and don’t simply measure increased familiarity with the course or test material: “My test questions are designed on purpose [so] that that strategy just does not work.”

Student scores: The top graph illustrates how grades for the first test of the semester have converged toward the 90%+ range over time. The bottom graph illustrates the current results for the most recent test given. The wider distribution of grades indicates that many students are still working to master the material.
Mark Blair (associate professor, psychology) has been teaching COGS 100, a cognitive sciences Breadth course, to roughly 100 students per semester for the past 12 years. A review of class results over the past few years convinced him that students weren’t learning as effectively as they could. Grades were static or even declining, and the practice quizzes he gave to students to prepare them for tests didn’t seem to make much difference. In fact, when he repeated quiz questions on his tests, students often responded with the same wrong answers both times. His observations led him to reconsider the way he handles assessment, and this fall he is trying a different approach called “mastery grading.”

LEARN, TEST, LEARN SOME MORE

Mastery grading integrates student assessment into the learning process. Instead of writing a test once, receiving a grade, and then moving on, students use tests as a measure of what they know and don’t know, and retake each test until they achieve “mastery” of the material, defined in Blair’s class as a score of at least 90 percent.

“T...
Tun Myint, Health Sciences

Clear as mud? It never hurts to ask

Tun Myint asks his students about points of confusion after every class. The results have been positive for him and his students.
How do you know whether your students understand the course material? You ask them, says Tun Myint, a lecturer in the Faculty of Health Sciences. For the past few years, he has made short questionnaires available at the end of every class to gather feedback on the “muddiest points” in his lectures—the topics or concepts his students found most confusing. He revisits those points in the next class to provide greater clarity.

The practice works. According to studies that he carried out in Summer 2016 and Summer 2017 with the help of Teaching and Learning Development Grants (TLDGs) from SFU’s Institute for the Study of Teaching and Learning in the Disciplines, on average more than 40 percent of his students fill out the forms each week, and more than 90 percent of those initially reporting confusion say they “partially understand or fully understand” the material after the follow-up explanations.

Even students who don’t use the questionnaires view them as worthwhile. “I didn’t do them, but I found that it still helped me hearing other students’ questions,” said one study participant. Another respondent noted the relief he felt at discovering that he wasn’t the only student confused about a particular topic.

Self-reflection

In addition to identifying problem areas, the questionnaires encourage self-reflection by asking students about the most important concepts or “take home messages” they picked up that day.

One student commented, “I believe the take home message is important. When you ask people what you learn[ed], they actually review it.”

Another said, “It did [enhance my learning] because it made me reflect on what I was understanding rather than reading through it and thinking ‘Got it, got it.’”

A chance to be heard

One finding of the follow-up study and several related student focus groups was that simply providing a channel for feedback has a positive impact on the classroom environment.

[The tool] helps because it shows that he’s concerned about our learning and wants to go over what we want to understand,” said one student in a first-year course.

Another said, “Having it there is always better than not having it there.”

Those comments come as no surprise to Tun Myint: “It is very useful for the undergrad students because some of the students do not dare to ask in the class, some of them are shy, and some of them have a language barrier.

“A lot of students say … ‘Not a lot of profs give us [the chance] to give feedback.’ They really appreciate it.”

From pen and paper to online

Originally the questionnaire was a slip of paper with four questions on it that took “about two minutes” to complete. In Summer 2017 Tun Myint worked with Kar-On Lee and Christina Drabik of the Teaching and Learning Centre to develop an online version in Canvas using the learning platform’s Quiz function.

“It’s kind of evolving step by step,” he says. The online version allows him to compile results more quickly—an important consideration in large classes.

When is it most useful?

One conclusion of his TLDG studies was that the practice could be more useful in some contexts—for example, in cases where an instructor is teaching a course for the first time—and less useful in cases where an instructor has taught the same material repeatedly and is already aware of the most common muddy points, or in the case of flipped classrooms where the format already provides ample opportunities for interaction between instructors and students.

However, ultimately Tun Myint believes the tool is an effective means of “improving student learning and instructor teaching” and is eager to share his experience with others. He has created a PDF document explaining how to implement a simple questionnaire in Canvas and he invites other instructors who might be interested in applying this approach to contact him.

Contact Tun Myint at tun_myint@sfu.ca
Sheri Fabian, Criminology

One faculty member’s experience: Teaching does not need to be a solitary activity

The shelves in Sheri Fabian’s office attest to the relationships she has developed with students. The connections often continue long after the classes end.
Sheri Fabian’s office has several shelves filled with mementoes, notes and other tokens given to her by students. There’s a porcelain stapler from Taiwan, a Joker figurine, a knight in shining armour and a Harry Potter owl stuffie, all serving as evidence of the relationships she has built and maintained over many years.

For Fabian, a senior lecturer in the School of Criminology, relationships are inextricably linked with what university teachers do.

“We’re developing responsible citizens. It’s more than just imparting a bunch of knowledge,” she says. “And part of that is building relationships with your students.”

A THOUGHTFUL SURPRISE

Fabian observes that the rewards of those connections are as great for her as for her students, especially in terms of sustaining her motivation and belief in the value of her efforts. She shares a recent experience to illustrate the point.

“About six months ago a package arrived from Amazon that I had not ordered. And it was from a student who took my minorities and criminal justice class seven years ago, and she had read a book that she thought I needed to read and needed to include in my class. It was just such a thoughtful thing.

“Those are the moments, those are the reasons I still do this.”

BENEFITS THAT GO DEEPER

The emphasis on relationship extends to Fabian’s understanding of teaching as an activity that thrives best when it is fed and supported by a community of peers.

While completing her doctoral degree, she recalls, “What I really quickly developed was relationships with other people who cared about teaching.”

She was an early participant in SFU’s Certificate Program in University Teaching and Learning—a program she currently co-facilitates.*

“I kept in touch with some of those [fellow participants] … who were really part of that teaching community, and built relationships there.”

Fabian points out the practical value of such community connections: “I find that I get my best ideas about teaching from listening to or watching other people who teach.”

But she stresses that the benefits go deeper. She is part of a monthly “teaching circle”—one of several such groups at SFU—and is happy to describe what the gatherings provide.

"I find that I get my best ideas about teaching from listening to or watching other people who teach."

“So much of it has to do with the conversation around what your experience [is],” she says. “It can be problem solving, sometimes it’s venting, and sometimes you get really useful pieces that you can then take into your own classes.”

“SURROUNDED BY PEOPLE WHO CARE ABOUT TEACHING”

In September 2017 Fabian became director of SFU’s Institute for the Study of Teaching and Learning in the Disciplines (ISTLD), which, by its count, has provided almost one in four SFU continuing faculty members with Teaching and Learning Development Grants to support inquiries into teaching and learning. A distinctive feature of the program is its emphasis on having grant recipients share their findings with colleagues both formally and informally.

That community-building emphasis is clearly one that she will continue to endorse—and enjoy—as she settles into her role as director. “What I really love about it is that I’m surrounded by people who care about teaching. It doesn’t get any better than that.”

Contact Sheri Fabian at sfabian@sfu.ca

*Now university lecturer  
**Term concluded
Leanne Ramer, Biomedical Physiology and Kinesiology

A new way of doing multiple-choice

Leanne Ramer is planning to try a new multiple-choice test format in her fourth-year biomedical physiology and kinesiology course. Her goal is to find an assessment tool that combines the nuanced evaluation capability of open-ended questions with the quick and consistent "markability" of multiple-choice.

Leanne Ramer is exploring how to create a multiple-choice exam that goes beyond guesswork and memorization.

Ramer, a lecturer in the Department of Biomedical Physiology and Kinesiology (BPK), is currently developing plans to apply a confidence-weighted multiple-choice test to BPK 426 Functional Human Neuroanatomy.

Developed by Joann Montepare, a psychology professor from Lasell College in Massachusetts, the tool differs from traditional multiple-choice tests in one major way: rather than requiring students to choose among a series of distinct answers, it allows students to respond along a continuum of those responses. This format allows them to not only select up to two answers, but also identify their level of confidence in each choice.
LEVELS OF CORRECTNESS

“There is often some level of correctness in the different answers I provide on my tests. Combine that with the fact that student knowledge is rarely 100 percent, and they are often drawn to more than one response. This tool attempts to provide a way to navigate and retain some of that complexity,” says Ramer.

Students are assigned full or partial points depending on the correctness and confidence level of their responses, but get no points if they choose a response that is entirely incorrect.

As pictured above, the answer continuum can take the form of a triangle, square, pentagon or any other shape, depending on the number of response options provided. In this case, students are awarded points if they select any position on the sides leading to Victoria, the correct response. [Figure modified from Sparck et al.]

The goal of this approach, explains Ramer, is to discourage students from guessing on exams and encourage them to engage in metacognitive thinking, all while maintaining the consistency and objectivity of traditional multiple-choice testing: “I see a huge frustration among instructors because of what is often an inverse relationship in assessment methods between the depth of knowledge measured and the speed and objectivity of the grading.”

This frustration is echoed by Victoria Claydon, an associate professor in BPK, who says she finds traditional multiple-choice testing unsuitable for her upper-division courses: “At that level, I almost exclusively use open-ended questions because I want students to be able to demonstrate the nuances of their content knowledge. Confidence-weighted multiple-choice questions might be one way to incorporate nuance and uncertainty in scientific reasoning.”

WEIGHING THE TRADE-OFFS

While Ramer agrees that open-ended questions provide students the freedom to articulate their thinking outside the zero-sum framework of traditional multiple-choice, she notes challenges in grading consistently and objectively with this testing format.

“Different interpretations of answers can all be right in some way—this is particularly relevant in my class, where I have students from biology and computing science approaching problems in different, but entirely valid, ways. How do you write an answer key for that?”

Ramer hopes that a confidence-weighted multiple-choice test will help bridge this gap by allowing students to express themselves in a way that not only accounts for partial learning, but also forces them to identify and address gaps in their knowledge.

“My hope is that this test will allow more complex thinking to take place in the answering process because students will have to ask themselves, ‘Where exactly does my knowledge sit on this continuum?’”

The major disadvantage of the confidence-weighted multiple-choice testing approach, says Ramer, is its newness. Though one study examining it as a formative assessment tool found that it improved student retrieval, no research has yet been conducted on how and when to use it. She plans to tackle those questions—and share the results—by applying for a Teaching and Learning Development Grant in collaboration with Erin Sparck, a doctoral candidate in cognitive psychology at the University of California and lead author of the study mentioned above.

Contact Leanne Ramer at leanne_ramer@sfu.ca
Nienke van Houten, Health Sciences

Students don’t know how to read research papers—and they need to be taught

Nienke van Houten conducted a study to see how students use research papers. She found that they lack critical reading skills.
Nienke van Houten is exploring how to help students recognize the difference between rigour and truthiness in research papers.

“With the rise of pseudo-scientific research, there is an increasing need to equip our students with critical reading skills early, so that they can discern between what is and isn’t academically grounded knowledge,” explains van Houten, a senior lecturer in the Faculty of Health Sciences.

To determine what kinds of instructional practices are needed to support this kind of literacy, van Houten first examined how students read primary literature—an area she says has been largely unexplored. (Van Houten’s research is being supported through a Teaching and Learning Development Grant from the Institute for the Study of Teaching and Learning in the Disciplines.)

Although she is only partway through her study, she says that her results have already illuminated some concerning patterns regarding student reading.

AVOIDING THE DIFFICULT AREAS

In the first phase of her research, van Houten had two groups of science students, one composed of first-year students and the second composed of third- and fourth-year students, read research articles and then complete surveys focused on how they navigated those articles.

“Even in those rare cases that the students do look at the data section, they are reading the author’s narrative as opposed to trying to interpret the charts and graphs for themselves.”

“What we found was that most students are avoiding the technically difficult areas, instead looking to the introduction and discussion sections for comprehension. Even in those rare cases that the students do look at the data section, they are reading the author’s narrative as opposed to trying to interpret the charts and graphs for themselves.”

This tendency, she notes, is best summed up by the comment of one participant, who stated, “I don’t understand the methods sections, so I just trust the researcher.”

Van Houten says the situation is particularly troubling in the case of more experienced students. “They have taken statistical courses and know they should be applying those skills to look at the data for themselves, but they seem to be having trouble transferring those skills to reading papers.”

A NEED FOR EXPLICIT INSTRUCTION

In the second phase of her research, van Houten conducted one-on-one interviews with students from a range of disciplines. As part of this process, participants were given a research article and asked to identity two main points and their accompanying evidence. The intent, she says, was to move beyond assessing what students think they do, to seeing what they actually do.

“In only three out of the 19 interviews were students able to identify reasonable conclusions and cite the correct supporting data. We want them to be able to point to evidence, interpret figures, understand the differences in experimental design, but my research suggests that this is just not happening.”

The problem, explains van Houten, is that students are given little explicit instruction in how to read research papers: “Analyzing and interpreting peer-reviewed articles is a very specific skill, and just taking a statistics course isn’t going to get you there. We instructors need to be offering our students learning interventions explicitly focused on how to make sense of research papers, and we need to do so early on in their careers.”

NEXT STEPS

Although van Houten is planning to develop strategies that instructors can use for exactly this purpose in the next phase of her research, she says that one tool she has already implemented in her classes is the Figure Facts Template, a chart framework that guides students to interpret data and methods sections by responding to a series of simple questions.

“We don’t want our students to just trust what they read is true; that can be a very dangerous road—what we want is for them to have the skills to decide for themselves.”

Contact Nienke van Houten at nvanhout@sfu.ca
MARK LEIER’S APPROACH TO DEMOCRATIC TEACHING

“How do I...
Recognize the gifts of each student?
Foster deep understanding?
Encourage them to connect content to their everyday experiences?”

1. WEEKLY READINGS
   ask, “What did you notice?” to allow students to create their own meaning
   “Students spent more time reading and did it in a more productive way”

2. PORTFOLIO-BASED COMPETITIVE ASSESSMENT
   allow students to express learning CREATIVELY
   “What students turned in was qualitatively different than previous classes”

This is what I thought university would be like, but it’s the first time I’ve ever seen it.

Credit: Jackie Amsden.
Mark Leier, History
Engaging students with teaching portfolios and a simple question

Mark Leier has adopted what he calls a “democratic approach” to teaching that gives students more freedom to shape their own learning experience.

Mark Leier doesn’t want students to follow his curriculum; he wants them to lead it.

“As a historian, I’m less interested in people absorbing historical content and more interested in them drawing on it and applying their own experience to connect to the past so they can make sense of the present,” explains Leier, a professor in the Department of History.

To encourage meaning-making over memorization in his introductory and upper-year courses, he has begun replacing his final exams with learning portfolios. A learning portfolio is a collection of artifacts that expresses a student’s learning journey. However, in Leier’s class the portfolio is as much a process as a product.

Starting from day one, Leier delivers his curriculum in a way that allows students to engage creatively with the material, part of what he calls a “democratic approach” to teaching that puts students in the driver’s seat.

DESCRIBE WHAT YOU NOTICE

One of the main ways he does this is through assigned readings. Rather than requiring students to identify and summarize the thesis statements of each text, he asks them to simply describe what they notice. According to Leier, the result so far is that “they take ownership over the task and do the readings in a more productive way.” For example, one student turned in “found poems” each week, pulling passages from the readings and blacking out words to create a poem that captured the main concept being presented.

The artifacts that the students create through the weekly reading-prompts form the basis of their final assessment portfolios: “Examinations offer limited ways to assess how they’ve [engaged with the curriculum]. Instead, I use portfolios to allow people to draw on their own skills and ideas to demonstrate how they have worked through the material.”

To give students a starting point, Leier provides examples of portfolios he has made, such as a narrated slide deck and a graphic novel.

“FUNDAMENTALLY IMPACTFUL”

By putting portfolios at the centre of his curriculum, Leier creates learning environments in which students are motivated, engaged and inspired. One student described the feeling like this: “Thank you for being so human. So far in my experience of post-secondary, your classes have been the most fundamentally impactful.”

Leier notes that the use of portfolios does have some drawbacks that he is still working through. For one, assessing the final results is fairly time-intensive. As well, he is not yet sure how applicable the approach would be in learning contexts where each successive course depends on students having mastery of specific previous content.

He will be exploring how to address those challenges this fall in a course with 225 students that is not only larger than his previous portfolio-based courses, but also provides foundational knowledge for subsequent history courses—and he is looking forward to it.

“I am convinced that engaging with students in a democratic fashion that takes them and their concerns seriously helps ensure they master content as they need it.”

Contact Mark Leier at leier@sfu.ca
A growing appreciation for open textbooks

Michael Chen and three colleagues have been using an open textbook in their introductory physics course since 2016. He has come to appreciate the benefits for both instructors and students.
Though he probably wouldn’t like being called one, Michael Chen is on his way to becoming an open education champion.

Chen is a senior lecturer in the Department of Physics. Since 2016, he has used a textbook licensed under an open copyright license, or open textbook, that allows users to freely share and modify its contents, to teach PHYS 100, a 200-student class.

Chen, who is one of four physics instructors teaching with the same open textbook, explains that the decision to introduce the textbook was made at the department level to save students money. The particular textbook Chen is using was produced by OpenStax, an initiative based out of Rice University that provides peer-reviewed, openly licensed textbooks.

SAVINGS FOR STUDENTS AND FLEXIBILITY FOR INSTRUCTORS

“The book the open textbook replaced was costing students $175. In my opinion that is a ridiculous price. I don't want the students to have to pay that—it's not fair to them.”

At the class level, the savings for students amount to about $35,000 per semester.

However, Chen explains that what started for him as a way to reduce expenses for students has since turned into an opportunity to create a resource specifically tailored to his teaching situation.

“I like that I have the freedom to change it as I want … I like that I can change the content so that it is exactly what I want. In my case, the fundamentals of physics don’t change much, but I could see this being a real strength in emerging fields where the concepts are changing and need to be updated.”

Chen notes that he also appreciates the lack of restrictions on how open textbooks can be used and distributed.

“It is much more portable. I can send it as PDF, or upload it in Canvas, or have [students] view it online. I can share a little bit, or all of it. There are no limits.”

IT DOES TAKE TIME

However, Chen notes that these benefits come with some trade-offs.

“There are places where the textbook stands out as a strong book and other parts that are not as well written.”

To deal with what Chen felt was inconsistent quality, he started by guiding students through the areas where he felt the explanations were poor. “I would tell students during lectures, ‘Don't look at this part.’”

Eventually he decided that rather than simply avoiding the sections he didn’t like, he would do something about them. Chen edited two chapters of the OpenStax textbook by importing it into an open source platform called Pressbooks, hosted by BCcampus. Including the time it took him to learn how to use Pressbooks, he estimates that he spent somewhere in the range of 20–30 hours doing the revisions.

However, that was only the beginning.

“There are still other areas I would like to adapt to suit our teaching setting, so I’m planning to dedicate my upcoming non-teaching semester to reworking some other chapters. Then it can be available to the other instructors in my department.”

SFU faculty members interested in exploring how to integrate open textbooks or other open educational resources into their courses can apply for funding through the university’s Open Educational Resources Grants program, which provides up to $5,000, along with staff support from the Teaching and Learning Centre and the SFU Library.

Contact Michael Chen at mxchen@sfu.ca
Susan Clements-Vivian, Interactive Arts and Technology

**When students were invited to co-create a course, engagement and attendance soared**

Susan Clements-Vivian, invited students to sketch and share visual notes of course content. They responded with enthusiasm.
Scribbling diagrams and snapping pics on their phones, sure—but one thing you won’t see students doing in Susan Clements-Vivian’s lectures is napping.

Clements-Vivian is a senior lecturer in the School of Interactive Arts and Technology. In Spring 2017, she received a Teaching and Learning Development Grant from the Institute for the Study of Teaching and Learning in the Disciplines to apply and assess a new approach in her 50-student IAT 208 Drawing as Inquiry course.

“Students often feel disconnected from the content. The course material lives in the instructor’s lecture slides or on Canvas, but never with them. It’s no surprise, then, that the lecture itself becomes irrelevant and they either don’t show up to class or fall asleep when they do.”

SHARED VISUAL NOTES

Clements-Vivian’s solution to this situation was to transform her lectures from a place where material is communicated, to a place where material is co-created.

“My idea was for them to sketch visual notes alongside me during lecture, then take pictures of them and upload them to Canvas. They had the choice of requesting the notes be kept private, but no one took me up on that offer. Instead, all of the notes were then uploaded to a course blog so that we had a collective record of the class content.”

The key, she stresses, is that the notes are not simply uploaded and forgotten, but used as the primary reference material in the course.

Clements-Vivian explains that although visually based notes were particularly suited to her drawing class, the technique could also work with text-based notes. The key, she stresses, is that the notes are not simply uploaded and forgotten, but used as the primary reference material in the course.

“The notes weren’t always perfect, but in lecture we could work out what was missing as a class together. As we moved through the curriculum, I tagged concepts that were going to be assessed in the mid-term, so that they could then go back and study from what they had created. And it worked: traffic on the blog went way up right before mid-term, which was evidence they were really using them.”

SURPRISING OUTCOMES

The results of the approach in terms of student engagement, she says, surprised her—in a good way.

“The feedback from the course was extraordinarily positive. Ninety-eight percent of students reported that they attended classes always or almost always. The reason: they were excited to be in class, they wanted to be a part of the process of creation that we were doing. It was wonderful to just see how happy everyone was to be there.”

Clements-Vivian acknowledges that the approach, though impactful, was a lot of work—and will likely continue to be a lot of work every time she offers the course.

“It’s always a lot of effort changing how you do things. I think in some ways it will get easier over time, but this one is always going to require a fair amount of effort. Because we basically co-created the course, so I can’t just pull something out and re-use it again next year.”

However, in her view that too is part of the success.

“One thing students said they appreciated was that I was working as hard as them. Of course, faculty all work in preparing materials, but that work is hidden. What was important was that we were producing at the same time. We were working together.”

Contact Susan Clements-Vivian at sc-vivian@sfu.ca
Jon Driver, George Nicholas, Archaeology
Exploring ways to prepare students for the “real world”

Jon Driver (left) and George Nicholas are exploring ways in which the archaeology department can better prepare undergraduates for the roles they are likely to take on after they graduate.

Jon Driver and George Nicholas want to know how to better prepare archaeology students for the “real world.”

Driver is a professor in the Department of Archaeology and former VP academic. Nicholas is a professor and chair of the department.

“Where archaeologists are getting employed has shifted radically in the last couple of decades,” says Nicholas. “Ninety percent are being employed by the heritage management industry, and yet we are largely teaching them for a research or academic profession—one that doesn’t really exist anymore.”

To address this disconnect, Driver and Nicholas recently designed and distributed a survey to heritage management industry professionals in B.C. asking them what practical skills they didn’t get out of their academic training that would have helped them in their current roles. The project was made possible by a Teaching and Learning Development Grant from SFU’s Institute for the Study of Teaching and Learning in the Disciplines (ISTLD).

The survey, for which they have approximately 100 respondents, opens a conversation with alumni and industry not just about what new content the department could cover, but how.

“We may hear that people find our department’s teaching style generally old fashioned. We’re still lecturing and ‘labbing.’ Maybe we need to take a chunk of that and replace it with something else,” says Driver.

Once the survey results are compiled and analyzed, Nicholas and Driver acknowledge that the hardest part will be acting on its findings.

One proposal the two are considering is to create a series of one-credit professional courses based on the skills—which may range from technical report writing to geographic information systems (GIS) essentials—identified through the survey.

“Getting our faculty to think beyond how our current courses and majors are structured is going to be a big challenge because you get so used to ‘This is how it is and this is how it’s supposed to be forever,’” says Nicholas.

The results of the survey should be available for distribution by Fall 2018. As well, Driver and Nicholas are planning to submit the findings to a journal for publication.

Contact Jon Driver at driver@sfu.ca or George Nicholas at nicholas@sfu.ca
Ivona Mladenovic, Biological Sciences

Electronic devices in the classroom: What students told this instructor

Ivona Mladenovic investigated her students’ use of electronic devices in her classes. She is using the findings to inform her teaching practices.
Mladenovic, a senior lecturer in the Department of Biological Sciences, recently distributed a survey to approximately 680 students taking first-year biology courses to better understand their use of electronic devices—laptops, tablets and smartphones—in a variety of university settings, including lectures, tutorials and labs. The survey, which garnered about 370 responses, was part of a project made possible by a Teaching and Learning Development Grant from SFU’s Institute for the Study of Teaching and Learning in the Disciplines (ISTLD).

“I kept seeing research coming from universities and colleges that claimed these devices were a source of distraction for students and that they should be outright banned. I wanted to find out if that was really what was happening in my classrooms. And I’m glad I did.”

**GETTING IT STRAIGHT FROM THE STUDENTS**

Rather than undermining student learning, Mladenovic says, her survey results indicated that laptops, tablets and smartphones often enhance it.

Approximately 40% of students reported using laptops for note taking, and approximately 27% reported using laptops for tracking lecture slides.

“Although the students using laptops reported that they do sometimes get distracted by their own screens, they said that is the exception, and that they are primarily using laptops to take notes in lecture or to follow along with the slides and make annotations.”

Mladenovic also notes that although there is some concern that laptop users are a source of distraction for non-laptop users, with some educators going as far as to suggest segregating laptop users from non-laptop users, respondents to her survey overwhelmingly stated this was not the case.

**A RESOURCE TO HARNESS**

What about tablets and smartphones? Mladenovic explains that these devices, which are primarily used in tutorials and labs, fill a similar learning-enhancement role for students. Approximately 46% of respondents reported using smartphones to take pictures of curriculum material during labs, and approximately 27% reported using their smartphones for web searches during tutorials.

“We found students largely use mobile phones in the lab to take pictures of artifacts or diagrams so that they can study them at home. Similarly, in tutorials they describe using phones to look up any of the terms we are discussing that they don’t understand.”

Mladenovic says the findings have inspired her to start thinking about new ways of incorporating electronics into her classes.

“I’m very happy about these findings because it gives me permission to explore how I can harness the power of laptops and smartphones and tablets. One thing I am planning to do in the fall semester is use the Pearson Mastering course, which offers online activities that integrate with the textbook that can be used in class.”

Contact Ivona Mladenovic at imladen@sfu.ca
Atiya Mahmood, Gerontology
A redesign made this course more engaging for students—and the instructor

Atiya Mahmood streamlined her course with the help of a course concept map created during a peer-lead course design workshop.

Atiya Mahmood is learning how to breathe new life into old courses.

Mahmood, an associate professor in the Department of Gerontology, inherited GERO 300 Introduction to Gerontology in Fall 2014.

“GERO 300 is a Breadth course that gets an enrollment of 50-plus students each fall, most of them from disciplines outside gerontology. It was originally designed in the 1990s and hadn’t been updated since then. The student evaluations were pretty mediocre—the format of the course needed a major revamp.”

Mahmood attended the Spring 2017 Rethinking Teaching workshop, now named Rethinking Course Design, to help her figure out how to revise it. Rethinking Teaching/Course Design is a four-day, peer-led workshop offered by the Teaching and Learning Centre that supports faculty members to develop or redesign a university course.

“One of the first questions that Rethinking Teaching made me address was: What is my objective with the course? What do I want students to get out of it? This made me really think about how to make the class more palatable for the students. One part of the course that students found daunting was a module where they were exposed to 12 core theories all in the same lecture.

Through Rethinking Teaching, I developed a course concept map that helped me identify three overarching and interlinked theories that became a running theme throughout the course. I could then introduce the other theories gradually in other modules.”

By adapting and streamlining the course content, Mahmood was also able to integrate an experiential activity to allow students to understand the abstract course concepts and complex information in new, more meaningful ways.

THE PERSONA PROJECT

“My colleague, Sarah Canham, and I both teach this course during different semesters and we came up with this idea of the Persona project, where students work in teams over the duration of the course to develop a fictional older adult character that possesses unique physical, social and psychological traits. This persona becomes a frame through which students can engage with the curriculum. Attending Rethinking Teaching helped me work out how to structure the course so that this activity anchors the different course modules.”
The goal of the personas activity, Mahmood explains, is for students to think through how each person’s life situation interacts with the world in specific ways that then inform their life experience.

“One team decided their persona would have little rats as pets. When we got to the module on housing, this team soon realized that their persona would have major difficulty in finding placement in a supportive housing or care facility as most do not allow rodent pets. In another assignment, students had to evaluate an assigned section of downtown Vancouver through the lens of their persona with whatever mobility challenges they have designated for their persona. My students are largely able-bodied 20-year-olds, and until they do this type of assignment, the reality of older adults is often invisible to them. It gives them an awareness of the aging process that is different from what they learn through discussions or readings.”

Mahmood’s Rethinking Teaching group lead, Petra Menz (senior lecturer, mathematics), attended one of her classes to observe how students were discussing their personas. Menz’s feedback helped Mahmood modify her assignments to ensure students were getting the most out of them.

HEARING FROM THE STUDENTS

The impact of the course redesign on student learning, explains Mahmood, has been significant. Students are not only getting to know their classmates better, but understanding the course material in deeper ways. “We evaluated the course and found that 90% of students felt the Persona project helped them learn the concepts better.”

For example, one student stated, “I really enjoyed the application of persona work. As a project, I felt like the end result of building the persona connected us personally to the work that we did. It’s a more creative way to demonstrate the knowledge we gained through the length of the course. This has been the most enjoyable group project I’ve been a part of.”

But just as important: Mahmood is enjoying the course. “Redesigning the course in this way has made the course actually fun for me to teach.”

An article on the personas approach by Mahmood and Canham has recently been accepted by a gerontological education journal, *Gerontology & Geriatrics Education.*

- Contact Atiya Mahmood at amahmood@sfu.ca or Sarah Canham at scanham@sfu.ca

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Andrew Flostrand, Beedie School of Business  

Is it or isn’t it? Student understandings of academic dishonesty are ambiguous

Andrew Flostrand wants to gain a better understanding of what academic dishonesty means to business students.

Andrew Flostrand wants to understand student attitudes towards cheating—so he can change them.

Flostrand, a lecturer in the Beedie School of Business and recipient of the 2018 TD Canada Trust Distinguished Teaching Award, recently completed a research project exploring how students define cheating, how often they think it happens, and what they think should be done about it.

“We all know that jaywalking is illegal, but what are the norms around breaking that law? That is what I wanted to know.”

Flostrand was inspired to pursue the research, funded by a Teaching and Learning Development Grant (TLDG) from SFU’s Institute for the Study of Teaching and Learning in the Disciplines (ISTLD), after recognizing a disturbing disconnect between his understanding of academic dishonesty and that of his students.

“At the end of an exam, I had two students that were really upset because, as they explained to me, they had spent $800 to view an exam from a ‘tutoring’ company that they had been told would be used in my course, but wasn’t. What struck me was that the students didn’t think they had done anything wrong—not something, anyway, that warranted failing the course. In their minds, they had only done what any conscientious student would do. It was just one event, but part of what has become a very normalized culture.”

IS THIS CHEATING? A STUDENT SURVEY

To gain a more comprehensive understanding of that culture, Flostrand and research assistant/collaborator Sarah Lord Ferguson invited more than 700 business students in their second-, third- and fourth-year qualitative core courses to participate in a survey; 484 students did so. The survey, which was both anonymous and voluntary, differed in design from traditional approaches that often focus only on inventorying cheating behaviours.

“I gave them 16 different scenarios to assess in the survey. They had to rank them in terms of severity and perception of occurrence. I also asked them what they feel are the costs associated with those actions and for their policy advice.”
Overall, says Flostrand, the research suggested students feel that the less planned and deliberate an action is, the more morally acceptable it is.

“The results showed students see … overt, premeditated acts as cheating—such as bringing notes into a closed-book exam—but not the opportunistic types of behaviours, such as overhearing a professor talk about something on the exam or accidentally noticing another student’s work in an exam.”

The scenarios that involved pre-planning were viewed as cheating by 90% of the students, whereas only 15% of students identified opportunistic scenarios as cheating.

What surprised Flostrand most about this finding was that it remained constant across academic levels.

“I didn’t expect to see their perceptions consistent across the board. I thought their attitudes would evolve through their degree process, but that isn’t the case.”

WORK TO BE DONE

Flostrand says the results have confirmed for him that a lot of work needs to be done.

“My goal is for students to have a clear compass in areas where there is currently a lot of moral ambiguity.” This, he hopes, will reduce the prevalence of such behaviours.

While Flostrand’s study was restricted to business courses, he has plans to adapt the survey to other fields of study. In the meantime, he notes that he has already implemented a number of practices in his classes to raise student awareness of what constitutes cheating and to discourage it. One of those is taking time at the beginning of every semester to explain SFU’s Academic Honesty policies.

For more information about Flostrand’s study, including instructor and institutional-level recommendations for reducing academic misconduct, please see his TLDG project report, listed on the ISTLD website.

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Megan Barker, Biological Sciences

Research vs. practice: What really happens in STEM classes

Megan Barker co-authored a study that observed student and instructor behaviour in more than 2,000 STEM classes across North America.

Megan Barker wants to help higher-education classrooms catch up to the research.

“There have been a number of major studies, such as those by Scott Freeman, that are closing the door on the traditional lecture as an effective tool for learning,” says Barker, a lecturer in biological sciences. “We know that students who engage in active learning outperform those who do not by whole letter grades and that the drop-out rates are significantly reduced. However, what we haven’t known until now is whether that knowledge is being acted upon.”

To find the answer to that question, Barker was part of a group of researchers that observed over 2,000 STEM classes taught by over 500 faculty members across 25 Canadian and American universities to document the types of instructional practices taking place. The study applied a standardized observation protocol to inventory student behaviour (for example, listening to and answering questions) and instructor behaviour (for example, lecturing and posting questions) within two-minute class intervals.

A BIG SPLIT

The results of the study, “Anatomy of STEM Teaching in North American Universities,” published in March 2018 by Science Magazine, found that, overall, instructors spent an average of 75 percent of class time engaged in lecturing, and students spent approximately 87 percent of class time engaged in listening.

“This study shows there is a big split between what the research says helps students learn and what we in academia are actually doing. Finally, we have the data to show exactly how prevalent this problem is,” says Barker. “I’m very excited about it because it means universities and individuals now have the leverage to stand up and push for positive change in the classroom.”

Although the study focused on STEM classes, Barker notes that it is probably safe to assume that the trend is fairly consistent across all disciplines.

SHIFTING THE CLASS DYNAMICS

In her own classes, Barker has implemented a number of changes to promote active learning. One technique she uses to make her classes, whether in large lecture halls or tiny seminar rooms, more interactive is to spend at least five minutes inviting students to work through a difficult problem amongst themselves.

“It needs to be a hard question, something that will authentically challenge them. When I first did it, I had to set the clock and resist the urge to answer it for them. It might seem like a small thing, but just by doing that I was able to shift the dynamics in the class.”
GREATER ENGAGEMENT EQUALS GREATER LEARNING

And students seem to like it.

“I really appreciate when Megan gives us iClicker questions to discuss in class instead of just lecturing the entire time like most other instructors do. It gives a little time to think and process new concepts, so they can settle in,” said Andrea, a student in Barker’s BPK 408W Cellular Physiology Laboratory class.

“A lot of my professors preach the whole time, and I wind up nodding off and missing out on the point of the lecture entirely. Megan gets us working together during lecture, which helps me stay engaged with the concepts, so I can actually understand them more,” said Nick, another BPK 408W student.

Students report not only increased understanding, but also higher engagement with their program overall.

“This is my second class with Megan. I enjoyed the first and learned so much that I made sure to take another one with her, and it has been just as good as I’d hoped,” said Dariush, a Biomedical Physiology and Kinesiology student.

STEPS FOR TODAY AND TOMORROW

For other faculty members interested in shifting their approach, Barker notes that the biggest step they can take is talking—to each other.

“Talk to your colleagues about your teaching the way you would talk about your research. Better yet, approach faculty from other departments and form a group of three and simply observe one another’s classrooms as a way to share practices. All of the practices that I implement now were the result of me going to other people’s classes.”

Barker also encourages faculty members to include her in those conversations: “Feel free to contact me. I’m always curious and eager to hear about what other faculty are doing with their students.”

At an institutional level, Barker’s study recommends the revision of tenure and promotion policies to reward the use of evidence-based instructional practices, the implementation of effective pedagogical training for faculty, and the development of research-based guidelines for measuring effective teaching practices.

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Rebecca Yoshizawa, Gender, Sexuality, and Women’s Studies

How writing Twitter rants became a “huge learning motivator”

Rebecca Yoshizawa asked her students to write Twitter rants. The opportunity to address a large, external audience motivated them to hone their arguments and polish their messages.
Rebecca Yoshizawa is creating learning spaces where engagement soars—with help from a little blue bird.

Yoshizawa is a sessional instructor in gender, sexuality, and women’s studies. This semester she assigned students in GSWS 318 Reproductive Justice and Rights to create three “Twitter rants”—a series of connected tweets that communicate an argument or perspective informed by course material and their own experiences. Each assignment was worth 10% of the final grade.

Yoshizawa explains that one of the biggest strengths of using Twitter is that students can produce work that has an impact beyond the classroom.

“For their academic material to live outside of the university and mean something to someone besides me is a huge learning motivator for students and particularly relevant for gender studies, which centralizes activism and consciousness raising. But other disciplines could similarly assign Twitter rants—consider a biology class with a component on communicating research to the publics. Wouldn’t that be a great assignment?”

As one student, Tara, said, “Writing the tweet rant forced me to develop a really strong argument, one that I could apply in other parts of my life, because I knew real people would read it. I rewrote it and rewrote it over again.”

“It was empowering to use my academic knowledge and personal, lived experience to show what I have learned, rather than regurgitate a textbook.” — Kal, gender studies student

But can tweets be considered real academic work? Absolutely, says Yoshizawa.

“Sure, tweets are short, but I don't find any reduction in the analytic skill required to delve into the difficult content we address in the class. Instead, the character constraints of tweets force students to really think about what they want to say. Actually, the Twitter rant particularly is a valuable pedagogical tool because, like all genres, it has certain conventions that students need to recognize and apply … As well, all of the tweets within a rant need to be able to be read as stand-alone pieces, while fitting together into a cohesive whole that takes the reader on journey.”

>Contact Rebecca Scott Yoshizawa at rebecca_yoshizawa@sfu.ca

“It was fun and interesting, plus I learned skills in conciseness that I know will help me with future papers.” – Alyssa, gender studies student

However, Yoshizawa acknowledges that, as beneficial as the assignment has been for her students, it might not be suitable for all classes.

“I wouldn't do this assignment in a first-year class where students are ideally learning the basics of good writing. Plus, instructors should consider ways to protect their students while encouraging them to enter public discussions on controversial topics. Trolls, or worse, harassers are attracted by topics covered in my class, such as abortion. I think instructors will want to consider students’ resiliency.”

To avoid exposing her students to unwanted risk, Yoshizawa gave them the option to submit their assignments to her privately.

One thing Yoshizawa says shouldn't be a barrier to trying out this approach is the social-media savvy of instructors.

“If you don't use Twitter you may not feel as comfortable having a Twitter-based assignment in your class. And though I do think [familiarity] helps, it is not necessary. I have had classes where students did infographics as their final assignment, and I hadn't created one before that myself. But I take that as an opportunity to collaboratively develop the assignment guidelines. I ask students to bring examples of good infographics, or podcasts, or whatever I'm assigning, and we use class time to figure out genre and technical conventions together as an activity. Then I made an infographic alongside my students. If I want my students to take risks, I have to be prepared to do the same.”
Juan Pablo Alperin, Master of Publishing Program

Eager to share an online annotation tool that promotes “collaborative reading”

Juan Pablo Alperin has been using an online annotation tool to facilitate reading-based discussions in his classes. Now he wants to share the tool with other instructors.

For four years, Juan Pablo Alperin has been using an online annotation tool called Hypothes.is to generate reading-based discussions in his classes. The results have been so positive that this year he applied for a Dewey Fellowship (a teaching and learning-focused position granted by SFU’s Institute for the Study of Teaching and Learning in the Disciplines) in order to spread the word.

“I applied for the fellowship because I’m so excited,” says Alperin, an assistant professor in the Master of Publishing program. “I want to use it to get more people to know about this option.”

Hypothes.is works like many other annotation tools: users can employ a browser plug-in to highlight text on a web page or PDF and add notes in a sidebar. They can also respond to one another’s annotations. The result looks like the comments inserted in a Word or Google Docs file (see the image on the opposite page).

Hypothes.is encourages interaction because the discussion takes place “right on the text itself,” says Alperin. What he especially likes is the “social element” it promotes; he characterizes the activity as an exercise in “collaborative reading.”

“The students really develop a culture and a shared practice. Every text becomes a very social space.”
Alperin describes the tool as a “low-stakes, low-effort” option with a high pay-off for both instructors and students. He typically introduces it on the first day of class: “I usually have them annotate the syllabus.”

Students respond to the online discussions “incredibly well,” he says. “I’ve had students do [course] reflections. Almost universally they refer to annotating as one of the highlights of the course. They really feel it has enhanced their experience.”

EVERYONE BENEFITS

When Alperin introduces the tool to other instructors, he emphasizes three benefits for students: it fosters greater participation; it encourages students to “read closely, without skimming, all the way to the end”; and it exposes less experienced students to examples of how others read closely.

He also emphasizes a fourth benefit, this one for instructors: annotations give the instructor “a sense of what students found interesting or confusing in the assigned texts ahead of the classroom discussions.” He likes to read the comments the night before a class so that he can make adjustments to the lesson plan, if necessary, for the next day.

Alperin does note that for the tool to be useful, “a good portion of what your students are reading needs to be available online somewhere.” He also recommends that participation in the online discussions be included in the grading structure of the course.

INTERESTED?

Alperin is available to do one-on-one demonstrations for instructors and teaching assistants interested in using Hypothes.is.

Contact Juan Pablo Alperin at jalperin@sfu.ca

An example of Hypothes.is annotations on a web page. Instructors control who can post and view comments.
Atousa Hajshirmohammadi, Engineering Science

Using Canvas quizzes to foster engagement in large lecture halls

Atousa Hajshirmohammadi discovered that she could foster engagement in large classes by giving non-graded in-class Canvas quizzes. Students love the practice.
Atousa Hajshirmohammadi is making small changes in large spaces to create better learning environments.

Hajshirmohammadi, a university lecturer in the School of Engineering Science, uses non-graded in-class Canvas quizzes to combat the distraction fostered in particularly large, anonymizing lecture halls. She shared this practice at an October 2018 session of the Teaching Matters Seminar Series, a biweekly gathering of faculty members for informal discussions about teaching.

QUIZZES AS A TOOL FOR ENGAGEMENT

“My ideal classroom would consist of a large round table where everyone would be able to make eye contact with me and with each other, so that we could all be engaged and connected,” she said. “However, that is not what the lecture halls I teach in look like.”

Hajshirmohammadi, who teaches classes of up to 200 students, uses the in-class quizzes to encourage students to engage with the material and with each other. The quizzes were developed as part of a project made possible by a Teaching and Learning Development Grant from SFU’s Institute for the Study of Teaching and Learning in the Disciplines (ISTLD).

“The quizzes are not just about assessing what they know, but about actually supporting their learning. So I always strongly encourage students to discuss the questions and solutions with their classmates.”

The results, she said, have been quite positive. In Hajshirmohammadi’s course evaluations, 68% of students “strongly agreed” or “agreed” that the in-class quizzes were helpful in keeping them engaged during lecture time.

One respondent wrote, “Quizzes are great for learning, challenging to just the right amount!”

Another wrote, “Canvas quizzes helped confirm knowledge.”

USING CANVAS FOR CONVENIENCE

Hajshirmohammadi noted that although there are many student response systems, such as iClickers, that can be used for the same purpose, Canvas quizzes represented the most accessible option. The quizzes can be viewed on a laptop or mobile device, so there is no need for students to purchase additional hardware. As well, since the quizzes are based in Canvas, students do not need to set up new accounts or pay for access.

In describing how she implements the tool in classes, Hajshirmohammadi emphasized that timing is key.

“I set up the quizzes ahead of time, usually planning one or two per lecture, with each one consisting of one or two questions. I then publish them during the class. What is important is that I don’t give them the quiz right after I introduce a new concept. I give them one or two examples, so that they have had a chance to process the idea, before introducing the quiz.”

Hajshirmohammadi also pointed to the importance of limiting how much time students have to respond.

“I give them at most ten minutes to complete the quiz—any longer and I may risk losing their attention.”

The quizzes collectively are worth up to 2% in bonus marks applied toward the students’ final grade.

“It’s a small portion of their grade, but it can have a big impact on how they interact with the material.”

Contact Atousa Hajshirmohammadi at atousah@sfu.ca
We hope you enjoyed this edition of *SFU Teaching Stories* from the *Teaching and Learning News* blog and that it will inspire your own teaching practice. If you have a teaching story to share, contact us! Your experience could be the spark that someone else needs. Remember, teaching—and teachers—thrive in community.

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**About the Teaching and Learning Centre**

The Teaching and Learning Centre supports SFU faculty members, instructional staff and academic units in the development and delivery of effective approaches designed to enhance student learning. We provide educational consulting, technology and media support, course and curriculum planning assistance, and professional development opportunities.

**CONSULTING**

From course design to development and assessment of educational goals to the integration of new technologies, our professionals offer general and discipline-specific support in the form of ideas, methodologies, resources and feedback.

**RESOURCES**

Our professionals and our website provide multiple resources, including guides for teaching assistants and new faculty members, experiential-learning case studies, and information about teaching-related grants and funding programs delivered with SFU partners.

**TECHNOLOGY AND MEDIA**

Our technology professionals support instructors wishing to take advantage of tools such as Canvas to enhance student learning experiences. In addition, our media professionals provide training and support for the creation and use of audio, video and graphics in learning environments.

**PROFESSIONAL DEVELOPMENT**

We offer workshops, programs and events for faculty members, instructional staff and graduate students in areas ranging from instructional design to voice and presentation skills.

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Jackie Amsden - Photos on pages 17, 30, 32, 36, 38, 40, 42, 45, 47, 49

Mark Bachmann - Photo on page 22

Duane Woods - Photos on pages 10, 19, 25, 26, 50, 54

**RELATED LINKS**

Teaching and Learning Development Grants (Institute for the Study of Teaching and Learning in the Disciplines):
www.sfu.ca/istld/faculty/grant-programs/ltldg.html

Open Educational Resources Grants:
www.sfu.ca/oergrants.html
can give examples.

Predicate: what we are about the subject