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| Table of Contents |

Technology

Research Writing in the Disciplines

Improving Discussions

Connecting with Students

Assessment

Special issue: Innovative Teaching Personal Essays

Editorial

Personal Essays of Teaching Innovation: Good stories that take a deal of telling

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In this special issue of the *Journal for Research and Practice in College Teaching*, the style of these narratives is the "personal essay." It is distinct from the formal academic essay in that it is frank with the reader that the essay is not neutral, objective, or speaking for a group. In the introduction to *The Art of the Personal Essay*, Lopate writes,

> The hallmark of the personal essay is its intimacy. The writer seems to be speaking directly into your ear, confiding everything from gossip to wisdom. Through sharing thoughts, memories, desires, complaints, and whimsies, the personal essayist sets up a relationship with the reader, a dialogue – a friendship, if you will, based on identification, understanding, testiness, and companionship…At the core of the personal essay is the supposition that there is a certain unity to human experience. (1995, p. xiii)

In the academy, we often write in a less personal voice about what we learn when we do research in our classrooms, but teaching is more personal and often more intuitively guided. A teaching strategy that works in my teaching style may require particular adaptations for someone else to use. This special issue of the *Journal for Research and Practice in College Teaching* embraces this personal experience of innovating teaching. As these are personal narratives, it is likely that one may disagree with some of the approaches or not even see some as innovative, in

comparison with one's own experiences. This is the nature of the individual experience of teaching; these essays are each a window on one point of view. Perhaps one might read them with the perspective of an ethnographer learning about what innovation looks like to people in different countries, institutions, and disciplines.

Tolkien (1937) notes, "Now it is a strange thing, but things that are good to have and days that are good to spend are soon told about, and not much to listen to; while things that are uncomfortable, palpitating, and even gruesome, may make a good tale, and take a deal of telling anyway" (p. 60). In this spirit of good story telling, these personal narratives deal with what researchers in organizational development agree is uncomfortable and sometimes gruesome: changing how we teach. These are not research reports with clear endings. These are narratives of the messiness of success and the dogged mindset of sustaining innovation. In "The Ten Barriers to Innovation in Higher Education," Morriss-Olson writes, "…at the end of the day, institutional resiliency may depend more on mindset than skill set." The instructors in this collection demonstrate what this mindset is. It is such a value on student learning, that instructors are willing to change how they teach to improve student learning even if it feels uncomfortable.

In this mindset, instructors' willingness to try something new benefits students not only in creating more effective learning environments, but also in teaching this mindset of embracing innovation. In this collection, Kramer writes, "Being an example in the safe space you are creating, showing it is okay to make mistakes and take risks, is highly effective, and worth the time and effort." Of course making mistakes and taking risks is easier when there is community support. The majority of the contributors to this special issue on innovation discuss how their innovations were not conceived of and implemented in a vacuum; they read research, they talked

with colleagues, and consulted with students about how to implement and refine their innovations.

In the discipline of Organizational Management, there is a great deal of research on institutional change. The models discussed often deal with business environments, but some of the observations can be useful to understand innovation in an academic context. Amarantou, Kazakopoulou, Chatzoudes, and Chatzoglou (2018) analyzed the attitudes of resistance to change for the *Journal of Organizational Change Management.* These researchers summarize the consensus that attempts at change often fail due to participants resisting change. In the context of organizational change, teaching is interesting to consider because the change, organizational or not, is ultimately personal. In changing how one teaches, one is also changing the student/teacher relationship. The contributors to this issue are all, clearly, predisposed to value change, and they express optimism, flexibility, and a desire to be well informed about the changes they are implementing. Because this process is so personal, these innovators often cite better student engagement and better learning as the intrinsic reward for innovation in teaching. The difficulty of many of the changes these instructors present is that they often involve sharing control of the learning process, or even stepping completely back from personal control and trusting that the design of the activity will help the students learn without the instructor's firm, guiding hand.

Nevertheless, student resistance to these changes can be a strong inhibiting force, which some of the contributors discuss. Active learning is hard; a flipped classroom requires more student engagement, and more effective learning often means more work for the student. In this issue, in their discussion of introducing student videos to a course, Macauly and Speed explicitly tackle the problem of students resisting a change that clearly demonstrated better learning.

Amarantou et al. (2018) note that a strong barrier to change is when "individuals perceive change as being contrary to their interests" (p. 433). Usually the issue that is contrary to a person's interest is being asked to do more work.

Instructors can also feel that change is contrary to their interest. In this issue, Wood notes, "Implementing any new innovative teaching strategy takes time to reflect on the process and revise with each iteration." Innovating the way one teaches is not a single innovation, it is an iterative process of changing and then refining the change. For instructors with a mindset that values student learning, the intrinsic reward of better student engagement is motivating. In this issue, Friberg writes, "I cannot lie; the design and implementation of [the new design] was very labor intensive for me. That said, I was so dissatisfied with my previous approach to teaching this class, the time and effort were more than worth it." Often, when the students are engaged, the instructor is also more engaged and the work of teaching is easier when the students want to learn. Also in this issue, Showalter agrees, "But with happier, more knowledgeable students, deciding to keep the innovation has been a no brainer – even if it would have required substantial time and energy…"

As we see, in the personal narrative of teaching innovation in this issue, change in the classroom is not just a personal choice on the part of the instructor, but also a social negotiation between the students and the instructor. Shimoni (2017) discusses how this interaction between the personal and the social is important in considering change and resistance to change. The social context of the classroom is important in cultivating a positive orientation to change as well as the social context of the unit or program. Social support for innovation among colleagues and within the institution can help the innovations of early adopters become more available to others as well.

The profile of the instructors who contributed to this issue is instructive for understanding change in the social context of academia. As a group, they outline their teaching innovations as being individually implemented, in consultation with colleagues, not requiring much (if any) funding, and focusing on technique with technology often secondary to technique. In the majority of these narratives, student learning may have improved, but these instructors frequently cite an improved attitude towards learning and improved engagement in their learning as their motivation to sustain the innovations. What is striking in these narratives is the instructors' deep appreciation for the experience of their students in their classrooms and programs.

As teachers, we can learn from each other's experiences, and as professionals, we can adapt principles to our personal contexts. We hope that these personal essays of negotiating innovation in teaching can help our readers create changes in their own teaching, or at least readers might feel some support by reading about the struggles of others. And if you don't learn something new, then at least you will be entertained.

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Special issue: Innovative Teaching Personal Essays

Using Group Whiteboards to Engage Students and Promote Active Learning

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We have often heard, "Two heads are better than one." In article publishing, we regularly employ this concept by utilizing peer reviews to improve articles. It is not easy to hear all the changes the reviewers want for an article, but it improves an article to incorporate reviewers' feedback. It makes me think of other ways to look at a topic or idea, to improve my argument or to make my argument more compelling. So I asked myself how I could incorporate the benefits of collaboration – of "two heads" – within my classroom?

In my physics class, I want students to develop as independent learners who take responsibility for their learning and develop critical thinking and reasoning skills. To promote higher level thinking and reasoning skills, I focus on developing a process of solving physics problems. I challenge my students with increasingly more complex physical scenarios in which they need to identify the relevant concept and determine how to represent a situation with various representations, including a sketch, graphs, and mathematical equations in order to solve a problem. I have noticed that a common strategy for novice physics students is to memorize how to solve a problem and then try to use the same equations to solve problems they think are similar, otherwise known as equation hunting. Students tend to focus on the surface features – if a problem involves a car moving, or a ball thrown – instead of the concept that is involved. Every problem can look completely new to students who are not able to identify the relevant

concept. So, they tend to use a memorized algorithm to solve any new problem without understanding the physical principles involved.

Another problem is that many of my introductory physics students come into class with a fear of physics. Sometimes this fear can create such intense anxiety that students are unable to participate in the learning process. As I considered what my students needed to effectively learn physics, it seemed they just needed a challenging environment that encouraged them to think critically, pushed them to ways of reasoning beyond what they had previously engaged in, and was in an atmosphere where they felt comfortable to discuss physics with peers and in a whole class setting. The question remained, "How can I make this happen?"

As a new physics instructor, I participated in an eighteen-month New Faculty Experience (NFE) sponsored by the National Science Foundation and the American Association of Physics Teachers. This program introduced new physics faculty to research-based instructional strategies in a three-day workshop in March and then mentored the new faculty in an online platform through another academic year as we implemented the innovations we had learned. I learned about whiteboarding from Dr. Dwain Desbien (2002), who developed Modeling Discourse Management and has been practicing and refining it ever since. After the March workshop, I came back to my classroom excited to try whiteboards in my own class in the last term of the academic year.

After I acquired whiteboards at the local hardware store (a 4' x 8' sheet of showerboard cut into 6 boards), I announced in class that we would be doing group work on whiteboards. My enthusiasm was not contagious. Students did not appreciate the abrupt change from the previous class method of Peer Instruction using concept questions and working on problems on paper with guidance and then solutions written on the board (Mazur, 1997). The end of course student

evaluations that term included comments like “Everything is fine but the whiteboard activities” and “Stop using whiteboard activities. They would be ok after you have lectured about the topics.”

I went into the summer term wondering what went wrong.

Through the mentoring in an online platform, I reflected on what appeared as a failed attempt at an innovation and discussed it with the other NFE new faculty and mentors. They helped me realize that it was not the innovation itself, but instead the abrupt change during a term in progress. Students felt that the class rules and operation had changed when they were already accustomed to learning with a different format. I began to realize that I needed to set an expectation at the beginning of an academic year and explain the reason for using whiteboards. It was not enough to be personally committed to an innovation: students had to buy in, as well.

The following Fall term, I set the expectations in the first week, having students work with whiteboards to introduce each other and review the syllabus – a generally less threatening activity than actually doing physics. The focus was on getting know their peers and working collaboratively. Students generally are more comfortable speaking to their peers in small groups, but they develop their confidence by having their understanding confirmed in their small groups prior to explaining to the whole class. Nonetheless with practice, they do become comfortable interacting in the Board Meetings, the part of the class where groups present their group boards to the class.

In my physics class, students now use small portable whiteboards to solve physics problems in groups of four. The whiteboards are a tool to make their collaborative thinking visible to their peers and themselves. In addition, I move throughout the room and scaffold student learning based on the thinking they have displayed on their whiteboards.

In a typical class session, I have introduced a concept and a basic example problem in pre-class videos. Then in class, students work on whiteboards in groups of four on more challenging physics problems. As groups are working on their problems, I circulate through the room to check their understanding visible on each group's whiteboard. For groups who need scaffolding, I ask clarifying questions to provide guidance. For groups who have solved the problem and are ready for a challenge, I seed new ideas on ways they can extend the problem and incorporate another physics concept not yet presented in class (Desbien, 2002).

Once the groups have mostly finished the problem, we conduct a Board Meeting by forming a circle in the classroom with each group holding their boards so all can see each other's work (Megowan-Romanowicz, 2016). Students compare their whiteboard work with other groups' whiteboards to find commonalities and differences. Physics problems can often be solved in a variety of ways, yet still come up with the same final answer. This becomes apparent by comparing whiteboards. One group presents their work, and the other students are tasked with asking questions of the presenting group. The class discussion is typically rich with thought provoking questions and incredible realizations that were not previously clear to students. For more details on how whiteboards are used in physics, see Wood and Kutcher (2017).

Working in small groups, students spend more class time engaged in the language of physics and verbalizing their understanding and thoughts. In order to explain or discuss physics, students must process the concepts at a higher level than would occur in a traditional lecture class in which the instructor explains the concepts and problems. In my class, students do the explaining. I provide guidance and join in their celebrations when they have their "ah ha" moments!

After a couple terms using whiteboards in class, the student evaluations now regularly list "Whiteboard activities" as the top thing about the course that helped students learn. I learned that even with an effective innovation there will be challenges to effective implementation. Reflection and learning from my students as to what works and what they need to learn is critical, as well as reflection and learning from my colleagues.

Using whiteboards in class and presenting during Board Meetings is not for all students. I make a significant effort to demonstrate this style of learning in the first class so students understand how the class will be conducted. I even suggest that if this type of learning – taking responsibility for your own learning in small groups – is not for them, then another section of physics may be a better fit.

Students learn better when they take responsibility for their learning. They push each other to develop their understanding of physics when they work in small groups. As they become comfortable working with peers, they develop friendships that make the class more enjoyable. Developing relationships in class helps them manage their fear of physics and focus on learning.

Implementing any new innovative teaching strategy takes time to reflect on the process and revise with each iteration. The most important feedback I receive is from the students – how they learn, how they think, and how they interact with the content and class. While two heads are better than one, an effectively run group meeting, a.k.a. Board Meeting, can provide students with a wider perspective and deeper learning. Learning is hard work, but in the right atmosphere, it is worth the effort!

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Special issue: Innovative Teaching Personal Essays

A "Technophobe's" Journey to Creating a Hybridized Problem-based Learning Web-tool

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I was a long-term sessional instructor, teaching a huge, 800 student introductory anthropology course at a large research-intensive university. As a part-time instructor, my job depended on introducing students to a wide range of careers in the field of anthropology, with the underlying goal of increasing specialists in anthropology programs. The precarity of my position meant that I had limited resources at an institution with other priorities. I could see the students' eyes glaze over as I lectured about the methodological principles that guide all aspects of fieldwork in subfields of biological anthropology and archaeology. My quandary was to engage students in course material without any additional funds. I wanted students to experience the real-life drama of an anthropologist in the field; collaborating with colleagues, solving unforeseen problems, working on practical projects from different subfields. I asked myself, "How do I accomplish these goals in a large introductory course where most students have no prior exposure to anthropology?"

My journey began with a discussion with a very patient educational developer. She explained to me that my goals seemed to align with a self-directed, active learning teaching technique called problem-based learning (PBL). In PBL, students control their own learning

process by working in small collaborative groups to investigate an open-ended practical case scenario (Schmidt, 1983; Loyens, Jones, Mikkers, & van Gog, 2015). It has been suggested that PBL develops critical thinking skills through problem-solving by giving students the opportunity to apply theoretical knowledge to practical situations (Raiyn & Tilchin, 2015; Wood, 2003). The closed-loop process of traditional PBL has seven steps (Bate, Hommes, Duvivier & Taylor, 2014; Schmidt, 1983; Wood, 2003). In general, small groups of students brainstorm a practical scenario by first determining the missing information. They hypothesize the problem, and assign tasks for each group member to work on. When the group re-convenes, they test hypotheses using the contributions of all group members and create learning outcomes (Bate et al., 2014; Norman & Schmidt, 1992). Instructors act as facilitators to monitor group collaborations and ask open-ended questions to expedite student investigations. Studies have demonstrated increased student engagement in PBL courses compared to traditional lectures (Albanese & Mitchell, 1993; Strobel & Van Barneveld, 2009).

I loved the idea of PBL, but I was stumped on how to make it work in a large introductory course. In the pedagogical literature, I found studies that used PBL in large courses (Long & Qin, 2014; Murray & Summerlee, 2007; Pastirik, 2006). However, they all had resources to hire a number of facilitators for small collaborative groups. I read about "hybridized" PBL in which the instructor uses the principles of PBL along with lectures that act as scaffolds to give students foundational knowledge (Klegeris & Hurren, 2011; Savin-Baden, 2014). In my pursuit for increased student engagement, I was also considering using clickers in lecture (DeBourgh, 2008; Skiba, 2006), but I was scared to use technology in front of the students because I am a self-identified technophobe. I had an "aha" moment one evening while I

was watching my son playing Mindcraft on my computer. Perhaps I could recreate the PBL process in an online forum to facilitate a large number of groups at the same time.

I decided to run a pilot of PBL case studies through the discussion board of the institution's learning management engine (LME). I chose a low stakes participation grade (6%), and assigned each lab section (50 students) one practical case-study from a different subfield of anthropology. I called each case study a "Monthly Virtual Mystery" to generate interest, and released a "clue" with images at the beginning of each week. A forensic murder mystery was demonstrated in the lecture to get the students' attention, and an alternative participation option was offered where students could watch weekly videos related to textbook chapters. Approximately half of the class chose to participate in the virtual mystery. I was shocked by the results. The students loved the virtual mysteries! They stated that it made them understand what an anthropologist did, and they enjoyed the practical nature of the cases (see Fukuzawa & Boyd, 2016). They did complain that groups were too large for effective collaboration. I needed to compose significantly more virtual mysteries and images in order to reduce groups to a reasonable collaborative size (generally 4-6 students in other PBL studies). This would require more funding for the course. What was a precarious contingent instructor to do?

I made an appointment with the Instructional technologist. He suggested that I try to present and publish my "mini-study" to demonstrate the efficacy of the virtual mystery. I didn't realize that by giving students an option and recording the results, I had inadvertently created a Scholarship of Teaching and Learning (SoTL) study. The educational developer explained the concept of SoTL and we found an appropriate pedagogical conference. Once I presented and published about the virtual mysteries, the departmental chair took notice, and authorized an internal grant to expand the project. Last year, we piloted 400 unique mysteries for groups of 5

students. My continued involvement in SoTL has been crucial to continue funding for the project by generating wider interest across disciplines and even outside of my Institution. The virtual mystery has out-grown the discussion board, and I am currently collaborating with the Department of Mathematics and Computational Sciences to create a custom virtual mystery web-tool. The technophobe in me has learned to rely on others for mechanisms to bring my teaching ideas to life. However, my journey with PBL has not been without bumps. Online PBL is not a panacea for all student engagement. I recently tried PBL in a technologically enhanced active learning classroom with mixed results (see Fukuzawa et al., 2017; Fukuzawa & Cahn, in press). I realized that students must be intrinsically motivated to be successful independent learners (Fukuzawa et al., 2017; Hung, 2011; Savin-Baden, 2014).

What are the lessons learned from my experience? The most important lesson is to reach out for help to put your teaching ideas into action. Even though I felt isolated and inferior in comparison to the full-time research colleagues in my department, I gained confidence from the educational developers and instructional technicians at the university. Secondly, I encourage all instructors to engage in SoTL to develop and sustain their teaching ideas with a wider pedagogical audience. SoTL allowed me to demonstrate the value of the virtual mystery to the academic community. Even publications of my challenges with PBL have led to greater recognition by my research colleagues. The virtual mystery project would not have been sustainable without that acknowledgement. Instructors must realize that they are generating research through their teaching, and there is a welcoming place for teaching and learning creativity in the wider pedagogical community.

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Special issue: Innovative Teaching Personal Essays

Grieving the Death of the Lecture

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Upon commencing my first academic post in 2007, using Microsoft PowerPoint to deliver a lecture was the gold standard. Every single colleague in my department used a slide deck, where we delivered these in three one-hour sessions every week. 'Good teaching' simply referred to those who could do this well, perhaps with a few good jokes or anecdotes, and those at the other end of the spectrum merely stood behind the lectern and read directly off the slides.

Come the second decade of this millennium, best-practice in higher education teaching was increasingly synonymous with active- and student-centred learning, with terms like 'flipped classroom' entering the lexicon. Seminal papers in STEM education included the large meta-study of Freeman et al (2014), and more recently the Stains et al (2018) analysis of how cultural change was moving through the sector.

As an early adopter in my own Faculty, I was keen to lead the way in transforming our teaching, where I modified one general chemistry lecture per week into an interactive workshop. The following year I completely reformed an analytical chemistry module where students watched pre-recorded lectures prior to class, where instead we worked through problems and questions. Come 2018, and we have now completely transformed our general chemistry class into student-centred workshops, and other science disciplines in my institution are following suit.

But it has not always been smooth sailing, and it has been a lesson in both student and staff expectations, but more than anything an exercise in humility for myself.

Students are invariably suspicious of any change to content delivery. The perception that the instructor is no longer 'teaching' and that students have to 'teach themselves' is pervasive. Add to this that students feel as though they are the guinea pigs in some new experiment, and the challenge of getting students to buy into innovative teaching can be an uphill battle.

My colleagues thought I was crazy. Where was the evidence the flipped classroom yielded better learning outcomes? Furthermore, maybe *I* could pull it off because I was young, but for those who were trying to keep laboratories and large research groups functioning, investing large amounts of time into transforming their teaching didn't pass the cost-benefit analysis.

But for me, the biggest challenge of all was the fact that I just *loved* lecturing. I acknowledge this is not everyone's lived experience, but for me the exhilaration of performing for my students, and believing I was providing them with an amazing educational experience was what excited me about teaching. And my student evaluation surveys backed this up. I was one of the best lecturers around, and I was happy to make this the cornerstone of my reputation. I began to find myself seriously grieving the *death of the lecture*.

Thus I was faced with a great contradiction – the didactic lecture was comfortable furniture, and no one had an appetite for a makeover. But as an education researcher who subscribes to evidence-based practice, I knew change was essential. As a leader in my faculty, I knew I had to lead by example, coerce people to try new ideas, and nurture their attempts at changing their practice.

I am still internally conflicted by the demonization of the 'lecture'. Everyone has been dazzled by an amazing speaker in their lives, and we routinely accept one-way oral presentations in many other forums. We invite scholars to come and present to our departments. We attend academic conferences to give and watch others deliver didactic seminars. And nothing beats a good keynote presentation from a distinguished speaker. How can it be that the lecture no longer remains relevant as a means of teaching undergraduate students?

Sustaining the cultural change we have been trying to make across the faculty has been a live experiment; however over time, I have developed three guiding principles for unit heads and faculty trainers to consider when they are transforming their classes.

Firstly, know your students. There's no one-size-fits-all model when it comes to implementing active learning in your class. Students in their first year are transitioning to university and negotiating many new life challenges. Yes, they are open to change, but for many students it's really hard. This might mean that the 'lecture' is not completely dead – there's something comforting for students to be walked through new knowledge as they adjust to the independence required as a university student. Try to identify the right moments in the learning journey where a 'micro-lecture' is required. Design your model so that it weans students off the 'sage on the stage' model, rather than throwing them in the deep end.

Secondly, know your people. The humans in this equation are the lecturers (who in an active learning model are better referred to as instructors). For many this new learning and teaching culture is just as foreign and confronting as it can be for students. Historically, 'lecturing' has been an integral part of their identity. They first need to be convinced, then trained, and then they need lots of practice. Arguably our colleagues need just as soft a transition

as our students do. Student evaluations remain an important measuring tool, but be clear with your colleagues there won't be negative ramifications if the reviews are bumpy as they try new things in the classroom.

And finally, employ an open discourse about the learning culture. There are two conversations here: the continuous discussion amongst colleagues, and the one between staff and students. After all, we are all in this together working towards a common goal, but if we do not openly discuss this, are we truly sharing the same vision? As faculty, meet regularly and talk about what is working and what needs refinement. With our students, speak openly about what we are trying to achieve, and the evidence-base that supports this. These conversations will uncover what's working well, but also what isn't.

Yes, I still quietly grieve the death of the lecture, but I am also thriving with the birth of a new and exciting culture in my classroom, where students discuss problems and new concepts, laugh and have fun, and actually look forward to coming to the university.

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Special issue: Innovative Teaching Personal Essays

Transform Your Space, Transform Your Teaching: Reflections on the UCBA Learning & Teaching Center

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Libraries often thrive on collaboration and partnerships when innovating and finding the resources to support new ideas. The 2013 opening of the University of Cincinnati Blue Ash (UCBA) Learning & Teaching Center (L&T Center) shared library space is an example of such a successful partnership. In addition, our experience shows working together across disciplines and departments to create new physical spaces can dramatically change the dynamics of the learning and teaching environment.

To understand how this shared space transformed our teaching, it is important to know that in the years leading up to the UCBA L&T Center opening, our library instruction program evolved from the historic bibliographic instruction-based in the training and effective use of research tools to a more concept-based teaching of information literacy. With this change, it quickly became clear to us that the traditional classrooms and computer labs would no longer support this more engaged, dynamic teaching style. We are all familiar with the traditional set-up that usually includes some combination of the following: rows of desks and/or desktop computers, instructor computer, projector screen, and dry-erase/chalkboard space. This room set-up allowed students to practice search mechanics (e.g., using a library database) during the class,

but it was a challenge to use active learning techniques (e.g., small teamwork). With the curriculum that we teach and the limited time of our "one shot" library instruction sessions scheduled for one class during the semester within a credit course (e.g., English Composition), active learning is critical to engaging students in such a short period of time. In addition, active learning in the library instruction curriculum, as it is in many other disciplines, gives students the chance to directly apply concepts to the class research assignment. The physical challenges in the classroom were not unique and most of us can relate to the scenario of teaching in a classroom with inflexible furniture and limited technology. Would the students be able to access the dry-erase boards/chalkboards? Can they move the desks or tables so they can work as a team? If they can move the desks or tables, will we be able to reach the students to work with them or will the room circulation be stymied? With these challenges, we had to be flexible with our teaching plans and adjust, on the fly, during class sessions. Given these barriers and after discussions or observations with library colleagues at other institutions, we believed a dedicated, flexible, technology-enhanced library classroom could radically change how we teach information literacy.

Our next challenge was proposing a space exclusively for library instruction with campus space at a premium. We had many local and national examples of dedicated library classrooms including UC's Langsam Library and the neighboring Northern Kentucky University Steely Library; however, most of these examples were located in much larger libraries. The UCBA Faculty Learning & Teaching Center, also in need of a space more favorable to teaching and/or hosting faculty development workshops, seemed a natural collaboration for our library given the common goals of a flexible, technology-enhanced space. We also looked to a successful local example of this kind of partnership with the UC Center for the Enhancement of Teaching &

Learning located in UC's Langsam Library. Fortunately, the opportunity to create this shared space presented itself in 2010-2011 when our Dean began the renovation planning process for the library and adjacent building spaces. At that point, we had already discussed the idea of a shared space with the Faculty Learning & Teaching Center Co-Directors. As a result, we had a strong case for efficiently addressing space needs and increasing overall engagement as well as student learning and faculty development. From there, the Learning & Teaching Center space went from vision to renovation concept design. Considering the needs of our unique situation and the sacrifice of some general library space, this shared space moved forward as a successful collaboration and ultimately, provided a great opportunity to innovate and get creative in our library instruction classes and our teaching.

Having a flexible teaching space for library instruction has created numerous opportunities for us to innovate and build in more engagement for students as they learn, practice and apply information literacy concepts. We can now develop teaching plans that include a large amount of group work and presentations where students can show off their work using the SMART Board or one of the four, large dry-erase boards. Using these visual, public workspaces, students can present their research findings and extend their ideas about the research process. They can display their search strategies, team discussion notes, and even create timelines to demonstrate how events can help shape the conversation on a given topic.

With 10 moveable trapezoid-shaped tables and 30 chairs, we have set the room up in a variety of configurations to maximize student learning. We have used multiple arrangements of tables for medium-size teams to brainstorm a hypothesis and find sources. Disconnecting the tables to create smaller workspaces for think-pair-share activities on source type characteristics has also worked well. For class presentations, we have connected all the tables in a U-shaped

style configuration so students can easily see the presenter(s) from any seat in the room. Having fewer furniture restrictions also means we can use one of our favorite teaching strategies – the gallery walk where students walk the room to review work by the other teams, similar to attending a conference poster presentation. In addition, having a room equipped with laptops means fewer wires so students can freely move between the board and tables and work on the class activities wherever they want to in the room. The room's SMART Board's write, swipe, and touch features has drawn ooh's and aah's from students and is a great tool to draw attention during class discussions on specific research concepts such as highlighting author credentials or talking about the structure of an online scholarly journal article.

Now that we have been in the UCBA Learning & Teaching Center room for several years, we have refined and/or created more active learning opportunities in our teaching. Considering how to best use the room's space has become a normal part of developing our teaching plans. From activities such as matching source characteristic cards and brainstorming strategies for evaluating information to following a conversation on a topic via tweets, articles, and blogs, having a flexible space has created new and dynamic ways to make information literacy more relatable (and more engaging) to students. From our perspective as librarian instructors, it is fascinating to see students working together, learning from each other, and making connections between research concepts and their own topics. In some classes, faculty have even noted that one of the room's benefits is the opportunity for class teams to work together (some for the first time) and get to know each other. Factoring in the physical space while thinking about how students will engage with each other and the content continues to be one of our primary goals in fostering a dynamic environment for the best student learning. Finally, given that the Learning & Teaching Center space was the first of its kind at UC Blue

Ash College, its creation and use has even helped inform the design of new flexible, technology-enhanced classrooms across campus.

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Special issue: Innovative Teaching Personal Essays

When Finance Meets Stories

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During my first year of university teaching, I often lay awake in the middle of the night with paralyzing self-doubt. Yes, I was a new teacher, and there were a lot of pedagogical techniques to learn, but that was not the source of my doubt. I teach insurance mathematics to hundreds of undergraduate students every year. Most of my students aspire to become professionals in the insurance or finance industry upon graduation. I, on the other hand, had left my cushy financial industry job to teach. I had become disheartened to work for an industry of which the public opinion was at an all-time low, following the worst financial crisis since the Great Depression. I wanted a fresh start, to return to a more "innocent" and intellectual space, to do something more "meaningful".

However, one semester into my teaching, I was no longer sure I made the right choice. The influence of the industry on financial education is palpable in the course curriculum and syllabi. To my further dismay, my survey with entry level students in my program showed that most students came to the major because they believed "the money is good" once they turn professional. Many also cited parental pressure in selecting the major, as parents become increasingly concerned about their children's economic future. Very few mentioned that they had a genuine interest in the subject matter. When asked about the ethical issues facing the financial

industry, most students responded that they would not be very interested in learning about them. In my further informal conversations with students, a general thinking pattern emerged – it is not that they do not understand the ethical issues in their future profession, but they have accepted that it is the way business is done, and there is very little they as individuals can do to change the landscape.

I remember feeling this vague sense of helplessness while working in finance. But is it really true that in order to pursue finance as a career, we must decouple our moral lives and our life's work?

One of the first courses I was assigned to teach was a large-classroom, introductory course on life insurance mathematics. Traditionally, instructors used a thick question bank with summaries of math concepts. Students were taught to view the course materials as strictly mathematical and devoid of real-life connections. They learned tricks to solve multiple-choice questions and a list of formulae to memorize. A lack of genuine interest in the subject matter, the large amount of math concepts and formulae to absorb, and the traditional mode of rote learning had contributed to frequent complaints of stress and burnout among students.

Desperately trying to revamp the course, I started to read pedagogical literature from various disciplines. I encountered narrative medicine used in medical schools (Greenhalgh and Hurwitz, 1999; Bhavaraju and Miller, 2014; Burack-Weiss, 2017) and was intrigued by the approach. Successful implementation of narratives in medical education had significantly improved students' engagement with the learning materials, and more importantly, helped them develop a higher level of empathy for patients. I was eagerly looking for a way to link my course materials back to something students can relate to, something they will care about and find meaning in. I knew I had to incorporate stories into the mathematical abstraction.

What kind of stories may give students a sense of purpose? First, there need to be characters they can relate to. Second, what would be a better way to find meaning than helping someone in need? So I went back to my many informal conversations with students. The vast majority of them either came from Asia as international students or are children of immigrant parents. So I decided to make my central character a Chinese-Canadian young woman. I tried to make her as real as possible – she often felt caught in between cultures; she struggled with mental health issues when parental pressure became unbearable. To tie in with life insurance, she was also a single mother who had to confront the daunting task of finding a fairly priced life insurance policy to protect her infant son. Our course became an obstacle course, and my students used their newfound knowledge to help the protagonist advance. Every mathematical concept was introduced in the context of her journey.

To better deliver the narrative script I had written, I was on the lookout for a suitable collaborator. Thankfully, my university has an active network for teachers and pedagogical scholars. Through one of the events, I encountered Digital Dramaturgy Lab (DDL) situated in the theatre department, which seemed to have a special interest in pedagogical projects. I contacted the lab shortly after and described my initiative. As luck would have it, DDL had been working for a year on a large creative project inspired by the Zen play "Between Life and Death" written by the Chinese-French playwright Gao Xingjian. As part of their dramaturgical investigations around the theme, they had become interested in – among other things – the fear of death and the concept of life insurance. Working with me would allow them to learn about how life insurance is taught at our own university. They cherished the cross-disciplinary learning opportunity and offered to work on the project free of charge. Together we developed a mix of video and audio clips to tell the story. Each lecture of mine became a story-telling session. After each lecture, I

wrote blog posts to further tie the mathematical concepts with the narratives. The mixed media platform was chosen to recognize that students have distinctively different learning styles – even more pronounced in a large classroom setting – and instructors need to be conscientious about presenting the materials in ways that accommodate different students, what my theatre colleagues call "a choreography of attention".

It took a year to design the new pedagogy and since then I have implemented the narrative approach for two years. The exit reviews showed encouraging results. The vast majority of the students (78%) said they shared the perspectives of the central character. Most said the choice of the character helped them develop a deeper purpose for learning the course materials. They also praised the narrative approach for helping them create an intuitive concept map that linked together otherwise dry math concepts. I felt the happiest when a few students made a point to come to my office and told me that thanks to the overarching story in this course they now understood they could do good with their knowledge and had found intrinsic motivation in their studies.

Of course, there have also been dissenting voices. Two categories of dissent emerged. A small group wondered whether the time "wasted" in telling the story can be better used to go through more test bank questions. Another even smaller group told me that as white male students, they could not relate to the central character's struggle and therefore were less affected by the story or the teaching strategy. Although I cannot accommodate every student to the same degree, nor can I expect everyone to enjoy the new approach, I make an effort to respond to criticism in future implementations. I now communicate my pedagogical thinking from day one of my course, so that students can better understand my objectives and expectations. I fine-tuned the story to involve more diverse roster of characters. I invite students to talk to me with their

individual concerns and reservations. I am also keenly aware of a difference between education and finance – unlike the cutthroat financial world where maximizing the *current* shareholders' value is still being upheld as the be-all-and-end-all, the "return" of educational efforts may take years or even decades to manifest. All we educators can do is to plant the best seeds and cross our fingers for healthy, solid sprouts in the near or distant future.

Looking back, I am humbled by my good fortune – finding inspirations in the pedagogical literature, locating perfect collaborators, having the opportunity to try and tweak the new approach in my course offerings. When I present this pedagogical experiment to other instructors, I was often asked whether I would have done it without the chance encounter with DDL. My answer is a resounding yes. But I would likely need to apply for the various pedagogical grants the university offers. And it would have been a steeper learning curve for me, and likely a longer and more arduous journey. However, all the work would be worth it seeing how much more engaged my students are, and how the course helps them find the deeper meaning and purpose of learning.

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Special issue: Innovative Teaching Personal Essays

Gaming the Guerrilla Girls

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It was my first full-time teaching gig: a one-semester sabbatical replacement, two hours from home. I commuted once a week, spent three nights at an Airbnb whose kind host was the only redeeming feature in the whole scenario, and packed 235 students into three non-stop days. One of my courses, chosen by the department's previous candidate who dropped them for a better position, was a senior-level lecture which I felt entirely unprepared to teach and about whose existence I maintained serious moral misgivings: Women Artists. Many women artists, I suspected, sought nothing more than recognition as *artists*, without the gendered qualifier.
I spent most of that summer before my "semester from hell" enthralled in course preparation. I devoured every teaching-related article that the *Chronicle of Higher Education* published. One of them (Berrett 2012) set me on fire: a profile of Reacting to the Past (RTTP), a historical role-playing pedagogy that purportedly buoyed student engagement to astronomical heights.

Although mostly rooted in the discipline of history, I learned that an art historian, Gretchen Kreahling McKay, had written a game based in the nineteenth-century Parisian art world. If this could happen in art history, I knew that the solution to my Women Artists problem lay in this pedagogy. It would not be enough to investigate women artists from an objective perspective and to express sympathy for a distant historical problem. In order to grasp the complexities of art world misogyny, my students would have to feel it, internally.

This is how my RTTP game, *Guerrilla Girls in our Midst: 1984-1987*, was born. My students would learn about historical Women Artists by *being* one. What better scenario to place them in than at the conception of the Guerrilla Girls, the activist group who laid the foundations for the very existence of their course? I naively speculated that it couldn't be all that hard to write a role-playing game set in New York City in the 1980s. My presently neglected dissertation, after all, interrogated the works of a (male) Russian Avant-Garde painter. Adopting a completely new-to-me pedagogy and writing an entire curriculum well outside my subspecialty was a completely reasonable expectation for my first semester teaching a four-course load. (Insert retrospective head scratching here.)

Reacting to the Past is a remarkably effective pedagogical tool for engaging students in historical primary sources. Structured intellectual debate revolves around core questions that still resonate with our world today. According to Mark Carnes (2014), Reacting students learn historical content more deeply, acquire greater leadership and communication skills, develop stronger classroom communities and self-knowledge, and enthusiastically do more work than for non-Reacting coursework. Historically grounded roles defined by multi-page role sheets guide play starting from a specific historical moment, with all the motivations and sources available to participants in that moment. As the students play the game out, what happened in history need not necessarily occur in the classroom. Students must remain faithful to their roles, employing the game manual's documents within defined game mechanics, but they are free to attempt to change history. In my case, the core question that inspired the game design was: What if the Guerrilla Girls had been successful beyond their wildest dreams – or, alternatively, had never reached lift-off?

My first play-test of *Guerrilla Girls* was remarkably not a complete disaster. Students who had spent the entire semester handing in plagiarized work, ignoring the textbook, and, in their most vulnerable moments of in-class discussion, revealing that they did not recall basics of their lower-division art history courses, showed up and played their roles with insight. For perhaps the first time in their art history education, they *engaged* in a sustained and thoughtful manner. Well, at least enough of them did.

The following semester, returning to a different university as an adjunct, I played a revised version of the game concurrently in two sections of a second-year contemporary art course. My insistence that students take an active role in every class led to outright rebellion from many of the majors. They were used to lecture-based courses, where they took notes to study for in-class exams. My course could not have been further from their comfort zone. I only learned the full scope of their outrage when one of the tenured professors in the department cornered me in my office to regale me about my insufficiencies as an instructor. That night, I wrote a manifesto. It began, "I will not be belittled or infantilized," fuming over her use of language and nonverbal cues that I knew she would never have used towards a male or older colleague. I doubled down, declaring, "I will not sacrifice collaborative modes of intellectual inquiry because they fit uncomfortably into patriarchal, hierarchical systems of judgment, evaluation, and institutionalization of education. I will make my life and my job infinitely harder by manipulating power structures that diminish important voices." I dug in my heels with the overwhelming sense that, with this much resistance (as well as quiet but passionate support from several deeply engaged students, one of whom, to my luck, was good friends with the dean), surely I was on to something very important not only for my own career but also the development of the academy.

I next ran *Guerrilla Girls* a year later, in my second semester of a new tenure track position, and flares rose again. In hindsight, I understand how an ill-conceived modification to the mechanics of the game elicited significantly more confusion than Reacting generally leaves students with on their initial encounter. In stark contrast to my experience as an adjunct, however, my closest colleagues rallied around me, working triage to ensure this didn't create irreparable damage to my tenure case. I was not extremely concerned; Reacting teaches students and professors alike that the best learning opportunities occur out of the ashes of spectacular failures. The support of my department provided space to think critically about the failure, allowing me to refine my innovative teaching practices rather than forcing me to retreat to the purportedly tried and true lecture-exam format.

After that semester, I set the game aside for three full years to let it simmer, replacing it with a newly emerged opportunity to conduct a service learning project related to the same content. I took my game to the Reacting Game Development Conference, where a team of highly experienced Reactors picked it apart. Their feedback had the potential to transform the game, and my university's Teaching Council subsequently supported its complete revision with a summer teaching development grant. In the past year, I have play tested the revised materials in my own classroom and at the Reacting Annual Institute, both times to resounding success, including more constructive criticism for revisions.

Throughout my entire experience, the most helpful support came from the Reacting community. At conferences and in the Facebook Reacting Faculty Lounge, colleagues discuss game-related issues and relate inspiring stories of the transformative effects of these games. Their critical feedback and unwavering support made me feel for one of the first times in my academic career that I had found a scholarly community. This was a group where I could thrive

on my terms, which, the more I researched my game, I discovered revolved around a feminist ethic of collaboration and mutual support.

My students remained a constant motivation driving the development of the game. Despite the unhappy, noisy detractors, I also saw quiet, thoughtful players enjoying themselves, conducting what felt like, maybe for the first time ever, meaningful research. I observed students who had been disengaged from art historical content over the entire semester, if not most of their college careers, dip their toes in the water for the first time. I saw how students for whom the conventional methods of lecture-note-exam created agonizing anxiety realize that perhaps educational experience need not be perpetually traumatic. If the game had flopped, if the students had clearly learned significantly less than they would have with other learning modalities, I would never have persevered. The long-term learning, the critical thinking, and the emotional knowledge that my students demonstrated made the sometimes seemingly insurmountable challenges worthwhile.

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Special issue: Innovative Teaching Personal Essays

"Necessity is the mother of invention."

-William Horman. Or Richard Franck. Or Plato. Or Alexandre Dumas. Pick one…

"Necessity is the mother of stealing someone else's invention."

-Sarah Cummins-Sebree

Sarah Cummins-Sebree

University of Cincinnati Blue Ash College

These statements kicked off my acceptance speech for the UCBA Innovative Teaching Award in 2015. At the time I felt it necessary (pun intended) to be clear that I was being honored for using a teaching technique that may not have been routine at my college, but that was definitely not of my own design. I simply found myself in a weird predicament, and I needed a solution that would work best for my students, an adjunct instructor, and myself. Let me explain.

Leading into Fall Semester 2012, I was pregnant. **Very** pregnant. At the time, we did not have a coherent maternity leave policy – each professor had to propose a plan to the Dean as to what would happen to her courses for the term during which she would have her baby. As I was due in late September, my Dean and I worked out a plan such that I would start teaching my assigned courses in August, but then hand over my courses to an adjunct instructor to complete the remainder of the semester. It also just-so-happened to be our first semester-based term after spending decades on a quarter-based system, so many courses were basically brand new, having been spliced together from quarter-based components or created from scratch.

I tend to go out of my way to try to set up situations that minimize workloads for adjunct instructors (I mean, really – they get paid inadequate wages, so I might as well make life a little easier on them), so the thought of dumping the newly-spliced Research Methods and Statistics in Psychology course onto an adjunct a third of the way into Fall Semester made me ill. How could I, in good conscience, do this to the poor guy?

Luckily, I also tend to go to numerous workshops on pedagogy. At the time, one of the latest techniques getting a lot of attention was the "flipped classroom." When employing this technique, all (or at least the bulk) of lecture is provided online or through some other means outside of the classroom. Time in class is then spent discussing material, answering questions over the online lecture, working on practice problems, doing assignments, etc. Basically, students watch or listen to lecture material as their homework, and traditional homework items are done in class.

At these workshops, the virtues of this method seemed to know no end. Students can go back to the online lectures as many times as they need to in order to internalize the material. Providing the lectures online opens up class time for discussion and practice problems, options that tend to be limited when one lectures to PowerPoint slides. Doing assignments in class means that students can ask questions of the instructor and get immediate assistance instead of sending an email at 2 AM the day an assignment is due. Requiring students to be in class to complete assignments means increased attendance rates. Everybody wins.

But leading up to Fall Semester 2018, the flipped classroom design meant I could work with my adjunct replacement to design the course such that I could continue doing the heavy grunt work of lecture while on leave, and he could take on the face-to-face aspects. I developed the PowerPoint slides and recorded lectures for them as MP3 audio files, then posted them on

our LMS based on our course schedule. We collaborated on creating in-class practice problems, assignments, and exams, as well as the framework for the research project students would do. He ran the classroom sessions during which he answered their questions, made sure they understood the material, graded the assignments and exams, and ran the last week of the course as an open-lab session for students to get immediate assistance on writing their APA-style research papers. We split the work so that he did not get overwhelmed with a newly-structured course that required more prep work than was worth the adjunct pay rate, while I was able to participate in the lecture prep I would need the following term and not feel guilty about handing off a labor-intensive course (pun intended again).

Because we were flipped classroom "newbies," we surveyed students at the end of the term to get their perceptions of the technique. More than two-thirds in each of the two sections of the course not only enjoyed the format, but also felt that it helped them learn the material in a way that a traditional format would not. Many commented favorably on all of the benefits I heard about in those workshops. True, not all students loved it – a few thought that one was not actually "teaching" when using this design. But, overall, feedback was incredibly positive. We took those survey results and presented it at a teaching conference, then published a manuscript on it (Cummins-Sebree & White, 2014).

Since then, I have used the flipped classroom design in all of my face-to-face courses, and frankly, I do not plan on returning to a more traditional format. Though some freshmen taking Introduction to Psychology struggle with being responsible for doing the online lecture material, the more well-prepared freshmen and upperclassmen tend to appreciate the format. I get to answer questions in more detail when they are working on practice problems or assignments, which is when they really need it. Attendance is better, and they are not zoning out

or playing on their phones as much because they know they have to complete the assignment before class is over – no take-homes allowed. Some students tell me they listen to the podcasts while driving to campus on exam days as a review, and being able to listen to them repeatedly for it to "stick" is a big deal to them. It's not all rainbows and sunshine and unicorns, but the benefits greatly outweigh the costs.

To accomplish this, though, certain puzzle pieces had to fit into place. First, my Dean supported this crazy idea of flipping the classroom and doing a more collaborative effort in transitioning my adjunct colleague into the classroom. The adjunct instructor, being the laid-back guy that he is, embraced working together on the construction of the course and learning the extent to which students would appreciate the design. Third, our LMS is flexible and easy-to-use, making it a cinch to load online lecture material and organize the course content in a way that students can access with little to no trouble.

Most importantly, though, is that one can decide how "techy" they want to be in developing their online lectures and in-class work. Some professors dive in the deep waters with video lectures that are edited to create professional-looking movies; a variety of software exists for this, and our LMS has imbedded software that is capable of this to some extent. I, however, am fairly low-tech and managed to develop memorable lectures with basic PowerPoint slides and separate MP3 audio files created with Audacity®. Though Audacity can also allow one to edit recorded audio clips, I took the lazy route and left in the occasional cough, ringing phone, and even my older child knocking on my bedroom door, yelling "Mama!" until her father took her downstairs. It may not seem "professional" to do this, but my students found it refreshing, if not downright hilarious, and a few indicated that they served as an unexpected memory prompt when they were answering questions on exams.

Even if I had not had the initial support and tools that I did in 2012, I am certain I would have made this move between then and today. More professors are looking for ways to incorporate more engaging technology and classroom activities while veering away from traditional lecture styles – this does just that. Now that we have access to Google Docs and other file-sharing sites, plus default audio recording programs that come with many PCs (e.g. Voice Recorder for Microsoft), we do not even have to ask for expensive software to develop our online lectures for the flipped classroom. We are only limited by how much of a push is required to make the change. It just so happened that my push was a pregnancy (pun trifecta).

Feel free to steal it for next semester.

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Special issue: Innovative Teaching Personal Essays

Serendipity and the Impact of Tiny Innovations

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I have been struck recently by the role that coincidence has in classroom innovation, and by the impact of even minor innovations; I have come to see the need for me to recognize and embrace both of these realities.

For many years, I have asked the undergraduate students in one of my modules to give formal seminar presentations, with handouts and presentation slides. The module is entitled 'Packaging Literature', and it is a third year module with three hours teaching per week. The module looks at the ways in which literature is packaged – physically, cultural and socially – through the ages and asks questions about the value and use of literature in society.

These presentations were, until recently, formative exercises, and so students would receive feedback sheets and a mark from me, but this would not count towards their final mark for the module. Students start to give presentations from Week Two of the term, with two student presentations per week. This early start can be daunting, but it gives each student the chance to present during the term.

Year after year, student seminar groups for this module became increasingly keen on these presentations. I think this was in part because I become more adept at supporting them in the art of giving presentations, but I think it was also because I challenged them more as time went on. For the last five years, I have been asking these students not just to give a presentation,

but also to finish with three questions that they would like the seminar group to discuss. Leading this discussion now forms part of the task of presenting.

I developed the student role in each seminar in this way partly in response to their career goals (many of them aspire to careers in which they could be expected to instruct, or lead group discussions) and partly as a way to test the depth of their knowledge. It is tough, but they really need to know their material well in order to facilitate part of the seminar discussions.

It took me far too long to realize that this level of work deserved more credit, but I did finally work out, three years ago, that these seminar presentations should be marked as summative, so that the mark would count as 20% of the module mark for each student. This seemed to me an opportunity to reward the effort that students put into the presentations, and so achieve a better work/reward balance within the module. I weighted the assessment criteria so that the majority of that 20% mark was given for the preparation and written material that supported the presentation.

By the time this level of demand had been place on students, they had moved from giving ten minute presentations in a seminar to leading perhaps 40-50 minutes of the event. This was partly because something unexpected was happening: I stopped teaching only *after* the presentation and instead began to teach *through* the presentation. That is, I interrupted frequently throughout each presentation so as to expand on the points being made, or to ask the group to comment for a moment on one aspect of the material. I warned students that I would do this, and they were generous in sharing the space, with no complaints despite the challenge that this must have given the presenter.

This interrupting during each presentation was, to some extent, the result of every educator's apparently inherent need to get a word in at every possible point in a learning event,

but it was also, I decided, a useful way to 'join up' the teaching and learning experience. Rather than a separate 'teaching' experience after a student presentation, that was in some way validated above the student presentation, I was able to share the time with the presenter and have us both teach and both learn at the same time, along with the rest of the group.

The only problem I faced was that, the more the student at the front of the room was doing, the less those students in the rest of the room seemed to want to do. I had not expected this at all. So, my first innovation led to a problem of passivity that required another innovation. This is a pattern I think we all recognize in many areas of teaching and learning: it is what makes innovation exciting but also demanding. In this case, the student was working hard to present interesting material, I was working hard to expand on it, and nobody seemed to want to take notes…

…and this is where the serendipity came in…

I happened to notice that a colleague with whom I am friendly was to give a staff training session on active learning. For more on this topic, please see the article "Active Learning" from the Higher Education Academy.

I might not have attended (old dog, new tricks and so on) but I wanted to be supportive and so I went along…and everything changed. She showed the group how to use active learning sheets, very simple bubble charts or flow charts that are produced blank by the lecturer or seminar leader for students to fill out during an event. It was not hard to do, it would not perhaps even have been especially striking, if I had not been about to give a 'Packaging Literature' seminar that afternoon.

As my colleague spoke I could suddenly see quite clearly how I could solve my problem. I made 'active learning sheets' for my group (just eight blank circles around a central circle), and

I told them to put in the central circle the title of the presentation and then to jot down any notes, keywords, or ideas that came to them as they watched that afternoon's presentation. It is tiny, I know, but it transformed their learning experience. The lure of a blank page, with tempting circles to fill out, was too much for them, and each student had filled out an active learning sheet by the end of the seminar (see Figure 1).

Figure 1. Example of active learning sheets from the seminar group

What had been a busy learning event, but with hardly any lasting record to show at the end of it, is now a far more productive place to be. I give students active learning sheets for every presentation, and also additional sheets for them to record connections they notice between theories discussed in seminars; they also all begin the term with an active learning sheet for their essay: now their essay preparation begins with the first presentation.

During the first few presentations, students tend to include in these active learning sheets for essays any ideas that spark their imagination. They work with me (usually sometime during weeks four to six of the term) to decide on an essay title, and we use their active learning sheets to explore the ideas they have for that title. From that point, the active learning sheets for essays become more focused, resembling an outline plan of the essay.

As I wrote at the opening of this personal essay, this innovation is a tiny change, entirely the result of coincidence, but is has made the module a pleasure to teach. I used to believe that innovation was all about large projects, step changes, and challenging the norm. It is those things, but now I am also actively on the lookout for small scale change.

I have been reflecting on this journey in innovation because I was surprised that it was so gradual and responsive. I would more usually introduce innovation at the start of a new learning activity, but here the innovation was incremental, and more reflective as a result of this. I was able make the changes as I progressed because of the latitude allowed to academics within their seminar groups in my institution: the expectation is that I know best how to facilitate the learning within my modules.

The innovation was sustained – and developed – because the students were leading the way. Each step in this innovation journey, from the introduction of seminar presentations, to allowing them to count for module credit, to extending them to include a discussion, through to introducing active learning sheets, whilst learning with the students how best to use them. All of this relied on one key activity: listening to my students. Not just what they wrote in formal feedback, but what they chatted about in breaks, and the friendly opinions they shared with me about assessment during our seminars. I wish I had been quicker to hear properly what they needed in order to make the module more responsive and rewarding as a learning experience. That is what I will take from this: innovation works best when I listen well and innovate sensitively...especially with the help of a tap on the shoulder from serendipity.

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Special issue: Innovative Teaching Personal Essays

What Is An ePortfolio and What Does It Have to Do with My Classes? My Journey from Skepticism to Implementation

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ePortfolios are an electronic collection of artifacts and reflections collected over time to be shared with a wide audience. ePortfolios are intended to have students "collect, select, reflect, and connect" (Clark & Eynon, 2009) with regards to their learning – collecting impactful artifacts, selecting those that will demonstrate their learning for inclusion, reflecting on their learning over time and connecting the portfolio with a wide audience.

"That's nice but it has nothing to do with my classes," was my first thought about eportfolios. In late August 2013, I was a new faculty member in the Biology department at University of Cincinnati Blue Ash College (UCBA) and was fatigued with the number of meetings I was attending in my first week. The first time I heard the term "eportfolio" was from Ruth Benander, a faculty member in the UCBA English and Communication Department, at one of these meetings. I admittedly did not pay much attention – portfolios were things that English and art students completed and had nothing to do with me. My background in biochemistry and microbiology never included portfolios. I only had a vague idea of what a portfolio is. Science courses are traditionally more lecture-intensive, and I had previously relied on exams, homework assignments, stacks of lab reports, and presentations in assessment of students. I supposed that an electronic version of the large, cumbersome portfolios that I had seen students haul around

campus was a good idea, and I was sure other programs would appreciate this information, but it wasn't for me.

I continued to hear about eportfolios on occasion, and each time I dismissed the idea. This mentality ended in the summer of 2016. The chair of the biology department, who had recently taught the college's joint biology and chemistry majors First Year Experience (FYE) course for the first time, approached me about working to incorporate eportfolios into the class. This one credit hour course was created to incorporate the four common elements of the college's FYE program: career exploration, major/program exploration, college and university resources, and information literacy. Over seven weeks, meeting once a week for two-hour sessions, students would receive instruction in each of the four common elements as well as student success tips. Despite the excellent efforts of many faculty members, student engagement remained low. Students also struggled with tying together each class session into a cohesive experience. The chair thought that incorporating eportfolios might improve student engagement and student learning. I was skeptical that it would help, but agreed that I would look into it. I worked with Janice Denton, then chair of the UCBA chemistry department, to alter each class session by incorporating eportfolios and to develop a sample eportfolio site for instructors to show their students. The instructors for the 2016 fall semester were on board for the change, as everyone agreed that the course needed a breath of fresh air.

That fall I joined the UCBA ePortfolio Faculty Learning Community (FLC) to learn more and to ensure that we were following best practices with our FYE class. I also joined because I was considering incorporating ePortfolios into a biology department non-science majors course called Destination Disease, which focuses on diseases that one could catch when traveling. When I was asked if I wanted to teach the class (which had not been taught by any current member in

the department) in 2015 and was given the list of learning objectives, I approached my instruction with a lecture-heavy format – it was the fastest and most thorough way I knew to prepare classes for the semester. After two years, however, it became obvious that students were not engaging with the material in a meaningful way. My lectures and the accompanying documentaries that I had used to supplement instruction became a 15-week parade of pathogens – a list of diseases, the organisms that cause those diseases, symptoms, prevention, and treatment options. My personal bias was to keep things the same – partially because I liked lecture as a student and partially because I put a lot of work into the lectures, and they were already done, while redesigning the course would add a lot of work to my already busy schedule. However, the positive news I was hearing from the FYE instructors encouraged me to at least explore the idea of using ePortfolios in this class.

In the 2017 Fall semester, I redesigned my Destination Disease course to include eportfolio assignments throughout the term. I told students of how I used to teach the class and why I was trying the change. For most assignments, students would research a pathogenic organism from a list of 10-15 choices and learn how to use certain trusted resources when researching their pathogens. Each assignment included time for building the section of the portfolio in class and peer review. Not everyone would learn about the same list of pathogens anymore, but by lecturing on a few core organisms, having students research one pathogen per module and reflect on another after the peer review, students would still learn about a variety of diseases.

While the previous format covered trusted sources for research, this new format provided students authentic training in information literacy – a skill essential for life-long learning. The ePortfolio format also provided flexibility to introduce timely diseases (current to the news

cycle) without the pressure to create new lectures and find new documentaries. Still, some students did not submit complete portfolios while others seemed to remain unengaged. Redesigning the course was a lot of work, and I was skeptical that this endeavor was worth the effort. However, in reading the final reflections of many students, this method of instruction was impactful in meeting the student learning objectives. Student comments such as, "The e-portfolio has taught me to present factual evidence that supports my claim in a readable and creative way," and, "I learned so much more doing the independent research than I think I would if we had not done the e-portfolio…I can look up different bugs and pathogens, have a great set of ready made research sites and feel infinitely more comfortable in traveling now that I know what to look for and where to find it the easy way as well as get the vaccines and tests that I need before travel," forced me to reconsider what knowledge and skills I wanted this student population to have at the end of our 15 weeks together. While I was initially very skeptical about eportfolio use in the classroom, these impactful reflections have led me to maintain eportfolio use in this course and to consider incorporating their use in other courses.

In the absence of the strong and established eportfolio community at UCBA, I doubt that my implementation of eportfolios would have been so successful in one semester. I likely would not have ever used this tool without a nudge down the eportfolio pathway by my department chair. A supportive community of instructors interested in this innovation was also invaluable – I was able to learn about best practices from knowledgeable colleagues, expand on that basic foundation through a FLC supported by the college's Learning and Teaching center, and I had access to numerous resources, such as tutors experienced in eportfolios at the college's writing center, to help make implementation easier and run more smoothly. The user-friendly free technologies for creating eportfolios such as Weebly, GoogleSites, and Wix also led me to use

this tool in the classroom. If students needed to pay a fee to build their eportfolios or if the sites were not intuitive to use, I likely would have found an alternative assessment to meet the learning objectives for the class. Still, despite strong community support at UCBA and free, easy to use tools for building eportfolios, it was the significant reflections made by students about their learning over the semester using eportfolios that has contributed the most to continuing to use this innovation in my classes.

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Special issue: Innovative Teaching Personal Essays

ePortfolios: A never-ending innovation

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A common observation about pedagogy is that we teach how we were taught. A transformational change in my teaching came when I learned to use eportfolios in my English composition courses. The interesting twist is that although I teach English composition now, the undergraduate institution I went to practiced "writing across the curriculum" (WAC), so I never took a dedicated undergraduate composition course; we just wrote lots of papers in all of our courses, that, once written and graded, were over and done with. In my art classes, we created portfolios of our work throughout a course. At the end of a drawing or painting course, the final exam involved spreading the entire portfolio out on the studio floor and having the instructor critique your progress (or lack thereof). Then we had to write a short reflection on that progress, based on our portfolio review. As an undergraduate, I found this to be a profound experience, and it gave me a keen understanding of my progress and approach to being an artist. So, when I came to the University of Cincinnati to teach composition using the portfolio method, I was as influenced in my teaching by the WAC approach to teaching writing as the portfolio method of learning in my art classes.

In the 1990s, I used the classic paper portfolios to show progress in writing, showcase course work, and reflect on the processes and products of writing. The problem was that only a few students were invested in their portfolios. Stacks of these plastic binders would pile up in my office after the semester was over. I was astounded: to this day, I still have my art portfolios from the 1980s even after I have thrown away all my notes from graduate school. How could the students not treasure their portfolios the way I did?! These English composition portfolios were completed and then never "used" again. All that work....gathering dust on *my* bookshelves. I was looking for a way to make these portfolios more engaging and personally valued. Then I

learned about eportfolios (Yancey, 2009). ePortfolios solved both the problem of storage (no more binders taking up space on my shelves), and engagement (no more complaints about the binders full of papers being "busy work"). As I learned more about eportfolios, I realized they solved even more problems that I wasn't even aware of.

I learned about eportfolios through conversations with colleagues. I jumped right on that bandwagon! I joined four other colleagues in the International Coalition for ePortfolio Research (INCEPR), and I learned a lot more about the many uses of eportfolios by creating a research program to study eportfolio use. I also learned a lot by attending the conference of the Association for Authentic, Experiential, and Evidence-Based learning, the national conference for eportfolios. I learned about the various approaches to eportfolios and the various platforms available. Everything I learned about, I tried out with my students. In order to try out all these new ideas, I had to trust that the students would come along with me and muddle through each experiment.

For the most part, they did. I think an important part of the innovation at the start was being able to say, "I don't know the answer to that question. Let's figure it out together." The first time I did an eportfolio with English composition students, we started with WordPress. Since I was learning along with them, I made sure they knew that we were experimenting together. We would work on building the portfolios in class so we could help each other figure out how WordPress worked. I made sure that there were course points associated with the efforts, and we all reflected on how having all their writing in the portfolio changed how they saw their papers. It was everything I wanted: engagement, authenticity, and easy storage.

Of course there were complaints at the start: it was scary to do this new thing with the internet, and it was scary to have your writing right out there where it can be read...potentially by anyone. It was that *frisson* of the authentic audience that I really appreciated the most. Also, at the end of the semester, students frequently commented that initially it was scary to make a website and put their writing on it, but looking back it was not so bad (Benander and Refaei, 2017). Since implementing eportfolios, I have had students write to me about how they have used the eportfolio as a writing sample in their job hunts, used them as evidence for the work they did in a course when transferring to other colleges, and as reference material when they ask for letters of recommendation. I also have more bookshelf space.

This innovation of eportfolios to reflect on the writing process and showcase one's best writing is sustainable because of the development of free software for web authoring. If it had been required to purchase the software, I do not think I would have been able to embrace this innovation as wholeheartedly as I have. The fact that there were free web authoring software applications available made this possible. I have moved from one free application to another as they develop in ease and stability. I used one platform that crashed a lot, and the students agreed that the eportfolio was useful, but the platform caused too many panic attacks. Then, I experimented with giving students a choice of platforms. That seemed to work fine, but dealing with all the various technology issues put the focus on the technology, rather more than on the writing, so I went back to specifying a platform. But I have to say, by the end of the first course in which I used eportfolios, I never looked back.

The innovation itself, of building a personalized website that includes process work, final projects, and reflection on the process, has changed my composition courses for the better. The technology itself has faded to the background as students come to college more accustomed to publishing things to the web and the free web design applications become more user-friendly. The innovation has also been sustainable because it makes my life easier: the portfolios are more interesting to read, easier to read, and easier to store. When students ask for letters of recommendation, I ask them to send me their portfolio link, and I can write much better letters.

So, this innovation, back in 2006, was effective and sustainable. Twelve years later, is it still innovative? I guess for me the practice is no longer innovative, and the site of innovation has moved to what I can actually *do* with an eportfolio. How can I use this tool to help students own their own writing, feel engaged in their own learning, and develop their identities as writers at different points in their writing careers in college? One innovation leads to the next.

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Special issue: Innovative Teaching Personal Essays

Willing to Innovate: The Attitude of "Willing to Try"

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When I reflect on what I have developed for the classroom, I think less about being innovative and more about being grounded in trying to reach all students and provide opportunities to promote understanding and transfer. Innovation comes as a wonderful side effect of being "willing to try". For example, in developmental courses, students struggle with not only content knowledge, but also the business of being a student. For many students, long-term goals are far off and out of mind in the day to day struggle to keep up with the semester. I thought students would benefit from creating and assessing short-term goals and strategies that fit in the long term academic/professional goals they have set for themselves. This lead to developing a portfolio and self-regulated learning (SRL) assignments for students in developmental mathematics. Portfolios, and the assignments created for them, turned out to be wonderful tools at all course levels.

The development of the portfolio and assignments was however, not a quick path. It was a learning process for me. In fact, I did not set out to create a portfolio for the course; it came from a variety of experiences and work with colleagues both in and outside my discipline. Understanding how topics I was teaching informed students' work, in both content and expression for other courses, became the basis for several assignments. As I thought about the transfer of learning for my students, the idea of reflecting on their work over the semester

became important not only from a test of concepts point of view, but also in understanding of their education as a whole. It took many iterations and participating in various faculty learning communities to arrive at a model of an effective portfolio for both the students and myself. I had to be willing to listen to the feedback from students and colleagues about whether these efforts had merit. The assignments grew to include modules on successful study strategies, creating review sheets for exams, time management exercises, and student reflections on how they were progressing and how to deal with any hurdles they saw in achieving short and long-term goals.

Students often struggled with the portfolios as we were working through the term. I discovered, through trial and error, when there should be checkpoints in the term to provide guidance. Students still struggled, but this was part of the process, and in capstone reflections many students remarked that they could see how the work all fit together. It was very exciting to see the shift, and I can now see that they continued to take this confidence and understanding with them to their next course and life outside the classroom.

Although I do not require a portfolio in many of my college level courses, I have still found ways to incorporate many of the assignments developed from this work in portfolios. In physics courses, I began to ask students to complete "Ignite" presentations and article summaries in order to provide new contexts with real world applications and write about them. Calculus students reflect and analyze models for real world applications that have no one clear answer. This gives a new perspective for students that think there should always be one set answer in a math course. In being "willing to try", I believe I have become more aware of opportunities to incorporate ideas for many assignments. At the same time, I am aware it may be just the start of the process. To make sure the goals I have in mind can be met, I will always have to adapt, provide clearer examples for expectations, etc.

The development and adaptations of the portfolio did take time in planning and assessing; however, the modules created were designed to take five to ten minutes of class. In addition, examples, templates, and rubrics for each step along the way were posted on the course site and did not take from the always precious time of developing course concepts. It took a shift for me to see that this five to ten minutes was equally as valuable. Being willing to try and having the flexibility and freedom in the classroom provided the opportunity. The work in the courses, including reflections, showed the students were building confidence in their own abilities and could see real growth in their own understanding.

There are many lessons from trying something new and giving it time to flesh itself out. First, the process models how we want students to view learning. It is a process that includes failure and adaptation. As instructors, we are the expert in the material being presented, so this change in perspective, to a student view, provides a window for compassion: we need to remember what it was like to be a student for whom the material was new. Telling students that you are working to help them and try adaptations, also connects the classroom. Secondly, it does not have to be a big intervention to yield big results. As I was working on assignments for the portfolio, just making small connections and then asking for reflections provided students with an "Aha" moment. This attitude of "willingness to try", being flexible in how I teach, can keep students engaged and provide meaningful contexts for learning. I find that I am able sustain this attitude when I read a reflection where a student talks about new confidence in doing math, and their own abilities to actually do math. We can become too comfortable as instructors; we could spend all of our resources pursuing other learning instead of teaching. It is uncomfortable to be in front of a classroom trying something new, but this anxiety can fade away if everyone in the

classroom is invested together. Being an example in the safe space you are creating, showing it is okay to make mistakes and take risks, is highly effective, and worth the time and effort.

Special issue: Innovative Teaching Personal Essays

Student-Created Videos in Mathematics Classes

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It happens all the time, right? Students are eager to sign up for mathematics classes, rave about the latest math book they bought online, and drone endlessly about the recent mathematics movie that is all the rage in theatres. Well, not exactly. But mathematics professors can dream on! We will settle for at least the consideration that perhaps, just maybe, there is an opportunity to enable students to see themselves as creative in mathematics. Early on, my goal had been to have students develop confidence and see how math can serve as a great equalizer. This has since also developed into a quest for infusing mathematics into ANY aspect of students' lives that has some meaning for them in order to motivate and encourage. Having observed students in class who appeared to be obsessed with their phones, I read articles and found data claiming millions of hours are spent watching YouTube. I thought YouTube worth exploring to have student-created mathematics videos in order to capitalize on this engagement in videos.

Students often enter my college algebra mathematics classes with preconceptions that categorize the subject as stale and unrelated to their interests. Taking the course is not their choice, but instead a requirement. I hear these students rave about their love for reading or languages or history, and then when I ask how they see the value of mathematics in their lives the response is either silence or a grudging acknowledgement that they probably need to know it for finances or "something." There are of course some students who come with an open mind

and are eager to learn new concepts, but far too many reveal that they are nervous or ambivalent about the subject, making them "math-anxious." Others state that their mathematical experience is really rote memorization, plug and chug procedures, and they would like some basic "tricks" to make the process less painful. Clearly this is not the ideal setting for an engaged learning session. Perhaps if they are steered away from passively listening, then they can ask more questions and have some chance at seeing that they are part of the math equation.

Because I am admittedly incredibly jealous of English and Foreign Language instructors in particular, and view the linguistic tools they use for language acquisition as enjoyable, then it makes sense to imitate the strategies by adapting them for mathematical procedures. Students often view mathematics notation and descriptions as totally foreign concepts, so adapting language acquisition tools for mathematics purposes seems reasonable. Quite frankly, conversations with non-mathematical teaching peers (typically at the copy machine or in the hallways!) have served as the greatest inspiration. To capitalize on the fact that students were already captivated by videos, I thought student-created videos would address some of the challenges students experience when implementing in-class presentations and verbal exams. Student-created video work would require time, but this was mostly outside of the classroom. This would address the in-class time constraint concerns while simultaneously allowing for the possibility of creative expression on the part of students.

Prior to implementation, a quick perusal of articles related to the student-created videos referred to a level of student technical sophistication and exposure to film and technology (Levin, 2010). There is admittedly a time-consuming aspect to this type of project because of the planning and producing, and many examples are based on a student audience that is technologically savvy. The assumption is that students entering college have used their phones to

create videos and upload these on social media sites to share personal expressions/stories, videos, photos, etc., and it would seem a smooth transition to require application to course work (Benedict & Pence, 2012). In college environments that provide access to electronic learning resources and videos for teaching and learning purposes, it would seem reasonable to expect students to be accustomed to videos as a tool for both leisure entertainment interests as well as educational purposes. Research related to student perceptions regarding video creation for classroom purposes reveal that students not only appreciate the experience, but consider the project work relevant, authentic, and meaningful, for both the learning process and the ability to be creative (Greene & Crespi, 2012; Smith, 2016). Although fascinated by these possibilities, I did consider the unique student backgrounds at our open access college. Could I make the same assumptions regarding equitable access to video recording tools? Given the accessibility to school laptops and other available video recording tools, I decided to take the plunge.

I created pages of mathematics word problems associated with the course learning objectives. I prepared instructions, rubrics, and "how-to" videos. The first time I implemented the project, I set students in groups and randomly assigned the problems. By the given due date, the students were to upload their videos and 30 minutes of in-class time was dedicated to reviewing the requirements and procedures sessions, followed by one dedicated class session to allow students time to complete the video recordings (a consideration of their varied work schedules and challenges traveling to school). Although I expected many questions and concerns related to this new format of assessment, I did not foresee that most of my students who had been on their cell phones and viewing YouTube had no idea how to create a video. My tutorial videos addressed uploading their YouTube or Kaltura video online, but they never viewed the videos!

Another area of surprise for me was how many expressed concern about how their peers would be able to review their videos. Although my rubric addressed creating a safe zone, politeness, respect to peers, etc., I still had to reassure them multiple times that I would remove any inappropriate negative comments. I gave multiple examples of positive constructive comments and questions that are valid and helpful. In hindsight, the time spent on that discussion is well in line with preparing them to communicate mathematically. At the time I thought perhaps this was one of the worst ideas I could have ever attempted to implement. The conversations seemed totally off-the-mark from math questions, and maybe I had unwittingly instilled anxiety instead of providing a tool for motivation.

When I saw their results for the first time, I was awestruck. There had been so many students who barely spoke in whispers when I would go from group to group during class work, but their video projects revealed completely different personalities. It was amazing to really hear their voices. There were humorous videos, as well as serious ones, and it was as if each person was really making an effort to be different. Most students were clearly proud of their work, and a few were fretting regarding how this would be graded (despite the rubric and discussions.) Once they saw the peer comments, which were respectful but varied in terms of helpfulness, they were more relaxed. It was wonderful to see the pride that most took in their work.

Yes, there were still a few challenges with projects that did not meet the four to six minute allotted time frame, and some videos did not address the appropriate level of mathematics. This has led me to keep the final exam in addition to the video so that I can do future analysis comparing the graded results. I have continued to implement student-created math videos for two years now, and each time I work towards addressing one portion of the multi-faceted issues seen from the prior semester's outcomes. The latest phase has been to have

students correct problems that were incorrectly done in prior quiz work or exams. In my opinion, the level of student persistence, critical analysis and growth mindset for that project makes it worth continuing (and it relieves some of the intensity of creating so many unique word problems!) That said, the necessary instructional time is still important. This is still "new" for most students, and it is important to support them throughout the process.

I won't deny that grading math videos is time intensive, but there is no doubt in my mind that it is also one of the most enjoyable projects to grade! I find great joy in seeing how students are motivated to express themselves far more through a video than in any class activity. Their written reflections also express how they are proud of their efforts. Many students comment on their realization that they *can* do the problems! I can honestly say that the project never has a dull moment, and I am eager to continue to learn alongside my students.

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Special issue: Innovative Teaching Personal Essays

We Are The Teachers – But Do We Really Know What's Best for Our Students?

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As academics we have had a great deal of autonomy when making decisions about the specific learning experiences we design for our students. In many cases, we take over a unit or block of lectures from a colleague with minimal handover: a broad unit outline; a series of learning outcomes (possibly); a set of PowerPoint slides; and the student evaluations from the previous year. Typically, we take possession of the teaching, and proceed to talk about "my lectures" and "my unit". In many cases, we then decide to redesign the learning activities (lectures, labs, workshops etc). We can do this without submitting a unit amendment and even without consulting the course convenor or engaging other academics in discussion/review of our ideas. We innovate with the best intentions for our students.

What are the concerns with this scenario? Our thoughts would be…. where is the rigorous, scholarly approach – building on existing evidence, gathering and evaluating our own evidence and building on this – attributes that are core to our approaches to our disciplinary research but which often are not transferred to innovating approaches to teaching and student learning? So why do we handle our teaching innovations like this?

As well as the issue of what evidence we might use to decide on the new learning experiences, we are concerned about the ways we approach evaluation of this new learning. Indeed, is the new learning experience evaluated at all (beyond the generic student evaluation

survey questions)? Or do we just assume that anything new is better than what it replaced? If I *have* evaluated 'my' new unit, then further questions arise: What were the evaluation criteria? What evaluation tools were used? Who were the evaluators? Layered onto these concerns, is the reality that as academics we may be highly accomplished in our disciplinary research, but most of us have limited experience measuring the impact of learning design. The next questions are: how do we interpret the evaluation data, and how do we respond to it?

Many of us have had teaching experiences where we have designed what we think is a great learning activity only to be baffled by the students' response after the class in some formal evaluation. This leads to the dilemma of how to proceed from there. How do we truly know if it was a productive teaching and learning activity? We want to address this vexing question by presenting a case study from an innovative learning activity we co-designed.

In the sciences, there is widespread agreement about the value of critical thinking strategies and deeper approaches to learning both for improving student engagement and helping students develop the skills necessary for the analyses and interpretation of scientific data and communication (LTAS Project, 2011; Kirkup and Johnson, 2013). For instance, an increasing body of work has reported the benefits of learning with videos in which students are required to *produce* videos as an active learning technique as opposed to simply learning from videos posted online or shown in a classroom, which is invariably a more passive learning activity (Jensen et al, 2012; Schultz and Quin, 2014) . Based on the education literature that advocates the value of active video based activity, we implemented "student produced videos" in our units, to replace the traditional written laboratory reports, as an innovative assessment strategy with a stronger emphasis on data analysis and critical thinking (Speed et al., 2018).

We were very excited about this innovation. We had received funding from a peer reviewed faculty competitive grant process, which helped us to introduce this innovation and to evaluate its impact on the student experience. Informal observation of student behaviour during the lab classes reported that students were filming and taking photos of their experiments. They appeared far more engaged with the actual experiments set down for this topic than in previous years. When the videos were being marked, we received excited emails from the markers about the quality of some of the videos and the level of critical thinking demonstrated. Our review of selected videos confirmed that the students' critical analysis that was demonstrated was impressive, that some students had shown a high level of creativity, and that much effort and work had been involved.

Imagine our surprise, though, when we received very mixed student feedback, with a number of students almost aggressive in expressing their dislike of the activity. When asked in a survey of students at the end of the unit, "Would you suggest any changes to enhance this unit in the future?" one student responded: "…… the video report is the stupidest, most awful and least engaging assignment ever put forward by any unit." However, 53% of students agreed that it was an interesting approach to assessment and 59% agreed that it allowed them to think creatively. When asked, "What aspects of the practical did you find most enjoyable and interesting?" one student wrote: "The creative process and trying to communicate the results in a way that was understandable to the viewer" (Speed et al., 2018).

The question we were then confronted with was, 'Whose opinion of the learning experience do we value most?' Was it the staff's, who were generally favourable? Or the students', who were very divided in their responses? From our perspective as the teachers, we were confident that many students had engaged far more with the laboratory component than in

laboratory classes where a written report was required. We suspected (but don't have the evidence) that knowing they were going to present/perform in a video (a personal appearance) may have had an influence on some students' attitudes to the task. We had also emphasized that the assessment was focused on data analysis and critical thinking and encouraged creativity. Maybe this changed their focus.

So how do we measure the impact/productivity of this learning experience and decide if we retain it? Although we undertook some student evaluation in this first iteration of the assessment, there are still many more questions we would like answered from both the students' and teachers' perspectives. We can listen exclusively to the minority strident student voice and remove this innovative learning activity, which was based on the evidence in the literature. This would appease the negative student voice (22%) and probably improve our student evaluation scores. Alternatively, we can adopt the proposition that "Good teachers expect and demand high levels of performance of students" (Ben Johnson, Edutopia, 2013). This effectively leaves us with two pathways: assume we know what's best for our students or repeat with further evaluation. Currently we are retaining the video reports in our 2nd year unit and reviewing them for our 3rd year unit.

Yes – we are the teachers, but we don't innately know what's best for our students. However, as educators, researchers and scholars it is our responsibility to take a scholarly approach to our teaching. We propose that as educators we need to adopt the approaches we use in our disciplinary research - building on existing evidence, gathering and evaluating evidence in our own context and building on this, and apply these to teaching and learning. This will require us to develop different research skills or collaborate with experts in the area. We must be rigorous, evidence based and unbiased.

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Special issue: Innovative Teaching Personal Essays

Using Padlet to Engage International Pathway Students in Academic Research

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This is a reflective account of using Padlet with first-year international students enrolled in a pathway program at a large Mid-Atlantic university. To qualify for the pathway program, students must have International English Language Testing System (IELTS) or the Test of English as a Foreign Language (TOEFL) scores within a certain range and must meet all other university admission requirements. From 2012-2015, I designed and instructed two courses, American Cultures and Research Methods, that were intended to develop pathway students' information literacy skills, critical thinking skills, and ethical reasoning abilities, as well as their oral and written communication skills. The course products for the American Cultures course included a group multimedia presentation, with an annotated bibliography and two individual reflective essays. In Research Methods, each student produced an annotated bibliography, gave an oral presentation, and wrote an 1800 word academic argument.

By the spring of 2014, it was clear that my students were able to complete the course assignments, but they demonstrated a level of understanding and application that was much lower than what they would need to achieve academic success beyond the pathway program. I made changes to the curricula, such as providing students with a list of reliable resources for

their research (books, trade journals, Internet sites and databases) and applying Bizup's (2008) BEAM model (background, exhibits, arguments, methods) to guide their use of sources in developing their ideas and academic arguments. I also included peer feedback activities on drafts of their annotated bibliographies, but all of this proved to be ineffective. Most students did not see the value in these activities, often coming to class without their best draft in hand. They struggled to accurately summarize and appropriately use sources.

Frustrated with my students' progress, I met with a colleague who recommended Padlet, a free online platform that works like a digital message board, where web links, short video/audio files, and various document formats can be summarized/explained and shared. Anyone can open a Padlet account and create a "wall" using a wide variety of templates and backgrounds provided. Document formats such as MS Word, PDFs, PowerPoint, and Excel can be linked or uploaded easily to a Padlet wall. One significant benefit is that sharing information on a wall does not require everyone to have a Padlet account. It is as simple as sharing the URL. For sensitive information, the creator of a Padlet wall can include a password. A brief overview of how to use Padlet in education is provided on the *TeachersFirst* website.

In the fall of 2014, I revised both courses to include student use of Padlet. I did so by replacing the written annotated bibliographies with two "research-to-date" presentations that students were required to give using Padlet. I scheduled these presentations in advance so that students knew when they had to present and when they were required to give peer feedback. To ensure consistency in the feedback students gave and received, I created forms that focused on the reliability and variety of sources as well as their intended use (i.e. Background, Exhibits, Analysis, Methods). For each of these in-class oral presentations, students showed their online Padlet wall using the classroom projector to provide the audience with short summaries of their

sources to explain how they intended to use these sources and to state next steps in their research process. If necessary, they opened a source or link from their Padlet wall in order to answer questions.

There were several benefits to having students use Padlet as part of their research. First, they were no longer producing work for my eyes alone. As Spordark (2005) found, the quality of student work tends to improve when technology is used to reach a larger audience. My students were now engaging with a larger audience of peers in a more authentic task that required the use of technology and oral communication skills. They were able to compare the quality of their own work to that of their peers, identifying gaps in their research and ways to close them (see Sadler, 1989). The research-to-date presentations using Padlet also served as a time management tool. Students could no longer wait until the end of term to start work on their projects. Nevertheless, there were still a number of students who had likely prepared their Padlet wall at the last minute. Some even admitted to this during their presentations. However, based on purely anecdotal evidence, I found the quality of student work improved across both courses in the 2014-2015 academic year.

Student feedback from the end of course evaluation forms indicated that most found Padlet to be a useful tool for organizing and summarizing their sources. They also noted that while they were nervous giving the short research-to-date presentations, they became more confident over time and enjoyed comparing their own work to that of their peers.

One caveat is that Padlet does not have a lockdown feature (i.e. students can continue to edit what is on their Padlet wall even after an assessment due date). For this reason, I did not use Padlet *as* the assessment. Instead, I used it as the vehicle for students to collect, summarize, and synthesize their sources. I stated on both syllabi that students had to include the link or document

for each source they referenced in a graded assessment on their Padlet wall. This eliminated the time I spent locating and verifying their use of sources, allowing me to focus my efforts on evaluating the quality of their work.

This is one account of using Padlet with undergraduate students; however, I see my situation as neither unique nor isolated. Current trends in higher education include increasing international student enrollment and widening participation to non-traditional students. The expectation that students will arrive to our classrooms with similar educational backgrounds, academic skills, and experiences will no longer suffice because, well, it simply isn't true. It is now incumbent upon university instructors to develop these skills using assessments that represent real-world applications. The use of back channel technologies, such as Padlet, provide innovative ways of teaching and learning, particularly for engaging students with tasks that are intended to develop a wide range of academic and professional skills.

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Special issue: Innovative Teaching Personal Essays

Passive to Active Learning: Engaging Students with a Technology-Based Learning System in Physiology

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I have been teaching in higher education for 28 years, during which time I have experienced significant change in student cohorts. My teaching philosophy incorporates a desire to enrich the first year experience, share my love of science, and engage students in a range of learning contexts to accommodate and support learning. As a lecturer to first year students, I teach foundation knowledge and help students to develop critical thinking skills. Foundation material can sometimes be perceived as irrelevant and difficult to comprehend, promoting passive learning and often, disengaging learners, and so, I continually seek to provide fun, yet academically rigorous learning experiences. I believe that first year students can be active, rather than passive learners, and can develop into confident, deep learners. During the last 28 years, the challenge to engage students actively in foundation material has enabled me to transform my teaching, utilizing technology to enable authentic student learning (Herrington and Herrington 2006).

Students of the digital age have encouraged me rethink how I teach with innovative online resources such as games and quizzes, now essential supporting elements of learning in my units (Douglas, Salter and Capstick, 2011). Technology has been shown to positively influence student engagement and self-directed learning (Rashid and Asghar 2014) and enables me to shift

from a teaching-focused paradigm to a learning-focused paradigm. This enables students to become self-directed learners. In laboratory settings, the integration of active learning engages students with technology in an area I love to teach, physiology, a difficult discipline for many students as it requires understanding rather than memorization. Historically, physiology is taught using traditional equipment (such as sphygmomanometers for blood pressure recording) but, in 2009, we were approached by ADInstruments to consider the implementation of a data acquisition and e-learning system, LabTutor®, using Powerlabs in laboratories. I, and like-minded colleagues, immediately saw an opportunity to stimulate student curiosity and enhance student learning, and so, with the financial support of the School of Human Life Sciences (HLS), I began to incorporate LabTutor®, into my physiology curriculum. LabTutor® provides online laboratory teaching using specific experiments across a range of anatomy and physiology topics that can be customized to specific curriculum needs (Vazquez 2008). In 2009, little evidence existed regarding the use of LabTutor® in effective teaching practices, but it has since been reported to guide fun, independent learning in bioscience for nurses (Swift, Efstanathiou and Lameu 2016; McMullan 2017) and to provide experimental data to enhance referencing skills in first year biology (Chunduri et al. 2014).

Using LabTutor®, students record and analyze real physiological data (such as blood pressure, muscle contractions, etc.), and are able to "see" physiology happening, understand the underlying concepts and apply it accordingly. Staff feedback is positive, "… students actually got visual feedback as they were completing the prac which assisted them in their understanding of the physiological concepts…" (email from tutor, 2010). However, initial student feedback was mixed due to initial technical problems and I realized that, in this digital age, students are not in the habit of reading instructions!

In 2010- 2011, only 45% of my students agreed that the LabTutor® based practicals reinforced their learning in muscle and nerve physiology. This was partly due to a number of technical errors experienced during initial implementation; "the technology for LabTutor is difficult to use and doesn't always work", (student comment, 2010). Despite this, I, and my colleagues) were motivated to continue to review and improve the use LabTutor® as it enabled real data production that could be analyzed for assessments such as laboratory reports. In recent years, mixed feedback was received from students; "Labtutor was sometimes beneficial but not all the time." (survey comment 2013) "Labtutor labs need to provide more questions that allow for developing of understanding." (survey comment 2014) "Labtutor also needs to be improved, tutorial time was often wasted from simply trying to get labtutor to load." (survey comment 2017). However, some students could see the value of the software when it worked, "LabTutor is hard to grasp but is amazing as it allows us to instantly see our experimental results", (student comment, 2010), "I think that the data we can generate from LabTutor is interesting and can help us to understand concepts" (student comment, 2016). In 2012, I witnessed my students using LabTutor® and comparing it with measuring blood pressure with a sphygmomanometer. One student had a 'light bulb' moment when they realized what LabTutor® was actually measuring and the data that they were consequently generating.

This impact on student learning reinforces my enthusiasm to continue to use technology as an active learning experience. Students in latter years fully recognize its value; "As I used LabTutor® in my latter exercise physiology units I realized how valuable it is to enable you to record, analyze and interpret a range of physiological date quickly and effectively." (3rd year student comment, 2016). Improvements in student learning (based on assessment results) and positive feedback from students in advanced physiology units buoys my enthusiasm to sustain its

use in first year and I share this with current students to engage them in technology-based learning tools.

ADInstruments have just released a cloud-based interactive version of LabTutor (Lt®) for us to trial that has improved our classroom experiences in 2018. In 2018, our students and tutors are showing positive behaviors towards the technology, engaging in experiments and appreciating the interactivity and online support provided in Lt®. I strongly believe that this will further enhance student engagement and learning in first year physiology.

The acquisition of the technology, originally funded by the former HLS, is now supported by the School of Health Sciences. To warrant its purchase, Lt® needs to be incorporated into more than one academic unit as the School pays an annual subscription per student for online use of the system. Consequently, I have not been the sole implementer of this technology in our School as it is utilized in other physiology-based classes, and we are reviewing its potential for introductory biochemistry and cell biology units. ADInstruments provide ongoing support and training for professional development of staff and, despite some student resistance, faculty support has been strong throughout the journey, easing the implementation process. As we move into the next phase of the upgraded Lt system, I am excited by improved student engagement and learning as the new technology offers integrated student and staff support and enhanced accessibility for revision and assessment purposes.

As I reflect on the use of this technology in my classes, I acknowledge the importance of carefully designing and constructively aligning learning activities to ensure they enable effective, supported learning. It is still imperative to walk students through key concepts in class as they will not necessarily read pre-laboratory information prior to attending practical sessions! At the end of the day, I cannot please all of my students, but with Lt®, I can provide them with a

laboratory-based experience that will engage them in learning foundation material, stimulate their curiosity and enable them to discover in a way they did not think possible.

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Special issue: Innovative Teaching Personal Essays

Academic Footprints in the Sand

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Many may be familiar with the poem, “Footprints in the Sand”. In this poem, the narrator looks back at his life and sees two sets of footprints in the sand, except during his most difficult times when there is only one set of footprints. The poem explains that the person was not walking alone, left by his Savior during these times. Instead, the Savior was carrying the person. As I reflected upon this poem, I visualized an “Academic Footprints in the Sand” related to my own experiences. Initially, there appear to be two sets of footprints, but one of the individuals is stepping heavily and appears to be dragging the other along the seashore. That is how it begins, and I have reflected upon this many times in my 27 years in the classroom.

You may assume the person being dragged is a reluctant student, with the instructor attempting to bring the student to new understanding. This isn’t always the case. As a young assistant professor (28-yrs-old) I was dragged into the complexities of online courses. I had heard horror stories from students regarding their frustrations with some of our online courses. The quality seemed sketchy, and the platform was limited. However, our college president at the time viewed online courses as the solution for financial growth. He wanted every course to be developed for online delivery and wanted our BS Social Psychology degree to be one of the first complete majors available online. I felt like a villager under siege from a conqueror like Hannibal or Napoleon Bonaparte. I organized our two-person department to defend our

curriculum and had two motions accepted that blocked two counseling-related psychology courses from online development. Needless to say, the president was very upset that I initiated these motions. I explained to him that my actions were driven by a concern for course quality. He responded by effectively "dropping me in the sand" to resolve these issues on my own. There was one set of footprints in the sand for a couple of years.

Years later I entered the online classroom reluctantly in Spring 2005, skeptical of the quality and merit of online learning. Our institution had just switched Learning Management Systems, and all courses needed to be redeveloped. I accepted the task of attempting to redevelop our PS101 Intro to Psychology course beyond (what appeared to me) a correspondence course. My personal desire was to remove as many courses as I could from online delivery, but I couldn't do that without making an attempt to improve them first. I started with our foundation course – PS101. My goal changed. I wanted to make the Intro to Psychology course one that would be compelling enough to make a non-psychology major love the discipline and become a major. As an undergraduate myself, I was dissatisfied with merely discussing topics. In my four years as an undergraduate, my favorite class was Experimental Psychology because I got to do and thus create new knowledge.

In the redesigning of this course, I developed an innovation called Report Back. This activity is a discussion in which students are given a topic and questions and asked to collect anonymous responses from volunteers (within their social circles or strangers). In the discussion thread, the students report the volunteers' responses, provide a summary and application back to the topic, and interact with other students. In essence, I have turned my students into psychological scientists, and they love it! Of course I didn't tell them that they were conducting a research analog because "doing research" is scary, intimidating, and boring. Time after time,

when students are asked about their favorite part of the course, the majority choose the Report Back as their favorite. Why? The Report Back activity shifts the role of the student from observer to actor. They are placed in charge, and they run the show. They interact with volunteers, record responses, and sometimes have to negotiate challenging participants. They then report the responses of "their" participants. This activity gives them ownership and the opportunity to create new knowledge (albeit in a much scaled down way, but analogous to how psychological scientists conduct research).

I've observed that there are more peer responses in the Report Back discussion thread than in the other weekly discussion thread. Students state that they can't wait to see the new Report Back topics each week. Some students even use the same group of volunteers so that they can explore possible trends across the course. This is thinking like a psychological scientist. Perhaps the most rewarding feedback is when students say the volunteers approach them on Monday asking about the Report Back topic for the week. That is the ultimate measure of success – psychology has left the classroom and has been shared with others. This leads to an infectious excitement that energizes students and instructors, and the students take the lead.

This exemplifies the exhortation of past presidents of the American Psychological Association – George Miller - and the Association for Psychological Science – Robert Bjork - to "Give Psychology Away". The Report Back with its inherent uncertainty and interactive nature brings some of the top strategies for successful learning - namely generation, reflection, and elaboration (Brown, Roediger, & McDaniels, 2016), self-referencing (Rogers, Kuiper, & Kirker, 1977), and deep-processing (Craik & Lockhart, 1972).

As I look back at my initial footprints in the sand, I suppose I failed and succeeded at the same time. I failed to remove Intro to Psychology away from online delivery but succeeded in

identifying an activity that engaged student learning. My (albeit reluctant) willingness to enter the world of online instruction taught me that there are merits to online courses and that there is a population of students who fit well with these courses. In fact, since redeveloping Intro to Psychology in 2005, I've developed or redeveloped seven other courses. One of these, a senior-level course – Cognitive Psychology, uses the Report Back structure with a more sophisticated requirement to link the activity to peer-reviewed research. Not surprisingly, the students also value this activity.

As I reflect upon the "Academic Footprints in the Sand", I see the transition where I was no longer being dragged along. Through this experience, I developed my own unique footprints along the shore - tentative at first and then stronger and deeper with greater strides. Soon, other footprints appeared alongside of me as my students joined me along the path of active learning and knowledge creation. Eventually, their own footprints went forward beyond mine. Then something most wonderful appeared – the footprints of multiple people coming from all directions to each student until it appeared as if there had been a beach party in the sand. It's truly rewarding to see how the joy of learning invites so many to add their footsteps along the shore.

I am so thankful that a simple innovation can bring so many people together resulting in the myriad of "Academic Footprints in the Sand."

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Special issue: Innovative Teaching Personal Essays

And I Ordered the Jinn, "Make My Students Read more!"

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As a teacher of English, who is herself an avid reader, one of the great agendas I carried in my heart and to my classroom was how to get my students to read more. 'More' was always too less for me as a voracious reader, so I was never satisfied that my students were only reading a single story book for an entire semester apart from the prescribed academic reading.

I felt that reading one book outside the classroom was too less, I wanted my students to be greedy for reading more- I wanted them to enjoy and ask for more and more books to read and complain that they were given too less to read- just as my little greedy pup always feels one piece of meat is far too less for the whole day, and gulps it down in no time, and then looks up with that expression- 'What, are you going to keep me starving? Do give me more!'
So basically I wanted hungry students, starving to read more, with absolutely no issues of low motivation.

This was not just my die-hard wish that I had set out to the universe, most of us teachers at the Language Center wanted this one miracle. So, we, the faculty at the Sultan Qaboos University where I am so proud to say I belong, came up with some *real* solution for developing *real* Extensive Reading habits: we started using the Mreader.org (https://mreader.org/index.php)
The National university of Oman, Sultan Qaboos University, has had an English Language Centre since 25 years. In 2016, the Language Centre has become bigger and changed to Centre

of Preparatory Studies (CPS) where a full-fledged Foundation Programme is offered at the Pre-University level, teaching English, Math and IT courses.

Right from Level One, the English Language courses use Mreader.org for ensuring Extensive reading outside the classroom in order to engage students in enhancing their English Vocabulary and Reading skills outside the classroom. Mreader.org is an online resource of Quizzes on hundreds of storybooks/ readers in English in multiple levels. Students are asked to read storybooks of their level, and then they attempt quizzes. Students get marks for having successfully completed quizzes and reading the assigned number of words. Students are able to read at their current level without a dictionary. Students can read any book at their current level (L) plus two levels above. For example, FPEL0340 students start at MReader level 1, and they can also read levels 2 and 3. See boxes on the right of student screen (L, L+1, L+2). However, if a student wants to move up or down a level, you can manually change his current level. Teachers enroll students, and orient them to the state of the art Self Access Centre at the University where they pick up readers according to their course levels. Students then attempt quizzes online in their own time or in designated classes in fully equipped language labs booked for quiz days by the lecturers. Normally, promotion to the next reading level happens automatically, after the student has read 6 books at their current level. As each year passes by, using Mreader.org has been a roaring success facilitating Extensive Reading outside the classroom; it has been a compelling and an interesting platform for students that is backed by the lure of getting ‘marks’ that add to their grades directly.

Our students now have a range of words to read per level of their 14-week Foundation English course- lowest starting from 10,000 minimum and as they move on to the next higher level of their English course, they have to read up to 50,000 words in total over 14 weeks.

We mark them on how many quizzes they pass on the story books they have read; they cannot read the same title again; no two students can read the same title; a student cannot take more than one quiz attempt per book. We sizzle this up with competitions to encourage them to read more. Here is a competition announcement made by the Mreader co-ordinator Tim Hendrix, at CPS:

We are going to run the MReader competition again this semester, with results sent to students every two to three weeks. The top male and top female reader from each course will receive a certificate and a prize. I'm also expanding the competition to include a certificate of recognition for all of the students who read double the required word count for their courses. I am hoping to host a public ceremony for the top achievers in MReader at the end of this semester. The results have been truly mind-boggling as students are reading in the area of 50,000 words at the lowest level to almost 500,000 words at the highest level.

In my class, I open the Mreader.org's teacher account I hold as an SQU faculty, and I show the students the collective class report where they can see who is leading in the number of words they have read. This is like a red flag in front of a raging bull- the students so love to compete with the other gender that they go well beyond 50,000 words by half time in the semester; they also make requests that I up their level on Mreader so that they can borrow higher level books from the library that are longer texts; they take quizzes over weekends, and that makes me so much happier.

The Mreader.org has truly been the most innovative tool that has been very logically and thoroughly applied at the Center of Preparatory Studies of SQU. Over the years, all the creases have been ironed out, the students have fallen into the habit of picking up stories that are categorized under themes, thanks to the University Self-Learning Centre promoting Learner

Autonomy, students read from several different subject areas and themes including Sports, Animal world, Adventures, People and Cultures, Sci-fi, Romance, History etc., to name a few.

What makes this even more fruitful is I tie it up with another Study Skills compulsory requirement of Foundation Program- the Portfolio. All students need to actively and autonomously learn the five different Language skills outside the Classroom-Reading, Writing, Listening, Speaking and Vocabulary. For Vocabulary skills, they submit a vocabulary log weekly, for 14 weeks. For their weekly Vocabulary Log, they have to enter an n number of words according to their level. For example, for the initial Levels 1 and 2 students enter and learn 10 words a week (minimum) and so on and so forth- higher level students do 20 a week; and they get marked for this aspect of their Self-study Portfolio. I encourage them to use the storybooks they read as a source of new words they come across. I further bring in technology by getting them to download dictionary.com on their phones to look up new words and make a note of them in the Logs.

So, as the 14 weeks go by, they produce a repertoire of words as many as 150+ at the lowest level of the Foundation Program, and 300+ in higher levels, for which again they are randomly quizzed and marked during Portfolio interviews.

Using technology outside the classroom, but supplementing it with a full-fledged well-stocked Library and a huge reading room that has also become a hotspot for students to learn outside the classroom in in pairs, groups or individually, I find that we have made the world of vocabulary learning and extensive reading dynamic indeed for our freshmen entering their Pre University English courses.Adding spice to it are competitions of Star readers, ‘best book’

recommendations, and competitions within my class for the students who read *more* and say, give me *more*!

I always say them in the end, words are like green bills, the more you have the richer you are, so how much cash you carry is similar to how many words you carry in a Language- and this wonderful site Mreader.org is the ultimate tool to enhance extensive reading. I tell them that being in SQU is always exciting, as we go for the best resources and I am a happier teacher as I have followed my heart and birthed a generation of voracious readers in my classroom, semester after semester thanks to online resources in English Education, the Jinn of our future generation, which will provide them *more* at the click of a button!

Special issue: Innovative Teaching Personal Essays

When Good Scientists Assign Bad Term Papers

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University of Cincinnati Blue Ash

When I assigned that first written paper in my Introduction to Pharmacology course, I knew what I had in mind: students would find a recent news report about a pharmaceutical drug, hopefully one where some controversy was mentioned, investigate the drug and why it was in the news, do a little simple background reading on the drug itself, and translate all that information into a short paper that a lay person could understand. The course learning objectives (LOs) emphasize discipline-specific critical thinking skills, such as researching unfamiliar drugs, evaluating sources, and communicating drug information to potential clients. In the spirit of writing across the curriculum, using a term paper to assess these LOs while reinforcing student's writing skills seemed like a good idea to me.

Most of my students are in the nursing program at a 2-year branch campus of a major urban university. They may not be bound for graduate school, but they have passed some tough pre-requisites and should be competent students. They also have, in theory, taken and passed our freshman English course. Having them evaluate a news report and translate the underlying science for their future patients seemed a reasonable ask.

The first indication that something was amiss came when several students reported they "couldn't find any drugs in the news." This perplexed me; a simple web search revealed multiple news articles about pharmaceuticals. When the papers came in, the scores weren't

horrible, but many felt like slap-dash efforts put together the night before, just to earn a grade in a class. (Surely not my students?!) Even though the assignment was meant to mimic critical thinking skills that they would need as nurses, students didn't seem to buy into the idea that this was important – that it would actually be useful after they graduated.

Conversations with our nursing faculty confirmed that these critical thinking tasks, and that level of communication, would be part of my students' ultimate professional responsibilities. I decided to continue with the assignment, but turned to points to incentivize better work. The first two years of the assignment, it was worth 15 points of extra credit. When the paper became required, I doubled the point value to 30 and provided a grading rubric with four sections: Focus & Organization; Grammar & Spelling; Drug Discussion; and Rhetorical Analysis (for information on rubrics, see; Nilson, 2016; Walvoord & Anderson, 2010). Leaving aside the fact that students had no idea what rhetorical analysis meant, providing the rubric may have helped them, but it increased the feeling that I was giving an English Comp assignment, not an Intro Pharmacology one. What I wanted the students to do was think critically about a drug, yet what they were earning points on was writing mechanics.

Many of the papers didn't show evidence of the types of analysis the LO's called for, but I wasn't sure how to develop that. As a biologist without much training in composition, I turned to my library and English colleagues for help teaching writing and continued to increase the point value. Over several years, the grading scale increased to 50 points, then 60, then 75, and finally 100 points (equivalent to the final exam). The paper has been divided into four parts, each with its own deadline and point value. Students now submit a topic paragraph early in the semester (10 points), followed by an outline & annotated bibliography (20 points), then a first draft (50 points) and a final draft (20 points).

Splitting the full paper into first and final drafts allows students an opportunity to improve their writing. When the assignment consisted of only one draft students had no chance to learn from the writing process. For those who may need more coaching, two drafts theoretically gives them an opportunity for significant changes, and if I'm going to teach writing, it gives me a vehicle to do it.

In another effort to generate more interest in the assignment, I increased the options for topics; perhaps if students were more excited about their paper, they would invest more into it. The updated list added two additional ideas (treatment of a disease and history of a medication), but administering three versions of the assignment was taxing on us all. The most recent iteration of this assignment is a paper that describes "the pharmacologic treatment of a disease or medical condition." Students can come at it from the disease side or the drug side, but ultimately both aspects must be included. This topic is broader than just a drug in the news, and it ups the critical thinking coefficient for the research and writing.

As this assignment evolved, and increased in point value, the grading rubric has expanded and the instructions have become more detailed. There is now a rubric for each graded portion of the paper (though the ones for topic paragraph and annotated bibliography are fairly simple). The rubric for the first and final drafts includes sections for: Directions Followed; Focus & Flow; Grammar & Editing; Drug Discussion; Disease Discussion; and References. Having separate grades for discussion of the drug they've chosen and the disease it treats helps to put more focus on core of the paper – a report about the pharmacological treatment of a disease.

Students now had a better idea of my expectations, but something about the writing still bothered me. Even when they showed passion for the subject, the papers could still be a patchwork of ideas. Analyzing this disconnect has helped identify some issues. First of all,

encouraging better writing must start with clearer definition of what "good writing" looks like. After doing my own critical thinking, I can now articulate what this means for this assignment: Good writing tells a coherent story; bad writing is strung-together facts – a literal or metaphorical cut-n-paste job. Good writing uses good sources; bad writing relies on the top 5 hits from a Google search. Good writing thoroughly addresses the topic; bad writing is superficial.

When the assignment started, I viewed the research portion as the place for critical thinking and the written paper as simply evidence of that process. In the STEM disciplines, that often seems to be the case; we conduct experiments and draw conclusions from them, then we write up the results. However, in the teaching literature one can find the view that writing is really part of the of critical thinking process (Badley, 2009). It was through preparing this manuscript that I first put into words what good writing meant to me. It took actual writing to give form to that part of my story. Perhaps for my students, many of the writing problems are really thinking problems. The better rubrics, with clearly defined point distributions help, but they also need explicit instruction that identifying the story they want to tell is as much a part of the work as researching the drug and disease. And once they identify their story, they can begin to craft a way to tell it.

Research still matters. Teaching students how to choose and cite sources is still vital. Most students know to avoid Wikipedia, and usually strive to get their citation style correct, but beyond that many show little judgement of their sources. So I explain that sources must be "scholarly" in nature and could include scientific and nursing publications, drug guides or manuals, textbooks, and credible websites. Teaching them to discern the credibility of a website is still a work in progress, but very much in keeping with the LOs of the course. Having students turn in an annotated bibliography has been a start. Many students remain stymied by the concept

of annotating a bibliography. But to be fair, the whole concept of a bibliography stymies some of them, even without an expectation of annotations. When I first asked students to submit a list of possible sources prior to the finished paper, I mostly got those top 5 hits from a Google search, pasted into a document with no discernable formatting. The idea behind the annotations is to make students actually look at their sources and think about how they would use them. One challenge has been getting students to understand what the term "annotated" means, and in a few cases, to understand that they should remove the annotations from the final draft. A worksheet asking them to describe what they hope to get from each source, and judge its credibility, is my next step.

This assignment has grown over the years, from a short report about a drug in the news to a full-fledged Term Paper. It still feels like much of the process is teaching an English class – neither my strength nor my passion – but I've come to realize that showing my students how to write well is a central part of teaching critical thinking, and that is definitely my passion.

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Special issue: Innovative Teaching Personal Essays

Research-Based Teaching: Teaching using Research or Learning to do Research?

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Research-based teaching, or so I thought, after I took my first course in university education, means that you teach using findings from educational research. In other words, people do research on teaching, publish that in a peer-reviewed paper and then you use that research in your teaching. Obviously this is an important and useful concept providing numerous proven tools, ideas, analyses etc. related to teaching. However, I found out later that there is another different definition of research-based teaching. This second definition states that research-based teaching is teaching where students learn to do research. In this brief essay I share how I have used both these concepts in the never-ending quest to improve my teaching.

I started in my current university job nine years ago, after having done a postdoc and nine years of work in the industry. My main teaching job, so I was told when I started, was to set up two classes on computer programming for geophysics students, an introductory class and a more advanced one. So that is what I did. My strategy in doing so was to look for the teaching material online and to develop teaching methods.

In the end, that is not how it worked out. I had to develop the teaching material but could find information about the teaching methods online. This was a bit of a surprise to me. In particular, a textbook in this field did not exist. The teaching material that, by necessity, I came up with was basically a sequence of programming exercises starting from scratch and ending at a level appropriate for beginning master students.

As for the teaching methods, I realized that traditional lectures would not be appropriate for teaching programming, not least because I had had a bad experience myself in this regard.

It was clear to me that to *learn* programming you actually have to *do* programming. So I decided to keep the talking to a minimum, basically explaining the material needed for the next couple of exercises and setting the students to work. I myself walked through the classroom answering any questions the students might have. This seemed to be a reasonable setup, but it became clear that there was a lot of room for improvement, not in the least because of the typical beginner mistakes, such as wanting to do too much at too high a level. Giving and receiving feedback was much more important than I realized. Also, the level had to be right. It turned out there were many ways to fine-tune this: asking the students what background they had at the beginning of the course, informal conversations with students during the course, asking students whether they were familiar with a concept during the teaching itself and feedback from teaching assistants. In addition to these things there were the big unanswered questions: how do I know whether I am doing a good job? Is there a (systematic) way to improve my teaching?

Luckily, about this time, two years after I had started teaching, someone told me about a university education course. I was vaguely aware of this, but having been busy with this and that (mainly teaching and research), had not looked into the content of these courses. It turned out that there was an introductory course on university education and that there were various other courses that built on this course. It was at this course that I learned about the first definition of research-based teaching.

In particular I learned about active learning methods, course alignment, examination methods etc. I also learned that there was an enormous amount of literature on these topics and especially active learning. The books, journals, papers and webpages were too numerous to count. The university education class was practical, so I was encouraged to experiment with active learning methods in my classes and write a short paper about this, which was eventually published. It was very helpful to take this research-based education as it helped me to structure, vary and improve the courses. In fact, at one point I might have overdone the active learning part. I realized this when I saw the slightly desperate look in the face of one of the students when I announced yet another active learning method we were going to do. Clearly, when you want to improve your teaching it is important to find a balance and not to try too much at once.

Once the teaching is more or less in place, this improvement is, in my opinion, the hardest part of teaching: to keep finding possible sensible improvements, to implement these in a way that is meaningful, and to gauge afterwards whether or not they actually have been worthwhile. Besides being difficult, this is also time consuming, takes energy, and can sometimes be a bit stressful. In fact, this whole process of improving teaching reminds me very much of doing research: the demands put on a person doing research, cognitive and otherwise, seem to be very similar to those involved in improving teaching.

Other improvements in my teaching came by thinking and reading about teaching, talking to people, making a list of the many parameters related to my teaching. These parameters included the students' background (Bachelor/Master/PhD, internal/exchange, major/non-major etc.), informal and formal (through a survey) feedback, and the realization that writing a paper was difficult for many students. This last problem was partially solved by asking the students to write a brief paper based on a literature review. This then led in a natural way to the latest change in the class, the one involving the second definition of research based education.

I do not remember how exactly I found out about this second definition of research-based teaching. But once I did, a few years after I took the university education class, I implemented it in the second class I was teaching. I gave the students the option to do original research and write a paper on that (instead of writing the literature review paper). This year's spring semester about half of the students in this class (five out of ten) did a research project. Given the interesting papers that the students came up with, and the formal survey held after the class, it seems that this latest innovation, based on the second definition of research-based education, was a small success.

An interesting aspect of this research-based education experience was which students actually chose to do the research project. Students from all levels (Bachelor, Master and PhD) were taking the course, but the research project was only chosen by half of the Master students and the PhD student. Perhaps this is not unexpected; students for whom the research is more directly relevant are more likely to do a research project. It is possible that other factors also played a role (motivation, personal interest etc.) but they seem less pertinent. As the students were very positive about the research project, and since their papers were at a quite high level, this certainly seems worth repeating.

Clearly, these two concepts have been important in my attempts to improve my teaching. The first one is very broad, the second one very specific. The second could perhaps be seen as an application of the first one. The main point to me is that they are part of a spectrum of tools that exist to improve teaching. And clearly that is what university teaching should be about. Not only are the topics being taught non-trivial, there are many other variables that determine how a course should be run. In fact, overall it is so complicated that it seems to me that improving teaching is a process that is fundamentally part of the teaching itself, and, just as is the case with teaching, there is no end to it.

Special issue: Innovative Teaching Personal Essays

Innovating Integrity in Online Learning Contexts

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I began my teaching career in 1994, as a languages instructor in the humanities. After completing my doctoral work in education, I changed fields and now teach in education, with the majority of my courses being in educational research. I taught my first online course in 2012. Since then I have taught more than ninety courses online, in both higher education credit and continuing education contexts. Now the majority of classes I teach are online.

Plagiarism in online classes worries me. I have a different relationship with my online students, and in my experience, it is possible for students to be less socially present in online and blended courses (Garrison, Anderson, & Archer, 2000; Annand, 2011). At times, I don't always know what it is my online students need, unless they have the agency to advocate for themselves and ask for help. I have observed distinct differences as my colleagues and I grapple with issues of academic integrity, and plagiarism in particular. I also researched the topic of plagiarism, and I confess that I was surprised to learn that there is little to no empirical evidence to support the notion that the Internet is responsible for the increases in plagiarism (Panning Davies & Moore Howard, 2016) or that students who study online plagiarize more than those who take face-to-face classes (Eshet, Peled, & Grinautski, 2012; Watson & Sottile, 2010). According to the research, these notions are myths, but I also found little in the way of helpful guidance for those

of us who teach online about how we address plagiarism in our courses. Thus the reason for this essay, which I offer to my fellow instructors, particularly those who find themselves, as I do, teaching in online contexts and dealing with plagiarism.

With almost a quarter of a century of teaching experience, I have observed that how I address plagiarism differs for me, in an instructional sense. Plagiarism can be accidental or intentional, and other contextual factors play a role, too (Brimble, 2016; Blum, 2009; McCabe & Treviño, 1993, 1997). With online students, the opportunity for real-time communication can be limited. I might have to reach out via e-mail, meaning that I cannot rely on body language and visual cues to help me understand the nuances of the situation, so I try to focus more on prevention. I began to focus intently on prevention after discovering two cases of plagiarism in the same online Master's-level class. In discussing the case with the Associate Dean, I recognized that these two students had done the minimum about of work in terms of contributing to the required discussion board, had not attended any of my virtual office hours, and had never reached out for help. I had failed to flag their need for additional support and instead had assumed that if they needed help, they would reach out and ask for it. This experience proved to be pivotal for me. I learned a valuable lesson: I must take an active role in helping my students understand what I expect of them and how I can support them in their learning. Before I came to this conclusion, my approach to plagiarism had been to follow institutional policies and guidelines, which focus on identifying, proving and sanctioning plagiarism after it has occurred, rather than trying to prevent it in the first place. As I reflect on this particular experience, I realized that as an educator, I have agency and influence when it comes to helping to prevent plagiarism in my classes. I may not be able to prevent it 100% of the time, but I can have an impact in a positive way.

Explicit instruction helps students understand how to avoid plagiarism in their work (Moniz, Fine, & Bliss, 2008), but if I am being completely honest, I have so much course content to cover in my classes, that finding time to teach explicit strategies to help students avoid plagiarism can be problematic. Besides, I don't often teach writing courses specifically, so I would have to find a way to add in this direct instruction on top of the content we have to cover. In a perfect world, I would do this, but reality differs from the perfect world.

Instead, I want to share an approach that does not involve adding more content to my courses. I will concede that providing formative feedback adds more work for me as an instructor. I am willing to do this work for two reasons. The first is that I have decided that one of my values as an educator is to focus on learning as an *ongoing process*, rather than as an *end product*. Identifying this value proved to be so important I later added it to my teaching philosophy statement that is part of my teaching dossier. The second reason that I am willing to provide formative feedback is that often (though not always), it makes summative assessment easier. I am already familiar with the work, and I can see how students have worked hard to improve. I end up spending less time at the end of the semester undertaking summative assessments when I have provided in-depth formative feedback throughout the term.

I use a multi-pronged innovation that combines direct instruction, emphasizing learning as a process, and committing to providing formative feedback that has worked well. I engage in explicit dialogue with my students at the beginning of the term about expectations. Our courses include asynchronous (on demand) components such as discussion boards, and synchronous elements such as Adobe Connect live meetings (real time webinars). Of course, I must include the standard institutional boiler-plate language in my course outlines referring students to the academic misconduct and plagiarism sections of the academic calendar, but frankly, I don't think

students look at that part of the course outline anyway. So in addition to that, I post a message on my discussion board that looks something like this:

"Integrity statement: I understand that as students, you have many pressures on you. You may be tempted to take short cuts by cutting and pasting material you find online into your assignments. Please don't do that. It doesn't help you learn, and it's a waste of my time to grade. Instead, I invite you to review drafts of your work with me. I will give you formative feedback that will help you improve. You're here to learn, and I'm here to help you to do that. It may take both of us a bit more time, but I believe it is worth it, because I believe in *you*."

Similarly, in our first webinar of the semester, I often review the course outline with the students. I re-iterate the same message verbally in real time. This is a simple strategy, but the results have been effective, at least anecdotally. Students have reported that they really like knowing they can share drafts of their work with me. Sometimes they are surprised that their teacher is willing to give them formative feedback.

Starting the conversation lets students know that I am alert to the possibility of plagiarism. Because the structure of our courses focuses on summative assessment, it can be a bit tricky to require students to submit their drafts. So instead, I emphasize, by inviting drafts and offering formative feedback, that I affirm the value I place on learning as a process, not term papers as an end product. In terms of sustainability, I include the Integrity Statement in my course content during the planning stages of the course. I send students reminders about sharing drafts of their work with me for formative feedback throughout the course (particularly if we are about a week to ten days away from a due date). Finally, and this may be my deepest learning as an instructor, is I have learned to budget time to provide formative feedback. I block off chunks of time in my calendar so I am not doing this off the side of my desk, but rather as an integrated

element of my instructional practice. I also find that that the final submission is of a better quality because students have had the opportunity to improve their work before submitting it for a grade.

There is no silver bullet to prevent plagiarism. As I reflect on my experience integrating direct communication (being brutally honest, if you will) with a commitment to provide formative feedback and focus on the learning process, I cannot claim any cause-and-effect relationship between taking this approach and decreases in plagiarism incidences. What I can say, is that it has helped me to focus on the relational aspects of teaching and learning. My students know I care about them, and I care about plagiarism, regardless of whether the learning happens in a classroom or online. I am convinced it is worth the time and effort to provide formative feedback, because the end product is stronger and perhaps more importantly, students know that I am committed their development as learners, which in turn, has resulted in deeper levels of trust and better relationships with my students.

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Special issue: Innovative Teaching Personal Essays

Small Group Brainstorming

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I began teaching at my university as a visiting professor 14 years ago. My first semester on campus, I was assigned three courses to teach in the Department of Communication Sciences and Disorders. One proved to be a bit of a challenge for me on a number of levels. This more troublesome course, Preschool Language Disorders, was scheduled as one of several (dreaded) three-hour, once-a-week, evening courses for graduate students in my speech-language pathology program. On top of these scheduling concerns, I was no expert in the topic area for this course, having spent the bulk of my clinical career working with older children. Thus, I struggled to conceptualize HOW to teach this complex subject effectively to my students while faced with tired students who had put in a full day of class and clinic prior to our class meetings.

Despite these worries, I designed the best course experience I could envision for my students. Looking back, what I actually created that first semester was a course that imparted a lot of useful information, but did so in an ineffective manner via the use of over-laden PowerPoint slides and a fierce commitment to lecturing from assigned readings. However, across several semesters teaching Preschool Language Disorders in this manner, I became dissatisfied with what I observed in both my students and in myself. Students passively took notes while I actively lectured. Students memorized what was emphasized as important material, but lacked active engagement in class with me, with each other, and with the subject matter. I wondered

how deeply they were thinking about course content and whether memorizing content actually led to true understanding and/or learning. In short, I realized that any lack of engagement with the course or its content wasn't truly the students' fault. They were doing what I asked of them – and they were doing it well. Rather, it was clear that I needed to adapt my approach to teaching this material to encourage the engagement and interaction I viewed as lacking.

While not always kind, self-reflection is a valuable avenue for improvement. Knowing I had work to do, I attended workshops and spoke one-on-one with faculty developers at my university's teaching and learning center. Through these experiences, I learned about better practices in teaching and learning that I could apply directly to my classroom praxis. The Center's director at that time was particularly influential in my thinking. One of the best pieces of advice he offered (that I still operationalize today) was that in every class meeting, no matter the length of the class or the content for the session, there should be three different types of interactions evident in the classroom: instructor to students, students to students, and students to instructor. Around this same time, I became interested in evidence-based educational practices and sought out sources to better understand what research reported about effective pedagogies. In my search, I came across (and read) a book titled *How Learning Works: 7 Research-Based Principles for Smart Teaching* (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010), which emphasized that the manner in which students organize knowledge influences how they learn and how they apply what they've learned. Considered together, these ideas -- that different types of interactions in the classroom were critical and that how students organized information influenced learning -- acted as a huge "a-ha" moment for me as a teacher.

In response to this realization, I developed a start-of-the class practice that I coined "small group brainstorming" (SGB). Simply explained, I initiated a process at the start of the

following semester where I began each Preschool Language Disorders class meeting with students arranged in self-selected groups of three to four students. They were given several SGB questions (printed on a worksheet) topical to the content of that day's class to consider and address with their groupmates. These questions required students to think deeply about their assigned readings, to describe and define key terms or ideas in their own words, and/or make connections between theory and practice in speech-language pathology. In short, students interacted to organize their knowledge, in line with desired outcomes described above. As all SGB questions focused on the most important takeaways for a particular class, these questions became the outline for that class's lecture, application activities, and/or whole class discussions. Approximately 20-30 minutes were allocated in each class meeting for SGB. A sample question from an SGB exercise is presented below from a class meeting where interpretation of standardized tests was being discussed:

> *There are MANY different types of scores reported for standardized language assessments. Define/explain the following in your own words and* ***CIRCLE*** *the scores that your readings suggest are appropriate to formally report:*
>
> - *raw score*
> - *standard score*
> - *percentile ranking*
> - *age equivalent score*
> - *grade equivalent score*

Students would routinely augment their group SGB as class unfolded, correcting errors or adding depth to the information they initially provided throughout the evening. Students submitted their SGB worksheets to earn a small number of participation points each week.

I cannot lie; the design and implementation of SGB was very labor intensive for me. That said, I was so dissatisfied with my previous approach to teaching this class, the time and effort were more than worth it. During times when students were engaged in SGB, I'd walk around the classroom and listen to their conversations, noting that students were engaged in really good, deep discussions about course content. Sometimes as I listened, I'd correct erroneous assumptions or contributions. More often, students would ask me over to their group's work area to inquire about extensions of material they were reading and discussing to access knowledge and advice topical to their own clinical work, research endeavors, or personal curiosities. When reviewing SGB worksheets after class each week, I noticed that students (knowing that I'd provide individual feedback to their work) would ask me specific questions to seek additional information or context (e.g., "Dr. Friberg, when you said x in class, it made me think about y. How would that work in real life?"). Truly, the work of my students drove each course, which I found illuminating and completely satisfying. Students came to class having completed assigned tasks and readings, knowing they'd have SGB work waiting for them. Little preparatory lecture was needed any longer. Our SGB discussions took us beyond "covering content" to a place where we could focus on deeper applications of content to real life clinical practice. These outcomes were exactly what I was seeking as a positive change in this course. Student engagement rose as did the quality of interpersonal interactions across the course.

Anecdotal feedback from my students was overwhelmingly positive, both in informal conversations and in end-of-semester course evaluations. Students reported that they felt more

comfortable participating in whole group discussions after reviewing and calibrating on important topics with their peers. Students also reported being more diligent in completing assigned readings prior to class, knowing that they'd have to apply the information right away as class began. From my perspective, I noticed that students seemed more able to retain and synthesize the information that was part of SGB across the semester to integrate topics and ideas important to future clinical practice.

Overall, the genesis for SGB was the realization that what was happening in my Preschool Language Disorders course was not ideal for me as a teacher or for my students as learners. That knowledge led me to seek out help from campus experts in teaching and learning, which broadened my pedagogical horizons and gave me permission to move forward into the scary landscape of teaching in a different way than I was taught as a student! Lots of work in crafting SGB, refining its implementation, and observing outcomes of its use over several semesters followed. Quite honestly, I knew the first time that I used SGB that my students responded well to it. The buzz of excited conversations and engaged sharing was my first clue. The really amazing whole class discussion that followed was the second. That said, I had to wonder whether SGB had "staying power" to continue as an effective pedagogy. Over time, I realized that because SGB changed in content and format each week, it did, in fact, continue to be something that my students responded to with enthusiasm and depth. Had they not reacted in this manner, SGB would have likely been shelved in favor of a different approach.

Positive outcomes from the implementation and use of SGB have remained consistent across semesters and have provided a rationale for sustaining and expanding the use of this pedagogy. I tweak my SGB questions constantly in response to new science, changed readings, or adapted foci in terms of course content. The first semester I developed SGB, I used it with

solely my Preschool Language Disorders course. Today, I used SGB in every class that I teach, though I do modify this approach to align with situational and contextual needs. For instance, if I have a class that is 50 minutes long, I may only have one SGB question. Or, I might use SGB every few classes rather than for each class meeting. If I'm teaching an online class, SGB questions might be part of weekly discussion boards. The one constant that hasn't changed is the integration of peer-to-peer interaction to start the SGB, which merges to teacher-student interaction to flesh topics out and organize information for mastery. That notion represents the core of SGB that, at least for me and for my students, has been an effective way of establishing a class routine that yields a variety of positive outcomes.

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Special issue: Innovative Teaching Personal Essays

Using Socratic Circles in Authentic Learning with Undergraduates

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We look for interesting pedagogies which both engage our 3rd year undergraduates in the theory and concepts of our subject, and contribute to their development and practice of 21st century employability skills (Deloitte Access Economics, 2017, see in particular pages 4-5). Socratic Circles provide an engaging and effective method to generate deeper discussion and insights and thus practice many of these employability skills (see Copland, 2005, for a description).

In our flipped class, we conduct an in-class activity in which students complete an assessable written group response to a case they individually prepare at home. The case exemplifies theory covered in readings and lecture materials. Drawing on each other for ideas, knowledge, and the different perspectives that enrich understanding, we hoped groups would work together to think about the theory and explore its application in the real life authentic learning situations provided by the cases.

Not so. Over several semesters, we tried various methods to improve our student's understanding of how to think about, explore, and problem solve the case questions. We wanted them to analyze, synthesize, and evaluate the open-ended problems we set for which no prescribed or self-evident solution existed. To do so, they needed to draw upon and practice higher order skills including: the ability to transfer knowledge to new situations; the artfulness of

critical thinking; and the breadth of creative thinking (see Collins, 2014). Yet, despite our collective efforts, the majority of submissions comprised perfunctory paragraphs to gain marks.

By good fortune, when discussing this problem with a colleague he suggested Socratic Circles. A quick google generated a raft of useful resources, including videos, demonstrating how to apply the method. As we watched, we reflected on previous feedback in which some students had requested more discussion of the case in class. It occurred to us that by sandwiching the Socratic Circle discussion between the at-home preparatory reading of the case and the in-class assessable group questions, we could generate a good discussion of the case for those interested, whilst providing observers with more insights into the case material than they may otherwise have gained. After investigation and discussion, the teaching team agreed to roll out Socratic Circles across seven different classes comprising 219 students.

After the very first Socratic Circle had concluded, the five volunteer discussants commented upon their experience. Discussants were all positive and spoke of how quickly the time went, how surprised they were about the volume of what they had to say, and how they forgot about the observers listening and watching them, so caught up had they become in the process of discussion. Subsequent feedback from teachers and students was also consistently positive, with interesting discussions occurring and the caliber of responses to the assessment questions improving.

The average class size was 31 students, giving between 6 to 10 opportunities across the semester to join a 5-person Socratic Circle discussion. As observation over time familiarized and de-stressed the process, we found the majority of those students reluctant to volunteer as discussants had lost their social anxiety. By the end of the semester, 70% of the cohort had

volunteered for at least one Socratic Circle, and nearly half the cohort had volunteered for three or more.

We believe adding the Socratic Circles contributed significantly to increasing the students' learning and enjoyment of the subject. Not only were students more actively engaged in class and submitting better quality case responses after the introduction of Socratic Circles (at T2), but also the institution's end of semester feedback survey revealed a significant drop in the count of negative comments related to the class and cases when compared to the previous period (T1). After introducing Socratic Circles in T2, the count of negative feedback about class length dropped from 24% (101 respondents) in T1, to 6% in T2 (81 respondents). Similarly, the count of negative feedback related to the cases dropped from 17% in T1 to 4% in T2.

These results were consistent with the informal paper-based voluntary survey conducted in two of the classes (n=29, 39% response rate) in which students rated questions on a 5-point scale (1= strongly agree and 5= strongly disagree). On the two questions probing benefits of the Socratic Circles (helped me understand, gave me additional insights) the mean response was 2 (agree). There was an overall satisfaction question for each of a) the preparatory case notes, b) the Socratic Circle, and c) the group assessable submission (….. is/are/were a useful learning activity). Each response mean was 2 (agree).

We interpret these results to suggest the following: students found the Socratic Circles so engaging they did not notice time passing; the activity gave them a better insight into, or more enjoyment of, the case study process; and Socratic Circles do provide a good learning experience for students. However, the observers to the Socratic Circle discussion do need to be encouraged to stay focused on the conversation and not be side tracked by their digital devices.

The innovation of the Socratic Circle was possible because the faculty's Associate Dean of Teaching and Learning supports teachers willing to identify and trial innovative pedagogies that might improve student outcomes of engagement, satisfaction, and performance. Our teaching team care about good learning experiences for students, and they are prepared to do the extra work that might contribute to improved outcomes for students. In implementing the Socratic Circles, the positive increase in student engagement with the cases and consequent learning experience went hand in hand. If the students had proven unwilling to participate in the activity, the previous activity could have been quickly be re-introduced. However, it was immediately apparent that this activity, which gave students center stage in the classroom, and showed them their opinions and thoughts mattered and were worth sharing, was a keeper.

Thus, the Socratic Circle is now a permanent part of the teaching process in this class. In each class, there is a different case study, a new set of questions from the student body, and a new assessable question from the teacher. However, the process remains consistent, giving students the opportunity to build their confidence in the process and find, in their own time, a willingness to "join the conversation". The sheer pleasure of watching a class of students buzz with engaged discussion, the boost individuals get when they see their question has been selected for the class work, and the improved caliber of responses to case questions all contribute to make this simple task a pedagogical winner.

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Special issue: Innovative Teaching Personal Essays

U-Bahn: A low-stress, community building activity based on course material

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My favorite course to teach is beginning German. Over the course of two to four semesters, depending on the sequence, I am able to guide students with no German language ability to somewhere between survival ability and the ability to function in a German speaking environment. I have had success with an eclectic theoretical approach, using aspects of various methodologies. Most of my instruction is based on a combination of methodologies for communicative competence and a naturalized approach, which has foundations in comprehensible input as a requisite for understanding and ultimately producing a foreign language. In practice, this includes instruction in structure, vocabulary, minimal grammar, and cultural comparison within the skill areas of listening, reading and writing, but class time is focused on speaking practice.

Speaking in a foreign language is an important and useful skill. Most students studying a foreign language want to be able to speak it, but beginning students in foreign language classes often come with fear of having to speak that language in class and make embarrassing errors in front of other students. Foreign language instructors need to promote activities to lessen student anxiety so that students are able to learn the material in a relaxed mental state. Stephen Krashen has researched and written extensively on lowering what he terms the "affective filter." If students are overly anxious, lack motivation, or suffer from low self-esteem, they will have

difficulty in acquiring a second language. Krashen argues within his Second Language Acquisition theory that this filter must be lowered intentionally by instructors so that students are able to hear, understand, and recognize what is comprehensible and what is not (Krashen, 1987, 1988, 2018).

In the past, I often assigned small group speaking practice, based on suggested activities from the text, or worksheets I had created. Although students felt safer speaking in front of a small number of other students, and would be able to complete the activities, this did not always transfer to the ability to speak freely. I also used open-ended questions at the beginning of class, and found that while students struggled, they slowly began to become more confident speaking freely, especially in second or third semester classes. I then created a free speaking activity for the students' final semester in the language sequence. Based on reading current events, writing a summary, and finally an oral report to the class in an unscripted talk. Initially frightening for some, nearly all students became comfortable speaking freely in German by the end of the semester.

As students may try to avoid speaking, they must be given the opportunity to speak as part of a group, rather than individually so they do not experience performance fear. They must also be given the opportunity to speak extensively, rather than be limited to short formulaic answers in a question and answer activity. Extensive speaking, even with pronunciation and grammar errors, is key to improving students' motivation as well as their fluency.

To address the fact that I wanted students to begin speaking freely from the beginning to develop speaking as they study, I introduced the *U-Bahn*, the German term for a subway. To ensure that students would take the activity seriously, the *U-Bahn* is a quiz, but everyone in the class gets the same grade, and that the grade starts with a perfect 10/10. The grade is based on

speaking only in German during the activity. Should anyone in the class speak in English, everyone's grade drops to 9/10, and so on. Students are not required to speak error-free in this activity, and the theme for each *U-Bahn* is based on the material being learned. Students speak to another student in German, listen to their partner's talk, then rotate and repeat with a new partner. The entire activity takes about 10-15 minutes, and overcomes one of the initial challenges in beginning language courses, namely to get the students talking and communicating in the language as soon as possible.

How to use the U-Bahn activity:

- Teach the material (vocabulary and structures in this example) on the first day of the semester. Introduce the concept of the *U-Bahn*, namely that no English is allowed, that the entire class will receive the same grade for the oral quiz, and that students are not allowed notes or to read prepared sentences.
- Assign students to practice the material as homework. Some topics might need a photo or illustration to support the activity, and students will need time to prepare and practice.
- On the second day of class, review the assigned material on the projector, or board, writing key words (nouns, infinitives, adjectives), but not complete sentences. This ensures that students have a safety net once the speaking begins.
- Have the students form a double line in such a way that each student has another student directly in front of them, much as people sit on a subway car. It may be necessary to have a group of three at the end of the line if the number of students in the class is uneven. Instruct them in how to move to a new speaking partner (rotate counterclockwise so that everyone has a new student as a partner for each encounter).
- Ask for last questions in English, reminding them that English stops when the quiz starts.

- Tell students the words or phrases, which they do not otherwise know, that will be used to ask them to stop, rotate positions, when to restart and to end (I use German subway travel terminology). Ask for English questions on the procedure one last time.
- Begin the exercise. The length of time between rotations to a new partner depends on the material being practiced. Beginners generally have 30 second to 1 minute encounters, but more advanced topics might need longer.
- The instructor's role is to listen for English, and to note common errors for plenary review after the quiz.
- Rotate at least four or five times, or until everyone has talked to everyone else. In each rotation a student has a new partner with whom the same conversation is repeated.
- Finish the activity and assign the final quiz grade to the class.
- In a plenary review, ask for questions, then address common errors.

In previous academic years, I waited for two or three weeks to begin these speaking activities, thinking that students needed time to get used to the class, how I teach them, and to become comfortable and safe with each other. As part of my ongoing reflection on how to improve students' fluency in speaking so that a native speaker could understand, I decided to begin this activity of the second day of the class. I posited that introducing a speaking activity this early would help create an expectation of speaking within the course, and that students' ability to speak would improve, since speaking fluency is tied to time spent speaking.

I was very surprised with the results from this early introduction of speaking. Students took the requirement of only speaking German very seriously. In fact, this year was the first time students have spoken only in German on the initial activity. These results suggest that their

unfamiliarity with each other caused them to be warier of speaking English and endangering the group grade.

It is important to note that at this point in the semester students had very limited vocabulary and language structures, and knowledge of cultural practices, i.e., greetings, exchanging names, handling introductions. As students spoke and listened to their speaking partner, and repeated in the rotations, they became increasingly comfortable. The class started out reserved and halting, but after several rotations, it became lively, with minimal evidence of hesitancy. This phenomenon is common with this activity, and an integral part of what makes it non-threatening.

I found another, unexpected advantage of introducing this speaking assessment early in the semester. Students speaking German to their classmates in personalized meaningful conversation start to get to know and trust each other, especially as they often struggle with the same difficulties. I observed that a sense of community began to grow immediately within the class, where students helped their partners when one struggled by modeling sample sentences if their partner was frustrated or unable to participate fully.

The *U-Bahn* is a simple but fun assessment that helps students begin to speak in German, and is perceived by students as foundational in developing speaking fluency. The innovation in this activity consists of my reflection on past student behavior and performance, followed by informed small improvements. If I had ever experienced a negative reaction to this activity, I might have considered redesigning or eliminating it. However, careful planning and regular small changes have resulted in a better activity, such as the example described here. I believe that the *U-Bahn* could be adapted to any discipline where oral communication is a focus and where students may be anxious about that communication.

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Special issue: Innovative Teaching Personal Essays

Think More Deeply, Enjoy More Fully

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At some point in the mid 1990s, and inspired by my readings in postcolonial literary theory, I came up with the idea of "decolonizing the classroom." In teaching literature, I wanted some overarching and guiding theory towards giving students a greater sense of autonomy over and responsibility for their own learning, and this seemed like an apt metaphor for the kind of processes that I wanted to encourage.

At the same time, the metaphor needed various implementation strategies. One can't, after all, march in on opening day and announce: "All right, you oppressed natives! I hereby declare this classroom to be decolonized. Throw off the chains of your colonizers and learn free from this point forward!"

So how to implement? I'll sketch out a couple of limited role-playing strategies that encouraged individual class sessions in that direction. After that, I'll describe an approach to classroom discussions and to assignments that served me well for close to twenty years.

In one of the role-playing strategies, I created a fictional evil twin, Prof. Darkh Hallway. Students understood that I was going to play that particular role and then direct a class discussion accordingly. Prof. Hallway might advance interpretations of literary texts that seemed, on the surface, to be cantankerous or unlikely. Students in turn felt empowered to argue back at Prof.

Hallway, since they weren't actually challenging the "real" classroom instructor. They could thus play their own roles, perhaps even taking on their own cantankerous elements.

In another role-playing strategy, I would tell students that we would work from the assumption that I had simply never read the assigned literary texts for that day. Their job was then to explain these texts to me, not just the basic factual information but also the interpretive elements within which this information made sense. Again, students readily assumed their own role as the ones with that day's expertise for that material.

Both of these approaches seemed consistently valuable at generating lively class discussions. But I also wondered, might these be simply role-playing gimmicks? In any case, they were both still overly teacher centered, continuing to rely for their success upon the methods of the manipulating colonizer. They thus didn't seem like approaches capable of a significant transfer of the responsibility for learning from me to the students. How could the classroom become more student centered while still advancing students towards the learning outcomes for a particular course?

In other words, how to balance out these various needs without replicating the system of the colonizer?

Out of this context, I developed the concept of the Interpretive Problem (IP). I defined it as a question that we might wrestle with or disagree about as readers; to that extent, puzzling out the solution to an IP might enhance the aesthetic experience of reading that text and open up new insights.

I further described IPs as "points of weirdness" in a literary text. You're reading along and you encounter something puzzling. Why did the author choose that word? Why did this character act in that bizarre way? Where did this image come from? When you're reading, you

typically just swerve around puzzling points and keep going, meanwhile hoping that they don't show up on a pop quiz.

Resist that impulse to swerve, I told my students. Instead, stop and wonder. Puzzle it out. Solve the problem.

IPs served as ways to structure class discussions, exercises for small groups, or major assignments. An essay based on an IP could later expand into a research paper considering how published scholars might have turned up material relevant to better understanding that IP.

The IP approach seems relevant for a variety of other disciplines and not just literature. Scholars of all stripes, after all, continually grapple with problems and puzzles. One line, frequently attributed to Isaac Asimov, got right to the heart of the IP assignments: "The most exciting phrase to hear in science, the one that heralds new discoveries, is not Eureka! (I found it!) but rather, 'hmm…that's funny…'"

Since the IP – and problem-solving assignments generally – seemed new to many students, we also spent class time discussing appropriate strategies. Students might complain, for instance: "I couldn't find a single IP in this short story! Where are they?" I would explain that the IP isn't inherent to the text but rather arises out of the experience of a particular reader with that text. Different readers will thus "find" different IPs within the same text.

I also advised students to think of themselves as teachers: in an essay, their task was to lead their reader through the process of discovery that they themselves had followed in responding to an IP.

Over time, I developed an array of web materials for my students regarding the IP and various ways of thinking about related assignments (Hall, n.d.a). My course evaluations

suggested pretty clearly that students appreciated and also benefitted from IP assignments (Hall, n.d.b).

In 2013, almost twenty years after I'd begun working with the IP as a learning structure, I gained further reassurance from Carol Geary Schneider, at that time the president of the Association of American Colleges and Universities:

> The real key to high-quality learning is the student's mastery of the capacities fundamental to evidence-based inquiry and reasoning: identifying and framing a significant question, organizing the analysis, generating and evaluating evidence, developing an argument, taking into account the likely objections, and then subjecting one's own judgment to the verdict of others. (Schneider, 2013)

Yes, I thought, the IP can accommodate and facilitate all of that.

Even more reassuring, though, was a statement from Ms. Tabetha Cloke, a student in a first-year seminar in 2013. In describing her experiences with the IP approach in her end-of-semester reflections, Ms. Cloke noted that it "forces the reader to think more deeply into the passage, to get at the whys of things rather than just accept them for what they seem to be." Ms. Cloke felt that this approach "allowed me to enjoy writing again" (Hall, n.d.b).

Yes, I think, she should get the last word here.

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Special issue: Innovative Teaching Personal Essays

Classroom norms: A strategy to connect with students

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When the new generation of students, born 1995-2010, according to Seemiller and Grace (2016), first entered college, I (Teresa) faced a challenge that I had never experienced before; the way I had always interacted with students did not seem to reach this group as it had previously. I felt that I had to do something different. As a professor of foreign language and a native of one culture living in another, I have always been aware of cultural differences and interested in learning how best to support students. With that in mind, I joined the Cultural Diversity Faculty Learning Community (CD-FLC) at my college. During one of the meetings, I brought up the problems I was experiencing. One of the co-facilitators of the CD-FLC, Dr. Ruth Benander, completely changed my perspective of this new generation of students when she described them as being from another culture. I had been viewing my students as lacking some of the basic skills to interact in a college classroom. However, when I saw them as coming from another culture, I realized they were just using a code that I did not know. With this new perspective in mind, I had a conversation with my co-author, Angie, to explore strategies I could use in my class, so that the students and I could have an understanding of how to interact with one another.

Angie: When Teresa shared the issues she had in class, I thought of the "Classroom Norms" activity my students and I do. I explained to Teresa that I began integrating the "Classroom Norms" activity in the classes that I teach the term after I experienced it as a student. In one of

my first doctoral-level courses, my professor, Dr. Miriam Raider-Roth, asked us students to brainstorm norms of discussion so that we could create a comfortable environment in which everyone felt that they could contribute to the discussion. This was the first time in my nearly twenty years of schooling that I had ever had the opportunity to voice my expectations for the other students in the class. Reticent to speak in class my entire academic career, I was surprised to find myself participating in this class. If having this discussion on the first day worked for me, maybe it would work for my students.

The next term and every term thereafter, I have set aside the majority of the first or second day of class to hold the "Classroom Norms" discussion. The activity has evolved over time, but currently has the following steps.

1) As part of their homework after the first day of class, students post five expectations they have for interacting with each other in Discussion Board.
2) In the following class, students share their expectations for each other. As they speak, I type in a document that is projected, so they can see what I am typing and make any corrections if I misrepresent what they say. I also push them to give details. For example, if they say, "Listen to each other." I ask them, "How do you show someone that you are listening?" These follow up questions are important in revealing their differences and similarities in behavior expectations.
3) When they have nothing else to contribute, I have them silently read what I typed. I ask if there is anything missing or if they have concerns about anything written. If not, I ask them to nod to show that they agree with what is written. Then, I inform them that I post the norms on Discussion Board for us to refer to at any time.

4) We revisit these at mid-term through a brief class discussion and/or through written reflections and again at the end of the semester.

Teresa: After talking with Angie, I decided to create classroom norms in collaboration with students that semester and have been doing so ever since. In addition to giving students the opportunity to express their expectations for each other, I wanted to try to bridge the cultural differences between me and this new generation, by clearly stating my expectations for them and allowing them to state their expectations for me. I wanted our interactions for the rest of the semester to be as positive as possible, and I hoped that this activity would let us have an understanding of each other's codes.

Thus, my "Classroom Norms" activity is as follows.

1) I explain my role as the facilitator of their learning and list my expectations of the class on the board (i.e. coming prepared to class, doing their part when working in groups, etc.). Then, I ask if they think the expectations are fair and we discuss them.
2) I divide the class in groups, and I ask them to come up with expectations for me. I provide a couple examples, and I leave the room to encourage discussion that is more open. After a few minutes, I come back, and we share and discuss their expectations for me. On the board, I write our agreed-upon expectations.
3) This part is a similar process to the second one and is what Angie does with her students. Students come up with expectations for each other.
4) Later, I type the list of expectations that we created and post it on Blackboard, our Learning Management System, for reference. Twice during the semester, or if the majority of the class is not adhering to the expectations, I ask the students to write a

reflection on how well they think they are fulfilling the expectations and if the expectations are helpful.

Angie and Teresa: We both have found the "Classroom Norms" activity to be instrumental in creating a positive learning environment. Not only do students and instructors have a better understanding of each other's expectations for interaction, students also state that creating expectations together makes them feel like active contributors to the class. This is especially important with this generation, who wants to collaborate in the learning process rather than be told what to do (Seemiller & Grace, 2016).

Perhaps the most powerful testimonial of the effect of the activity is what happened after Teresa completed it with that first group in one of her classes. The most problematic student stood in front of the class and explained that prior to completing the "Classroom Norms" activity, he was not aware that his behavior was preventing other students from learning. He then apologized to everyone! While such a dramatic response is not typical, a positive outcome is. We have had respectful, collaborative learning environments since we began implementing this innovation in our classes, and we are committed to continue using it in the future.

Note: The "Classroom Norms" activities that we use with our students have evolved from our own experiences. For more information on creating classroom norms, refer to Mendiola, E. (2018) *Establishing Classroom rules.* Retrieved from http://oncourseworkshop.com/table-contents/establishing-classroom-rules/

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Special issue: Innovative Teaching Personal Essays

Making Industry Real to Pre-Teaching Students

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For some time the three of us, as academics in an education faculty in a large urban university in Australia, have grappled with how we can meaningfully involve our industry partners- schoolteachers- in our faculty programs that does more than just pay lip service to their knowledge, skills and experiences. Typically, we have used industry people and practicing teachers in guest speaking roles, in which the expert talks to our students about a key practice, program or initiative that they may be doing in their professional practice. While this lecture can be highly informative and engaging for our students, we know this role is confining and offers only a narrow view of learning and engagement, almost like a master and apprentice model. Greater connection with industry is being encouraged in higher education and in particular in our university, often on the grounds that through such connection, our graduates will be better prepared for the world of work and our pre-teaching programs will be much more authentic and relevant ready. There is significant media focus upon the perceived ”failings” of beginning teachers and teaching graduates from university schools are being asked to sit “suitability tests” that measure their competency to teach in public schools. As well, learning in which learners function within a community of practice is also being advocated by both the university leadership and the professional teaching registration bodies, as learning through such

environments is seen as advantageous, including the development of shared practice, collaboration, and joint enterprise.

A lot of us would agree that having meaningful learning environments in which learners jointly construct their learning and thereby foster life-long learning makes sense. It's how to do this that gets a bit tricky. We turned to research to guide our approach of co-design of learning between students and industry. A number of researchers (Taylor, Klein, & Abrams, 2014; Zeichner, 2010) have suggested that we need to create a hybrid, or Third Space, so as to redesign the structure and pedagogy to bridge the boundaries between spaces. In such Third Spaces, responsibility for teaching and learning can be shared and boundaries between can be blurred (McDonough & McDonough, 2014).

In our education and pre-teaching programmes, students are normally taught on campus in lectures and tutorials and undertake some field placement with a nearby school with an experienced teacher as mentor. This is their only exposure to "real industry" teachers, and is very hit and miss. If the field placement is successful, the student picks up an important range of skills; conversely if it is not successful and not a true learning relationship, the student gains little from the field placement.

In 2018 we implemented a new innovative program that aimed to provide greater connection between university lecturers and industry (practicing teachers), and between lecture halls and school classrooms. This initiative, called Masterclasses, drew on the notion of third space theory, as it aimed to blur the distinction between these fixtures to create spaces where student teachers and industry could co-learn and operate as a community. It aimed to provide a space to share ideas, and to use a range of formats including performance, provocation, a panel, a presentation,

a debate and a Q and A session to do this. Specifically, by introducing Masterclasses, we were aiming to:

1. 'Open-up' student learning experiences, by rethinking course design and delivery.
2. 'Widen' student learning experiences, by inviting staff from across the school, the university and the industry to contribute to the learning space.
3. Foster 'life-long learning', by involving both pre-service and practicing teachers in this learning space
4. Create 'third space' sites for learning via the co-design and construction of learning.

The faculty leadership was aware of the Masterclass plan and supported the idea of students and practicing teachers coming together to create a "third space" of learning. However, support is one thing, but making it happen an entirely different matter. As a group of three, we were able to pool ideas about how best to approach the practical problems of timetabling; which industry people to involve; which themes to present and which approach to take in presentation.

It was the ironing out of these issues and the debate around approaches to learning that created both the greatest challenges, but also the richest insights into why the Masterclasses were important. For example, one of the key discussions was around the issue of Masterclasses and assessment.

Would Masterclasses be formally assessed, or would they simply be a third space for exchange of ideas and approaches between pre-teaching students and high school teachers? If we agreed they were a space for exchange of good practice and sharing of ideas, what measures would we use to determine their success? As Masterclasses were a new initiative, there were questions about why we were implementing them. Would the Masterclasses be offered to any taker, or would they form part of a structured, sequential learning chain? Would Masterclasses

feature industry practitioners whose approach to teaching was not current or not mainstream in public schools? If Masterclasses were not formally assessed, how would we know students were learning anything? And finally, what would be our measure of success for Masterclasses, would it be industry attendance or student attendance or what? Was student attendance enough of a measure or should we measure depth of discussion of the classes? It was through debating many of these answers that we started to draw out the essence of what the third space of industry engagement in our programmes might look like and began to crystallize our thinking around the relevance and importance of industry involvement in pre-teaching programmes.

As the three of us started to embrace the ideas that were emerging between ourselves around industry engagement and third space theory, we decided to forge ahead. In theory we could introduce the classes over and above timetabled classes and see who came along and why. We implemented the Masterclass program in semester 1 and were not sure of what would happen. There had been some discussion from students about the new program, and emails from industry offering to join in, but faculty staff had been relatively quiet. A program was drafted by the three of us and then sent out to both students and industry.

The series of Masterclasses ran in the evening and in the city campus to enable ease of access for people to travel to and from a central location. We approached a number of staff, as well as industry personnel, and invited them to contribute an idea for a Masterclass, asking them to consider their format, but we were also mindful that Masterclasses needed to have wide appeal and relevance to diverse stakeholders.

The first few Masterclasses were challenging and hard work, outside of normal academic duties, but responses from the student body and a few like-minded academics were encouraging and we forged ahead. Creating a co-learning third space environment for some academics was

challenging. It was interesting to see in the first few Masterclasses that faculty staff, students, and industry usually sat in separate areas. We actually needed to encourage participants to work together, and in later classes, set the room up to encourage learning in teams, and invited those present to work across affiliations. The role of the presenter became crucial. There were also some issues around the different experiences and knowledge of the participants.

In the first few Masterclasses for example, faculty staff tended to want to dominate the learning space, talk about their own experience, and present the narrative of being "experts" in the field. Students tended to take a different tact, engaging with ideas being presented and wanting to explore how they could implement or enact. It was frustrating to see the dominance of academic staff, many of whom came once or twice and then never again, and who were unable to share in our vision of a third space for exchange of ideas and knowledge.

However we forged ahead, believing that having a range of presentation formats proved to be an important factor, so too having Masterclasses that challenged those present. We made it to the end of semester and tallied up attendance and feedback- which was steady, and complimentary. We noted from our simple feedback survey that faculty, students and industry schoolteachers who came once had enjoyed it and stayed on for the series. Being a voluntary feedback form, there were few negative comments.

Buoyed by this success we mapped out a programme for second semester with bolder ideas and feedback research. We also discussed the sustainability of the Masterclasses. We found that a number of issues were required to sustain our work. These included:

- A timetable that enables such an innovative student/faculty/industry practice to occur (easier said than done!)

- Inviting key university personnel and the Dean to be involved in the program, thus developing champions for the program, who would then seek to see it continue and thrive
- A team of faculty and staff to develop the series and who then own the program and are committed to its success- spreading the organisational and timetable load

We also learnt some lessons along the way:

- Get quality reportable feedback on each of the Masterclasses – especially around interest and engagement in the topic, the presenter and the format to inform ongoing practice
- Seek to increase sustainability by inviting graduates to be involved in the program in future, thereby fostering a culture of ongoing learning
- Credentialing the program so that participants receive a tangible recognition of their participation as well as an incentive to undertake more learning opportunities
- Start small, learn from experiences and then upscale
- Ensure broad relevance of topics to audience and create a space for learning to occur

Clearly the initiative relied upon the enthusiasm of the volunteer "three"- and there was a considerable amount of "heavy lifting" done by the three of us. We were driven by years of experience in guiding graduates and by a sense of what is needed in pre-teacher education after seeing students on unsuccessful placements. It also helped immensely to be able to talk the issues over and have a little community of like-mindedness nearby at all times.

We also all subscribed strongly to the relevance and importance of having industry feedback for students in a collaborative, shared space that was not threatening and where ideas could be exchanged and debated without hesitation and bias. Using research evidence to fuel our initiative

helped and not relying too heavily upon institutional support, which although present, does not really solve the day to day administrative and timetabling issues.

We felt the programme of Masterclasses was a huge success. Judging by numbers and engagement of industry, there were benefits and networks established that did not exist before and new opportunities arose for sustaining this approach to industry engagement into the future.

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Special issue: Innovative Teaching Personal Essays

Student Learning Assistants and Giving Up "Professor Power"

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In 2010, during my second year of teaching, I joined a Faculty Learning Community (FLC) focused on increasing student engagement through collaborative learning that was an eclectic mix of quantitative and qualitative practitioners. Fall semester, we read resources *(Angelo & Cross, (1993);* Anderson & Krathwohl, (2001); Bransford, Brown, & Cocking, (2000); Stanley & Porter, (2002); Carbone, (1998); Cooper & Robinson, (2000)) provided to us (thank goodness as this was an overwhelming task to search on my own), completed assignments, and then planned what we were going to implement as a course redesign for spring. The FLC provided me with a safe place to explore and learn about innovative teaching techniques and allowed me to identify what was I really afraid of; my misconceptions that this couldn't be done in hard science classes, and the annihilation of my ego that "I do NOT have to say it for them to learn it!" which I've learned is a traditional professor's mentality and really is a self-efficacy failure.

I was already using clickers (Guthrie & Carlin, (2004); Beatty, (2004); Martyn, (2007); Caldwell, (2017)) and fill-in the blank power point lectures with examples (Heward, (1996); Konrad, Joseph, & Eveleigh, (2009)), but the students were just sitting there frantically trying to write it all down. I asked myself, "Is this learning?" The questions they were asking me were also superficial. They were not getting the deeper connections to see how all these individual parts constituted the whole, which is a huge problem in General Chemistry as every lecture feels like

it's coming out of left field. I wanted the students to *do* and *think* about the concepts and work-out problems that were *not* plug-n-chug, and to facilitate this is I needed Learning Assistants (LAs), one LA per section of students (1:24 ratio) (Van Dusen, Turner, Langdon, & Otero, (2016); Crouch & Mazur, (2001)). I was fortunate enough to have a colleague, Dr. Rebecca Krystyniak, who had been using LAs in the department and already organized funding from the Dean. I put a call out to my colleagues asking for student recommendations who were successful in General Chemistry, outgoing, approachable, and communicated well who would make effective peer leaders in the classroom. I also did the same with my own former students. I have been lucky enough to find amazing students to be LAs that were as diverse in majors as my general chemistry students; chemistry education, chemistry/biochemistry, environmental science, engineering, biology, etc. My LAs mirror who I am teaching, and this is important for the students to see that they too can be successful in this class.

LAs are hired through an application and interview process, work 10 hrs/wk, and are paid the campus student rate through the Dean's budget or work study if applicable. Their weekly workload consists of three hours of both in lecture and tutoring and then one hour each for facilitating their own student work session (I am not present), grading, a weekly meeting with me and the other LAs from my class, and a weekly pedagogy seminar class. LA training comes from the latter two duties that involves reading literature, watching videos, completing the in-class activities as a group, role playing, and discussing their observations and own uncertainties. We truly work as a team with open communication, respecting each other's perspectives, and identifying what questions failed with students with edits. I also observe how the LAs themselves change as students and start applying what they were modeling into their own studies that ultimately makes them even stronger students.

I used my FLC to flush out my course redesign that was still extremely structured as I was not ready or able to completely relinquish "professor power." I was able to talk through, ask questions, and most importantly acknowledge additional concerns; "What if I don't cover enough material, the students revolt, I can't handle work the load?" What it all kept coming back to was, "you can't break the students, so just try it."

Starting in the first semester, I spent huge amounts of time on student placement and classroom layout. Each LA had the same 24 students for the entire semester in a specific area of the classroom, and there was an empty row of seats between LA sections that created a new "first" row making more students literally accessible. The students were paired up, but sat in a group of four so if someone was absent no one was ever alone. Students also had assigned seats in their assigned area of the classroom that allowed for community building where the LA was the "mayor." The LAs learned the students' names quickly as well as their learning styles and personalities. After each unit exam, pairs and quads were remade using the same 24 students. I have since learned to let the LAs do the first attempt at the pairs given their intimate knowledge of the students. I then revise the pairs based on class performance (i.e. an A with a C student, B with a D, no shows are paired up), at least two females within the quad and females sit near other females of different quads (Dasgupta, McManus Scircle & Hunsinger, (2015); Dennehy & Dasgupta, (2017)), and the students who need to most help are placed in the most accessible seats; aisles and front rows, and the inner seats are for no shows, which invertedly frees up space allowing for easier mobility for the LAs to get around.

I used to have five or more higher level explain/show questions (Anderson & Krathwohl, (2001)) per lecture, but the students panicked and rushed to complete them all for fear of losing points at the expense of their learning, even though LAs only ever graded what the majority of the

class completed. I now have three questions that fit on one-side of the page that is part of the chapter packet that is given out and collected during each lecture and then graded by the LA before the next lecture for immediate feedback (Van Dusen, Turner, Langdon & Otero, (2016); Crouch & Mazur, (2001)).

I still use clickers, but my first attempt of having one person from the quad take the clicker quiz for the entire group failed miserably. I had labeled each student A, B, C, D and put their quiz day into the schedule. I was hoping the group work and peer pressure would ensure everyone understood the material (Bransford, Brown & Cocking, (2000); Stanley & Porter, (2002); Carbone, (1998); Cooper & Robinson, (2000)). Nightmare. In addition to the logistics to set-up, students wanted to switch days because it wasn't fair if their quiz taker didn't show up with or without a valid excuse. Never again. I now do two types of quizzes; indie quizzes that are in the schedule which are closed book, note, and neighbor and regular check-in quizzes throughout lecture that are open book, note, and neighbor (Guthrie & Carlin, (2004); Beatty, (2004); Martyn, (2007); Caldwell, (2017)).

Eight years later, I am still using LAs, clickers, and collaborative group learning. Every semester I loosen my need for control; however, the course is still extremely organized. The students never staged a coup, but there were a few mini revolts of students walking out of class on day one after hearing they were going to have to work, but they ended up in my class the next semester after failing in a traditional lecture only class! Students engaged with each other, their LA, me, and most importantly the material. I didn't become less of a professor by speaking less, in fact I became a better professor by becoming a better a teacher by not professing at them. The logistics are straight forward now, and materials are tweaked based on how the students did. I'm now focusing more on metacognition type questions (Bransford, Brown & Cocking, (2000);

Pintrich, (2002)), and my new goal is to talk less by not using lecture time telling them what they already know but to show them how much they DO know with more informal "work with your neighbor" activities. I have formative and summative data that shows this works, and most importantly the students are telling me they want this in all their classes despite having to do more work because they are learning and ultimately earning more points.

I was fortunate to have joined the FLC that provided me with the structure, materials, and support to redesign my course and my students surely benefitted from me not settling for ineffective, traditional lecturing that would have been "easier." The time and energy I put into innovating my courses came at the expense of my "hard science" research projects that has been contentious and carved out a longer route for promotion, but I have not wavered as I know this is right by the students and is at the core of academia. I'm sure I would have ultimately come to this decision to innovate and change up my teaching especially with all the student-centered learning initiatives in my college recently. I am now an expert helping others redesign their courses and sharing my trials and tribulations. But, I also don't think I would have continued without LAs as they are key to these successes. Students need that in-between person to feel safe, vulnerable, and be ok with failing to ultimately learn more.

Yes, I have encountered barriers from strong-willed students who just want to sit, colleagues who think this is not how university should taught, and my own exhaustion and doubts, but what keeps me going and counting my successes is just one student "getting it" that never got it before or thinks chemistry isn't *that* bad or had a chemistry moment on their own that wasn't part of an assignment for points. And if I need a formal accolade that this steadfast quest was the right path, I was nominated and awarded the Outstanding Teacher of the Year by the Board of Trustees for my innovative work in the classroom in spring 2018. This award along with the words

and gestures of support from my colleagues across campus and from my students show I am doing the right thing, and I am not stopping.

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Special issue: Innovative Teaching Personal Essays

Creating a Climate of Caring in the Classroom

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One's attitude towards mathematics can affect one's performance. Many pre-service elementary teachers report that they have "math anxiety", and many times they can describe a bad experience in a math class or pinpoint the year it happened. Frequently, students who have a bad experience in a mathematics class tend to have a bad attitude towards mathematics. Research shows that teachers who dislike mathematics will inadvertently teach their students to dislike or fear mathematics (Gresham, 2007). Because I teach the mathematics courses to future teachers in the fields of elementary, middle, and special education, I focus on creating a climate of caring in the classroom with the goal of enabling these future teachers to have a positive experience in my mathematics classes, and thus ensure that this dislike of mathematics is not perpetuated.

A positive experience means that the student has been empowered to be able to do the mathematics, understand the mathematics, and know why it is important to know the mathematics. An empowered student is more likely to enjoy the subject. The challenge is to take students, often with very deficient backgrounds in elementary mathematics, to this empowered, deep understanding of the basic concepts while being careful to positively affect their attitude toward mathematics.

This innovation plan includes several strategies that have been implemented, tested, and proven to help students overcome some of their math anxiety and their dislike for math. I continually read and participate in student success seminars/symposiums to stay abreast of the latest ideas and then implement one or two ideas a semester. Although I have always tried to do my best, my 4-H training leads me to a belief that I can "make the best better". During my doctoral work I had first-hand experience with implementing innovative activities. I was asked to be on a team of facilitators for the Ohio Math Academy Project (OMAP) which was a professional development opportunity for in-service teachers. At that time, Ohio had just published its Academic Content Standards and OMAP was intended to help teachers implement these standards into their classroom in a meaningful way for the students. Because the OMAP team supported each other's efforts, we could try new ways of presenting activities without fear. The enthusiastic response of the teachers and their many "ah-ha" moments encouraged our efforts in innovation. In my own classroom I focus on helping students succeed in learning and liking mathematics. So, I'm careful to keep the ideas that have worked, but I also want to make the best better, so I try one or two new ideas each semester. Thus, I'm not overwhelmed with trying too many new ideas simultaneously, and those I implement, I can test for their effectiveness. Hearing so many students say, "I never liked math before this class, but now I have become more interested and confident in math" is all the encouragement I need to sustain these innovations.

The innovations include three components. First, I acknowledge that math anxiety is real. I always knew that many people don't like math – just mentioning that I teach math gives me plenty of feedback on that! About a year ago, I attended a Brain Research talk and learned that I needed to make clear to students that I understand that anxiety is real and that we were going to

address the issue together. I explain to students that the problem with anxiety is that it takes up working memory so not much brain power is left to focus on mathematics. We talk about breathing exercises and eating peppermints while taking quizzes/tests. We discuss that even experts struggle (Lin-Siegler, et al, 2016). The day before the first test, I ask the students to be ready the next day to start the test with a cheer of "I'm excited!" In doing this, we acknowledge the increased heartbeat but change the focus to "I'm excited" which changes a threat mindset to an opportunity mindset (Brooks, 2014). The ensuing laughter this cheer causes seems to break the anxiety for the students.

Secondly, we view mistakes as an opportunity to learn (Dweck, 2006). I use shuffled name cards so that everyone has an opportunity to contribute to the class. This ensures that I include everyone in the discussion and demonstrates my belief that everyone can succeed. Students can elect to answer the questions I pose, have scaffolding help, or phone-a-friend. Sometimes questions arise from the discussion and I will use the cards and/or ask for a volunteer. From student work either in class or on homework, I often choose "my favorite no" to highlight common misunderstandings in how to do the mathematics. Together we look at these examples to highlight what is correct and then address what needs to be remedied.

Thirdly, I implemented a classroom structure that includes caring for the individual. On the first day of class each student chooses their favorite Crayola(R) (because I want the very best for them) crayon. With closed eyes, they smell the crayon and recall their childhood dreams. I tell the students that sometime during the semester they will encounter some difficulty, a poor quiz score for example. When they do, they should take out the crayon and relax for a moment remembering their childhood dreams. I want them to be able to move beyond discouragement.

This crayon activity was motivated in 2008 by the book *The Last Lecture* by Randy Pausch. Although Pausch used the crayon differently, I saw the crayon as a natural fit for elementary teachers, and I loved the smell of a crayon but the effectiveness was a serendipitous discovery. The first semester I tried the activity, students must have used the crayon spontaneously because in their semester evaluations of instruction, they wrote that this activity really helped them even though we only talked about it on day one. Every semester I get positive feedback about the helpfulness of the crayon. Years after having the student in class, former students tell me, "I still have that crayon you gave me!"

Decades ago when I first began teaching these mathematics concepts courses, the attitude of instructors was that students just needed to work harder and the attitude of students was that they were just "bad at math" and many students failed the course. I did not want to believe that someone could not succeed in mathematics, so I attended workshops and conferences looking for ways to help my students. Brain research seminars indicated that math anxiety contributed to poor performance and that developing a growth mindset could actually encourage understanding of mathematics and persistence in solving problems. So I decided to try addressing math anxiety in the classroom and help students to develop a growth mindset. Mitigating anxiety through aroma therapy with the crayon was a serendipitous discovery. My semester evaluations became very positive, and my student success rates increased. Sharing successful ideas with colleagues also encourages collaboration which helps sustain innovations.

I teach students mathematics, with the emphasis on the students. Long after they leave my classroom they will remember how I made them feel. My goal is to help them feel empowered, respected, and capable. It's okay to have to work to learn mathematics, at some point we all do, but I want them to know that they **can** persist and be successful at doing math. I

don't want their math anxiety to become their students' fears. As future teachers, I want them to be able to share their positive attitude and their Growth Mindset with the next generation to help these children enjoy mathematics. I hope they keep that crayon handy and teach their students to breathe in the calming aroma.

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Special issue: Innovative Teaching Personal Essays

Making Mathematics Mnemonic, But Fun

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Time and time again, we hear the same old stories of students' poor performance in university-level first-year mathematics courses: students are not learning; many do not care about mathematics because they have no intention of taking mathematics courses beyond a mandatory first-year course; some have mathematics anxiety; others simply are not doing well for a variety of different reasons. Some instructors advise focusing on the content and connecting the mathematics to the real world and students' future careers. But, if students struggle with basic mathematical concepts, then how will they understand and appreciate the real-world applications? There is also an objective reality – it is hard to connect concepts in a first-year mathematics courses to *true* real-world situations that students can relate to. Students need to move beyond first-year concepts, but many will never take any higher-level mathematics courses. The question that first-year mathematics instructors then need to ask is: "What do we do?" In my view, one way to alleviate some of the students' frustrations and anxieties is to give life to the mathematical objects, concepts and notation, taught with the help of fun mnemonics and mantras.

My name is Andie Burazin, and I am an Assistant Professor, Teaching Stream, at the University of Toronto Mississauga. I have just over four years of experience in teaching mathematics at a university level, counting from the completion of my PhD. As a junior faculty

member, I am at the bottom of the totem pole and that, unfortunately, creates constraints when I teach. I do not make the decisions regarding the broad mathematics curriculum nor about what is taught in a particular course. The most challenging part for me is reaching out and accommodating my students, as my classroom sizes are typically over 120 students. Having no control over the content, nor over the pace at which the course is taught, it is quite a challenge to go beyond lecturing and experiment with alternatives. Still, I believe that I can see hints of success - I have noticed, from my limited teaching experience, that students really engage better when I try to make the mathematics that I discuss more relatable to their everyday, *non-mathematical* experiences.

Mathematics is a discipline that requires continuous and dedicated practice to understand various concepts and, most important, to see how each concept builds on the previous. Like building a house, you cannot build the third floor without completing the second floor. On every handout that I pass out to my students, on the upper right-hand corner of the page header, I write: "*practice, practice, practice . . .*", a mantra that I learned from practicing yoga. This mantra, "*practice, practice, practice . . .*", serves as a reminder to the students that the only way they can unlock mathematical mysteries is to continuously practice. Simple as that, right? Well, mathematics is definitely not acquired through osmosis, as some of my students initially believe. But, as a course that I teach carries on, a revelation occurs. Some students gradually become aware of why the mantra is written on every handout, and even tell me in person, that the only way to master mathematics is through *practice, practice, practice . . .* I sit back and smile, because some students finally get it.

Right from the start as an instructor, when students discussed their homework solutions during my office hours or when I marked their term tests and final examinations, I noticed that they struggled with remembering and understanding various concepts and notation. To alleviate this struggle, I tried on my own to come up with relatable, yet fun and entertaining, expressions using references close to my students' experiences. I kept iterating these expressions during classroom time. After a while, I noticed that my students began speaking like me, using my expressions, while deriving correctly a solution to a problem. At the end of a course, some students mentioned in my teaching evaluations and personalized 'thank you' emails how helpful my mnemonics were helpful for recalling a concept they needed on a term test. I believe that my strategy of iterating of relatable expressions is something that I picked up from practicing yoga. My yoga instructors repeatedly reminded us of simple things that are hard to actually master or live by (e.g. "you must be the change that you want to see"). After hearing several times and internalizing those simple things, certain life challenges became easier and less stressful to handle. Subconsciously, the repetition of expressions spilled over into my teaching of mathematics. The use of fun mnemonics transformed abstract concepts or a bunch of numbers or variables to solve for into something that students are more comfortable with and will recall as they *practice, practice, practice*…

Any instructor can create their own simple mnemonics to help students remember abstract concepts. I will share with you a few of my own that I created myself. No, I do not rap or sing, because I sound like a frog. I enthusiastically and passionately recite the mnemonics to my students. When integrating a power function, I say: "add one to the power, bring THAT power down" (this feels like a mantra; after all, a mantra *is a formula*, albeit a secret one). After students hear this "mantra" several times and I advise them to repeat the mantra as they study,

they do seem able to recall what to do when they have to integrate a power function. The next example relates to finding the domain of a rational function. If a rational function has a value that makes the denominator equal to zero, (division by zero is a major sacrilege in mathematics), then I say: "You can't have zero in the basement (aka the denominator of the rational function) or else you will have 99 problems and …". Students laugh at the Jay-Z reference, because many know the song. This helps them remember never to divide by zero (or else …). My last example is about the natural exponential function, which involves a mathematical constant *e* which has some special properties. I mention that the number *e* is a reminder that this is a very *e*gotistical function. Whenever the natural exponential function is entertained with the derivative or integral, it likes to appear as itself in the result. Then, to explain a related algorithm, I will say: "Half the battle is to rewrite the egotistical function, and the other half is to finish off the differentiation (or integration)." Lo and behold, students become mathematics warriors when differentiating or integrating that *e*gotistical function.

By using mnemonics, possibly with pop culture references, when explaining how to successfully solve mathematics problems, I help students slowly realize that mathematics can be less "threatening" and more enjoyable to learn. As well, I encourage students to create their own mnemonics to help them recall various facts and ideas in their studies and everyday lives. Needless to say, my teaching approach might not appeal to every student – getting to know your audience is important when teaching. Because of the diverse student population, not every student listens to Jay-Z or gets a pop culture reference that I associate mathematical objects with. Thus, as I tailor more mnemonics for the courses that I teach, I have to find a balance so that the references are fun and inclusive, yet formal enough not to threaten the rigour and structure in mathematics.

I hope that by sharing my innovative journey of creating fun and entertaining mnemonics to slightly improve the students' first-year experience with mathematics courses, I might inspire other instructors, especially new ones, to try the same. I completely understand how it is to teach a subject that students find difficult, coupled with the usual constraints of fixed course curriculum, large classroom sizes, and diverse student backgrounds. Perhaps my most important message to my colleague instructors is the following -- in spite of all constrains imposed on your classroom instruction, there is still space for small (in mathematics, my mantra for small is "epsilon"), but significant and meaningful, changes. Not only will your teaching become more enjoyable and gratifying, but it will also resonate with your students, who will appreciate your genuine, innovative, and creative efforts. Students will notice that you care and are trying to help them through their, often challenging, journey. In the near future, I plan to reconstruct how I host my office hours. It will be a dedicated time and space where students will gather to work together on homework questions in my presence as a facilitator and will share their studying tips, and of course, the mnemonics they use or have created themselves. I strongly believe that there are many benefits of a "human" approach when teaching. At the end of the day, my objective as an instructor is to make first-year mathematics (which is not fun, and often an ordeal for many students) fun!

Special issue: Innovative Teaching Personal Essays

Auspicious Accessibility and Chance Innovation

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Firstly, this essay is *not* about how I accomplished innovative accessibility in my courses. Creating an accessible course is an evolving process where, bit by bit, the course becomes better than it used to be. It is about the journey of *trying, being creative, and challenging oneself to move away from the norm*, arguably the very definition of innovation. This journey began two years ago, when early in the semester one of my students arrived to class after being carried by other students to our room on the third floor. The elevator broke down that day, and due to permanent physical limitations, she could not climb stairs. Later in the semester, these same physical constraints nearly prevented her from turning in the copious amount of assignments on time. I attempted to advocate on her behalf with disability support services, but they were not able to give us much. And lastly, during a break-out exercise in class, she approached me with near tears in her eyes because her group chose to meet in an area of the classroom she could not reach, saying "My group left me behind."

I never realized how difficult navigating higher education can be for those who suffer from disabilities. And thanks to this courageous student, I became aware of some of the struggles diverse learners face. The following semester I reached out to my student, asking her advice on how to improve accessibility for my courses. She introduced me to Universal Design of Instruction (UDI: Burgstahler, 2015), and its companion, Universal Design for Learning (UDL: CAST, 2018). UDI provides guidelines for improving accessibility across the educational system, including physical and online learning spaces, and in curriculum. More focused on course content, UDL is based in neuroscience research on the diverse ways students learn. The UDL framework suggests instructors provide students with multiple means of engagement, representation, and action and expression. Both frameworks aim to proactively create accessible products and services accessible to all students, regardless of ability (Bugstahler, 2015).

Reviewing this new-to-me material proved exciting. Never was there to be another student in my course "left behind." Motivated by what was possible, I was ready to look diversity square in the face and say, "I got this!"

The following year I embarked on incorporating UDI and UDL into all my courses. Although resources abound on techniques and examples for UDI and UDL, instructors like me may soon realize that the process of building accessibility is one of creativity, perseverance, and trial and error. With all the available information on UDI and UDL, I asked myself, did I need to redesign my entire course? If not, which parts were most important? How could I have flexibility with assignments and assessments when rubrics seemed so rigid? And, if I presented course material in a variety of ways as recommended by UDL's multiple means of representation, would the students perceive this as overkill? I easily became overwhelmed with what I could and should do, so I decided to move towards accessibility in small increments. I began the process with my syllabus. I added a few visual representations, such as a pie graph to represent how many points each assignment contributed to the whole grade. The addition of an accessibility statement near the front of the syllabus proclaimed my efforts to create an accessible learning environment. Before the semester began, I managed to post an introduction video on the LMS, which proved worthwhile when a student approached me saying "Thank you for posting that video. I felt more comfortable coming to class today because I felt like I already knew you." I also created a confidential information sheet, giving students the opportunity to share learning styles and other information they thought I, as the instructor, should know about them. I reorganized the learning management home page to increase ease of use. And, I went into the classroom early to make sure students had space to move about freely and everyone could easily view the projector screen.

While the initial steps seemed easy, every class thereafter proved a challenge as I struggled to find ways to incorporate UDL. Pushing myself to be more creative with how I was teaching difficult material, one class I came up with the idea to ask students to build a Lego structure illustrating the steps in the research process. Unfortunately, in subsequent classes students scarcely remembered the process better than in years past (this exercise may have been *too* abstract). But, a little later in the semester when I asked students to use skittles to represent sampling in research, they seemed to fair better. Flexibility with assessment proved more of a

challenge, and I struggled to create rubrics that addressed the multiple formats in which students could submit work. Although I struggled, the act of trying felt like an accomplishment.

Here's what I could not do. I could not check all my course readings to ensure they could be accessed in the library system as read-aloud articles. I lacked time to go through each PowerPoint to check for accessibility. I was unable to provide multiple means of engagement with the material each week. In the end, what I could do seemed negligible compared to what I could not do. However, I wrote notes to myself for the next time I taught the course, thinking I might have more opportunities in the future to tackle more areas.

Although UDI and UDL are becoming widely recognized frameworks to create inclusive learning environments, few people in my institution had heard of them, and to my knowledge no one was implementing UDI or UDL in their courses. In my gut I knew what I was doing seemed right, but where was the evidence? Luckily, I had my former student to help process my ideas. She supported me and served as my occasional cheerleader. I believe having someone like her is so important to those who are attempting to innovate. Concerning accessibility, I firmly believe little changes over time make a big difference. I have a long way to go to create a truly accessible classroom. One step at a time, on class at time is all I can do. With perseverance, creativity, and a little trial and error, I can now look diversity square in the face and say, "I'm trying."

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Special issue: Innovative Teaching Personal Essays

Using Socio-Scientific Issues to Engage Students

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I teach a two-semester chemistry class designed for future middle-level (4^{th}-9^{th} grade) teachers of science. With an interest in developing greater scientific literacy among my students, I embed scientific inquiry and the nature of science (NOS) (AAAS, 1990) throughout the course, teaching it both implicitly and explicitly as part of the content.

About a decade ago a student showed me a *Newsweek* article (Peng, 2008). The article compared 1 cup each of Lucky Charms and Kellogg's Granola cereals to decide which was healthier. Somewhat surprising to me was their conclusion that Lucky Charms was healthier based on total calories and fat content, but their basis for comparison was limited. For example, using density would illustrate there was over twice the mass of granola; learning more about each cereal would show that Kellogg's is not an exceptionally healthy variation of granola, containing a large amount of high fructose corn syrup, etc.

I realized this was a great opportunity to get students thinking critically about others' opinions and the evidence supporting them. I had similar goals when they wrote lab reports, but I often noted that they did not always make clear connections between evidence in the lab and their conclusions. Therefore, I first had the students read and discuss the *Newsweek* article in

their work groups and then had them report their level of agreement with the conclusions. I wanted them to focus on the subjective and empirical nature of science along with bias. I instructed them that any answer could be considered correct based on their supporting evidence. I also had them reflect on how they reached their conclusions. Did they form an answer and then try to find data that supported it, or did they read all the data and then attempt to find the conclusion the data supported? I loved hearing students passionately debate and support their opinions. Suddenly, I was aware of another great way to engage students, and it aligned perfectly with many of my goals, especially with regards to incorporating the NOS and scientific literacy.

A colleague clued me in that I was using a socio-scientific issue (SSI) approach, so I set out to learn more. Zeidler and Keefer (2003) equated SSI's with "the consideration of ethical issues and construction of moral judgments about scientific topics via social interaction and discourse" (p.8). Lederman, Antink, and Bartos (2014) demonstrated that SSI's address the nature of scientific knowledge and science content while Sadler, Chambers, and Zeidler (2004) noted the relationship between students conceptualizations of NOS and SSI's. A whole new world was opening up. Science is most often taught as a series of facts, but I had discovered a way to use features of society to make the facts more relevant, and further, to challenge students to think and apply these facts in order to draw conclusions about societal issues and real-world connections that are often ignored, especially in higher education.

Then in 2009 I read an article about an earthquake in L'Aquila, Italy that killed over 300 people. Six scientists and one government official, all part of a government commission, were charged with manslaughter for statements the committee had made suggesting that an earthquake was not immediately likely. I thought, "Doesn't this show a lack of understanding of the NOS and the role scientists play in society? The best a geologist could do is an educated guess, yet

some people think scientists are supposed to know more than they do." I decided this would be a great way to have students actually examine societal expectations for scientists and further review the tenets of the NOS that were previously taught (Lederman, El-Khalick, Bell & Schwartz, 2002). I assigned a series of readings related to the topic and had students answer a series of questions to evaluate their understanding of the NOS and our expectations for scientists. The students liked the earthquake SSI and often were flabbergasted at what they read. Interestingly, they fell on both sides of the issue, though a majority thought that the government overstepped their bounds. Overall, this SSI worked well for the goals of reviewing and applying their understanding of the NOS, but it seemed there was a different level of student engagement. Through research and experience, I came to realize that SSI's work best when they correspond directly to material being covered in class. It makes it easier to address any gaps in background knowledge and tends to be more engaging due to its immediate relevance. Additionally, I noted this project was longer than the one-class discussion of the cereals, and I was not properly allowing for in-class discourse which can increase engagement.

So next, SSI lessons incorporating the Flint Water Crisis were developed as part of a new unit on water treatment. In 2013, attempting to save money, the Flint City Council authorized the process of switching water suppliers. Many mistakes were made resulting in communities being subjected to unsafe drinking water over multiple years. For each of two class periods, students completed a provided reading, then addressed multiple prompts via think-pair-shares where students spend time thinking of their own answer, discuss it in a pair, and finally the pair shares out to the entire class (Simon, 2014). This led to some impressive student discourse. I then had students submit a short final report allowing me to gauge their understanding of the SSI and any conclusions they had reached. We then began the water treatment content, after which I gave a

short survey to obtain additional feedback. I found that students were very engaged in the process, self-reporting more interest in the topic of water treatment as a result of the SSI. They easily made connections to steps in the water treatment cycle where corresponding errors were made in Flint. The majority of students had never heard of the Flint Water Crisis. Some suggested writing their representatives to find out what protections were in place for our local water supply. Notably, it was also more invigorating and engaging for me.

I have sustained the effort of using SSI's in my teaching because it is fun and engaging for students and myself. SSI's address content in a way that connects to a student's personal and ethical background allowing them to construct their learning and knowledge within the relevance that they create. This student-centered approach also allows for more personal interaction with the students and creates a much more engaging environment increasing my effectiveness as a teacher. It is not hard to add an SSI to a lesson. I am currently working on adding another SSI where I plan to focus on students' argumentation. There is a lot of literature on SSI's including the references in this essay. I challenge all readers to try one. I guarantee that you will surprise yourself with the results.

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Special issue: Innovative Teaching Personal Essays

Replacing Torture Tests with Broccoli Quizzes

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"Are your exams really worth it?" my colleague Jess whispered to me during a professional development workshop. Jess worked in the Academic Success Center and had apparently been cleaning up the emotional havoc wrought by my stats exams for several semesters. The simple question sparked a journey that has transformed how I view exams, especially in my statistics class.

It was an elementary stats course for non-majors, and I based their grade primarily on two midterms and a final. Students could do almost whatever they wanted on a daily basis, as long as they could demonstrate their knowledge on the exams. This professor-student contract has withstood the test of time in the ivory tower, right? Jess recounted horror stories connected to my exams: anxiety, sleeplessness, depression, breakdowns, self-doubt. It's not that I was unaware of how stressful exams could be; I had spent a year in counseling during grad school for test anxiety. I, like many of us, just hadn't found an alternative assessment that would accurately check knowledge and be practical to implement in a large class. I gave some points for homework, investigations, and a project, but I didn't want to weight those areas more. I had seen too many students find crafty ways to minimize learning through such assessments. When I relayed these excuses to Jess, she said, "Then I, at least, hope the exams are worth it."

Were my exams worth it? Was there another way that would give me similar info but inflict less suffering? By serendipity, I had some National Science Foundation (NSF) funding to support conducting a research project in one of my classes. The grant was designed to support under-represented minority students and first generation students, two populations who seemed to suffer the most at the hands of my stats exams. Moreover, the timing was perfect to overhaul my stats exams because the grant would pay for the use of instruments to measure any changes that occurred in the process. I just needed to find a new vision for the course! I spent that that summer mulling over the question and reading up on some stats education literature. I was particularly inspired by Garfield and Ben-Zvi's (2009) Statistical Reasoning Learning Environments. The respected duo painted a warm picture of a statistics class heaven, where students engaged in stimulating dialogue as they investigated issues dear to their hearts through a statistical lens. The formulas and procedures that confound students took a back seat to understanding the deeper concepts and reasoning that could feasibly improve the quality of the students' lives. It was almost too good to be true -- a stats class that might actually fulfill those crazy institutional learning outcomes stamped onto my syllabus! Although I had been trying to use more authentic datasets, I doubted that most of my students would say the class was improving their lives.

I eventually set two goals for my stats tests: (a) evoke less anxiety and (b) be more meaningful (beyond measuring knowledge). Jess claimed I could accomplish the first goal simply by replacing my high-stakes midterms with more frequent quizzes. I felt fine with this, as long as I kept my final exam as a security blanket for course grade validity. Another colleague warned that frequent quizzes could reduce content coverage since I would designate more days for testing. Garfield and Ben-Zvi's (2009) article helped me justify removing some focus on

formulas because these new assessments, in theory, could address my subtler objectives of empowering students to apply statistics to everyday issues.

To craft purposeful quizzes, I appealed to the vision of Garfield and Ben-Zvi (2009) as well as similar articles. I split the course content into eight chunks, each of which would go with an "authentic quiz." But, rather than start with the statistical content of each chunk, I selected a relevant topic as determined by past conversations with students. These included child poverty, global female education, compulsory math courses, healthy eating, racism, quality of life, depression, embracing diversity (of religion, race, politics, and socioeconomic status), and gender identity. *Get this: In trying a new teaching intervention, I had accidentally carried out the Dean's encouragement to brand my course content with elements of the university's mission.* Of course, there was also student interest in topics like video games, dating, and alcohol, but as a parent of two young kids, I had enough "eat your broccoli" mentality in me to prioritize topics of societal impact. The bulk of my work came through pairing up each "broccoli" topic with the corresponding statistical content in that chunk of the course. I laboriously sought ways to present my students with authentic data so they could legitimately explore each topic. Luckily, it was summertime, and we professors don't have *any* work to do in the summer…

The format went like this. On an authentic quiz day, I randomly paired students up. I then facilitated a 15-minute discussion on the topic. The discussion always involved personal reflection, peer sharing, and debates over how to measure the issues. The students then had 35 minutes for the quiz. The first half of each quiz began with authentic data that allowed them to use statistical methods we had recently learned to explore that day's topic. I had students exploring gray areas that pushed them to think carefully and sometimes uncomfortably. For example, on a test about unschooled children, I asked them to create an accurate but potentially

misleading data visualization to overemphasize the gender inequities in the schooling of low-income countries. The next question asked them to discuss the ethics of using that visualization if they were in charge of fundraising for a nonprofit organization focused on raising money for female education worldwide. This format finally allowed me to sneak in some questions that were higher up on Bloom's taxonomy, something I had previously neglected to do in stats beyond the obligatory "justify your answer." The second half of each quiz was routine statistical content that allowed me to address learning objectives not dealt with by the context-based exploration.

The implementation was surprisingly smooth. The lone hiccup was that some students struggled to prepare for the first half of the quiz since I asked questions unlike anything we had done in class. I reasoned that life is filled with statistical issues that don't appear the same way they do in a stats class. However, I did start giving more practice with spontaneous statistical reasoning; I began each class period with a short discussion on something I had come across and asking the class how we could use stats to inform the issue (I even dropped my broccoli standards and included "discussion candy" to get the entire class engaged).

In sum, the innovation process started with years of growing awareness on my part that many students did not enjoy my statistics course. When a trusted colleague told me how much test anxiety surrounding my class was impeding students' learning, and even well-being, I finally resolved to change my exams. I decided to find and implement a plan immediately so that I could leverage NSF funding to capture any changes to students' affect and knowledge. I surfed around Google Scholar with terms like "elementary statistics" and "test anxiety" until I came across an article by Garfield and Ben-Zvi (2009) that captured what I hoped to achieve. As articulate as their theory was, putting it into practice was by no means trivial. I put myself into my students'

place to list some topics they would find interesting, then whittled the list down to the more meaningful topics, and finally sought out data and ways in which the statistical content could inform these topics. Using student feedback, I tinkered with the logistics until I had a set of assessments that I felt good about; seeing the students engage with the class discussions, and then the quiz itself, was a welcome contrast to the clouds of despair that used to fill the room on exam days. That alone convinced me to sustain the innovation, although this decision was bolstered by their performance; students handled procedural questions on the final exam about as well as they had under the old exam structure, but their responses to the open-ended questions with authentic data were of much higher caliber. If the students' stress hadn't decreased or their performance on the final exam had dropped, I probably couldn't have justified the extra class time the authentic quizzes required. But with happier, more knowledgeable students, deciding to keep the innovation has been a no brainer – even if it would have required substantial time and energy (which, thankfully, it hasn't after I made the original set of assessments).

While students probably didn't look forward to the quizzes, they were less stressed and most students sincerely bought into them. Frequently, students gave touching accounts of how the topic related to their lives – with their discussion partner, the entire class, or (most commonly) in their responses to the interpretation questions on the quiz. Sometimes, a quiz's topic would initiate a series of emails or office hour talks with an interested student (prior to the authentic quizzes, students had only emailed me to debate the grading of a question!). Many students have commented on the relevancy of the course to their lives in their end-of-course evaluations. Even better, they have shared stories of using stats to inform decisions about exercising, eating, family health issues, and career paths. In short, the cost of my exams is lower

and the benefit is higher. I still have far to go in shaping my class, but I can say in good conscience that my exams are worth it.

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Special issue: Innovative Teaching Personal Essays

Assessment blues: How authentic assessments saved my teaching soul.

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To put it plainly, assessment sucks. In my ten plus years in postsecondary as both a faculty member and a director of a teaching and learning center, no colleague has ever expressed joy for marking or grading. When I consult with faculty, I love to ask, “What gets you excited about teaching?” No one has ever replied, “Building meaningful assessments for my students.” The best I have heard is that grading is a "necessary evil," and there *is* something pernicious about it.

Ever since 1792, when an obscure chemistry tutor at Cambridge named William Farish decided to assign a numerical value to student work (Postman, 1993), this peculiar practice of reducing student learning and performance to a letter or number has locked in and locked out. Grades effect program entrance requirements, course transferability, and grade distribution is accepted as a proxy for quality and academic rigor. Frequent complaints include that assessing student learning is time-consuming and subjective; learning outcomes and rubrics are reductive, and well documented flaws of the system, such as grade inflation, seem irredeemable. As long as grades exist, I fear students will always focus more on the letter rather than the learning.

I don't think Farish's approach is anywhere close to the best system we could build, but it is regrettably a system that has locked in. That belief is at the root of how I became, over the years, a minor expert in assessment, and I am using *expert* in the way Heisenberg did – as someone who has made big mistakes and now knows how to avoid them.

I will never forget my first course, which finished in a trough of disappointment. "I worked so hard this semester. I gave you everything I had, and this is what you turn in?" As I stared at the last slog of term papers and final exams and thought about teaching again next semester, I said to myself, “Never again.” I was either going to quit teaching or I was going to

make this process mean something to me. My interest in creating engaging and meaningful assessments did not start with students, it arose from my desire to stop the stultifying process of inviting meaningless student work (that I had assigned!). I was, after all, ultimately responsible for doing this to them *and to me.*

Authentic assessments are ill-defined and open-ended tasks that provide opportunities for students to apply their learning on real-world problems relevant in their discipline (Conrad & Openo, 2018). Students work collaboratively and practice communication, problem solving, self-management and teamwork in mastering course content. I didn't know about authentic assessments when I first started instructing, but that's the direction I headed in instinctually. First, I incorporated online discussions. It was authentic insofar as it encouraged students to bring their whole selves to the learning, but the discussions often lacked context and purpose. Still, it was an important addition because the occasionally large international student base felt more comfortable writing than speaking. Through discussion, I gained insights into my students' thought processes I would have never gotten otherwise, and so did the whole community.

Then I moved towards open book exams, which was disciplinarily relevant. I teach in library and information science, where students develop sophisticated search skills using a variety of resources. Asking them to rely solely on their memory contradicted the discipline, and I was more interested in their personal synthesis than their memory. This too, had a marginally beneficial impact. Asking students for their personal thoughts on core course content and giving them time to come up with answers reduced the inclination for cheating at the same time it made exams and papers more interesting to read.

The big breakthrough came a couple of years in when I decided to make the assessment mirror my "real world" as much as possible. At the time, I was chairing a team for a large library system trying to come to terms with the disruptive innovation of the Internet on reference services. They needed to envision a new future for information services that combatted the discourse of obsolescence affecting libraries. I decided to ask my students to do the same thing, and I began to think of myself as the students' manager, not their teacher. Much of my work in supporting the digital shift in libraries had relied on strategy work completed in small teams using email, collaborative documents, and then presenting thoughts and recommendations to senior executives in order to justify new resource allocations and transform customer service.

Mirroring that, I broke the students into teams and scheduled bi-weekly update meetings. This shift also enabled me to better teach the essence of the course – leadership and management.

I struggle to teach leadership because I cannot teach anyone how to be leader. I am not even comfortable trying to define leadership, but I do believe being a leader or a manager is personal, relational, and directional. By designing an assessment where students needed to work together in a team forced them into relationship to think about how social and technological directions were going to affect libraries, archives, and museums, and apply critical thinking to determine what these organizations needed to do to adapt. The added benefit was that this new student assignment allowed me to learn from my students' passions, from Indigenization to Blockchain, to become a better practicing library leader.

My favorite assignment, however, is the traditional personally reflective essay. The essay asks students to select a leadership theory they feel closely aligns with their personal conception of leadership, present and critique this leadership theory, and then explain what concrete actions they will take to self-develop as leaders. This last part of the essay is authentic because every year, I need to complete and submit a professional development plan detailing how I am going to grow as a professional. I find this annual reflection on growth personally fulfilling, and I am asking them to do the same thing.

Unsolicited emails from students, the vibrancy of that week's online discussion, and the final student course reflections convinced me that students found this assignment personally meaningful. For me, 16 out of the 54 essays were "a pleasure to read" (an important part of what an A+ looks like in my rubric), and so I didn't mind being up past midnight two weeks in row in order to get their essays back to them in a timely manner.

Recently, I co-authored *Assessment Strategies for Online Learning: Engagement and Authenticity* (Conrad & Openo, 2018). The book release signifies that I am no longer that young instructor experiencing the assessment blues and experimenting with ideas ungrounded in learning science. Now, I am a seasoned professional with some teaching expertise. This maturation of becoming someone who has "written the book" on one of the great mysteries of teaching and learning confers an obligation to practice what I preach, and what I preach is that pedagogical innovation starts and ends with creating authentic assessments to engage students. To sustain the innovation, future iterations of my assessments will be improved by student feedback and informed by my daily life. I begin and end with assessment, and I am looking

forward to making refinements because grading is no longer the soul-sucking activity it used to be.

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Special issue: Innovative Teaching Personal Essays

"I get by with a little help from my friends" (Thanks, Ringo!)

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This is a personal essay with two coauthors. Yes, that is an oxymoron. However, as I reflect on innovation, without someone to push and someone to calm, my efforts to continuously improve my teaching would not occur. I'm naming names – Steve Kroeger and Yvette Pennington -- and I am going to describe the push and pull to sustain innovation.

The Push. My ongoing concern is that my aspirational pedagogy does not always match the pedagogy I am using day to day. I catch myself lecturing about not lecturing. I have provided students with copies of the lecture slides rather than a reading guide with reflections. I have my excuses – I have 70 students, I teach first year students, my students are more concerned about grades than learning. When I have used other strategies, such as journaling about StengthsQuest results, students posted one or two lines, often beginning with a statement about how much they hate reflecting. I'm not whining about students; I'm frustrated that I can't seem to consistently engage them in higher order thinking. At times there are "now I get it" moments. I use self-assessments to bring home information about learning styles, mindset, deep/superficial learning, and others. The students indicate when it is made personal they understand.

Enter Steve. I worked with Steve when he was in our licensure program, then again as he pursued his doctorate. He explains epistemology to me; I struggle to spell the word. Steve has implemented evidence-based practices that have calculated effect sizes greater than .40 in his classes. He has shared his interteaching (Saville et al, 2006), reading guides, and mini-lessons. He pushed me to recognize the coercive nature of instruction (Friere, 1970) and to increase dialogue with my students that requires that I trust them to co-construct knowledge with me. Steve met with me, shared materials, and continued to serve as my interpreter of Friere's view of

learning. It was so much easier just to stand there and talk and tell funny stories that the students liked, but deep in my heart I knew I was out of sync with my aspirations. So, in Fall 2018, instead of lecturing about not lecturing, I will "rigor up" the class. I'll bravely implement interteaching, anticipation guides, and protocols with students with histories of passive learning, where they read a section, answer the questions, and get a grade. I'll refocus my lens on engaging students as partners in the process (I hope). I'll have 70 students to engage in interteaching and anticipation guides. I will jumble them up into pairs or small groups, pushing them to interact with other students outside of their comfort group. I'll have Steve to cry to if the students talk about it being too hard, not getting full points, you know, cognitive dissonance. I'll use Class Dojo to provide students the opportunity to submit "I feel" or "I need" statements to inform me of their concerns.

The Pull. As part of the course I co-teach with Dr. Yvette Pennington, our first-year students – primarily white, middle class females – tutor children who currently attend an elementary school in a lower socioeconomic class neighborhood where most of the students are African American. These students also work as instructional assistants with students attending the highest poverty school in the district. It is often the first time they have been the minority group in a room or have worked directly with someone who doesn't look like them. As our students are leaving the elementary school, I must have "that" look on my face, because Yvette, my conciliator, say, "They'll get there. What do you expect?"

I am stunned by her patience. We both grew up fed, clothed, and loved, but our parents struggled economically. I'm an old, jeans-wearing, no make-up ex-hippie whose father was a medic during WWII because he was a conscientious objector and whose mom was smart enough to go to college but due to being "lower class" did not. Yvette is an African-American woman who presents herself professionally in dress and demeanor when teaching college students, and knows how to do that three different color eye shadow thing with her makeup. I smell like essential oils, she smells like perfume. I was a teacher and head teacher, she was a special education administrator. How can she not scream at our students who talk about "those parents,", "those kids,", and are stunned that the inner urban Black kids we are working with are "smart"? Yvette's approach is that every student enters our classroom with their perspective based on their personal development, and it is our job as professors to assist them in developing new skills when teaching students from a different culture.

I have learned that it is easy for me, an old white lady – to be indignant. Yvette has had to confront challenges just because of her race. I've had the privilege of being white and escaping any pre-judgement because of my race. Due to Yvette's professional experiences she knows far more than I do about discrimination, stereotypes, and microaggressions than I ever will. But I've lived in the safety of being able to be indignant with no questions about the root of my concerns.

So…Any innovations I make in my instruction are metered doses. I am pushed by Steve's exploits, and I am ready to change the world. I am pulled by Yvette's sense of reality and am learning that development is more expected than enlightenment. Without either of them, I would be a far less effective teacher.

References

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