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Creating a Teaching Community with Graduate Teaching Assistants: A Scholarly Personal Narrative

Joy Camarao
University of Calgary, eloizza.camarao@ucalgary.ca

Cari Din
University of Calgary, csdin@ucalgary.ca

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Abstract

Our purpose in writing this scholarly personal narrative is to share our perspectives and experiences as graduate student researcher and supervisor/principal investigator implementing and studying teaching and learning reform in the laboratory component of an undergraduate exercise physiology course. We reflect on our grappling with experiential learning, the need for reflection for it to happen, and what it means in the learning context. We also reflect on developing a community of practice with graduate teaching assistants, influencing teaching and learning culture through that community, and exploring the role of whole-heartedness and care in the process. We hope to support readers who feel compelled to reform or improve teaching and learning in their unique context.

Keywords

community of practice, teaching assistant support, educational leadership, undergraduate laboratory reform, teaching and learning culture, reflective essay

Creating a Teaching Community with Graduate Teaching Assistants: A Scholarly Personal Narrative

Joy Camarao and Cari Din

University of Calgary

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Our purpose in writing this scholarly personal narrative is to share our perspectives and experiences as graduate student researcher and supervisor/principal investigator implementing and studying teaching and learning reform in the laboratory component of an undergraduate exercise physiology course. We reflect on our grappling with experiential learning, the need for reflection for it to happen, and what it means in the learning context. We also reflect on developing a community of practice with graduate teaching assistants, influencing teaching and learning culture through that community, and exploring the role of whole-heartedness and care in the process. We hope to support readers who feel compelled to reform or improve teaching and learning in their unique context.

SCHOLARLY PERSONAL NARRATIVE

We have developed this reflective essay as a scholarly personal narrative (SPN). We feel the SPN form enables the sharing of our journey supporting teaching and learning culture change in ways which may help colleagues reflect on and translate our discoveries to their unique academic context. SPN combines research and "me-search", which allows us to tell our stories (Nash & Bradley, 2012, p. 4) and embed ourselves in our Scholarship of Teaching and Learning (SoTL) work. Our deep commitment to enabling and celebrating teaching, which supports continuously improving student learning (Huber, 2002), draws us into SoTL. We are heartened by voices in the academy acknowledging the courage it requires to declare oneself a SoTL scholar (Godbold et al., 2021). Our SoTL is rooted in our unique identities and shared motivation to enrich teaching and learning in our context. As we navigate and negotiate our teaching and learning change work, we are learning from and with each other, even as we write this SPN.

What differentiates SPN from other methodologies that self-interrogate is its inside-out approach. It begins with the scholar's story and then looks outwards to develop both the writer and the reader's understanding of the world beyond the scholar-storyteller (Nash & Bradley, 2012). By beginning with introspection, we share our personal perspectives to strengthen claims and recommendations we make, and challenge older educational narratives (Nash & Viray, 2013), which for us emerge from our work studying and supporting laboratory (lab) learning reforms and enriching teaching practices within the instructional team we are working with. We are writing this SPN dialogue-style to distinguish our unique voices as graduate student researcher (Joy) and supervisor/principal investigator (Cari), while using "we" and "our" to present our shared perspective, and ultimately produce one coherent narrative showcasing our individual yet mutually enriching SoTL and our story.

OUR STORIES

From Student to Student Researcher

Joy:

It was not that long ago that I, now a graduate student at the time of co-writing this SPN, was completing the lab component (also known as the "ex-phys labs" by students and staff in our faculty) of the required undergraduate exercise physiology (ex-phys) course at the centre of our project, to earn my degree. I vividly remember in one lab, sitting on a contraption with my shin strapped against a piece of vinyl while flexing and extending my leg with all my might to gather data on the force-velocity relationship. In another lab, I recall frantically pricking a lab mate's finger multiple times to collect their blood lactate data. For these activities, we were given a manual with step-by-step instructions—a cookbook with recipes—we had to follow rigidly to obtain the "right" results and write a lab report. Looking back, I see completing these labs as a rite of passage for every undergraduate student in the faculty because the labs were notoriously challenging. This reputation grew from a heavy emphasis on lab report formatting and harsh grading. The punitive focus of grading me and my peers in the course left us with expertise in writing and producing lab reports that had what "they were looking for". Today, as I engage in SoTL, I recognize that the teaching and learning culture of the ex-phys labs when I completed them as an undergraduate student was not conducive to exploring, being creative, or trying things—learning activities which should be the norm in lab learning, but all these actions meant risking losing marks. While following instructions is a necessary skill to ensure safety in labs, from my perspective now as a SoTL graduate student, I see traditional or cookbook-style labs (Craig, 2020) as barriers to experiential learning (EL) for students.

So far, one of the most challenging parts of supporting the lab reform at the centre of our project has been finding my place and my role in it. As a new scholar in teaching and learning, I do not have many practical teaching tools or experience, yet. I also know my own experiences in and perspectives of the ex-phys labs may not be universal. What fuels my work is how much I care about students having deep, transformative learning experiences, different from my own.

I took two classes with Cari, who is my supervisor and the principal investigator, as an undergraduate before starting my graduate journey. Cari brings her teaching philosophy to her role as an educational leader in this reform project and to supervising my graduate studies. Her SoTL purpose and pillars are student agency, curiosity, sociality, and belonging. I see all four showing up in her best work. She is also deeply interested in the role of reflection in student learning.

The Origin of our Lab Teaching and Learning Reform Project

Cari:

My undergraduate experiences were in a liberal arts program and my research is about as far from ex-phys as one can get in a Kinesiology faculty! I study and teach leadership and coaching behaviours. Where my curiosity intersects with ex-phys is in SoTL and more specifically, in supporting rich EL. The lead instructor (we will call him Henry in our SPN) who welcomes Joy and me into his course and supports our weekly teaching-focused reflection with his graduate teaching assistants (graduate TAs), and who enables this SoTL and lab reform, told me two years ago he wanted to get rid of the cookbooks in his lab-based courses. Henry and I started our academic roles on the same day; we met at a faculty orientation. We realized quickly that we shared SoTL passions and both want students to have rich learning experiences across our faculty. We came up with this three-year lab reform project during a small but significant conversation (Roxå & Mårtensson, 2009).

Joy began her graduate work with me 11 months ago as we entered the second year of the three-year reform project. She studied leadership and did a swim lab with me while completing her undergraduate degree. Joy and I are at different stages of our SoTL journey. I see how our SoTL intersects with our personal experiences and philosophies. I value the inimitable perspective Joy brings from doing the ex-phys labs when they were still in the format they had been in for (legend has it) decades and from seeing through eyes, unlike mine, as a graduate student researcher participating in and supporting our lab reform project. Her candid SPN voice expands our understanding of SoTL in our context and project.

OUR GOALS

We are co-writing this SPN to share our perspectives and experiences as graduate student researcher and supervisor/principal investigator implementing and studying teaching and learning reform in the lab component of an undergraduate ex-phys course. We hope to braid together the complexities of experiences we are having in this work and reflect on what they mean to us and our project. Finally, we hope this SPN can support readers who feel compelled to reform or improve teaching and learning practices in their unique context.

Reforming the Teaching and Learning Culture: Aren't Labs Inherently Experiential?!

It is not uncommon for students to go to class, take notes, memorize content for a test, perform the test, and forget the information. In the labs we are working to reform, there was a similar pattern: students go to a specialized room with special equipment (the lab), follow a procedure, collect data, write a lab report, submit it, and forget it. EL is absent from both scenarios. EL can be described as a learning process where the learner connects their experiences to their knowledge through reflection (Kolb, 2014; University of Calgary, 2020). This reflective work, which facilitates the learner's active sense-making process, is a necessary component of EL.

Cari brings her abiding passion for improving the quality and frequency of active sense-making in higher education to our project. Her understanding of the role of metacognition is rooted in Jennifer Moon's theorizing and practical tools for using reflection to catalyze deep, agentic learning. Moon (2004) describes reflection as a process where the learner reshapes their cognitive structure. It is the processing we do to develop understanding, make sense of complex ideas, integrate experience with what we know, think, feel, and do (Moon, 2004).

Cari:

We know metacognition and reflection can enable learning in undergraduate STEM classes (Weiman & Gilbert, 2014), but it was not part of the ex-phys labs. Henry and I redesigned the ex-phys labs together. Henry calls the move to emergency remote learning in year two of our lab reform project a somewhat welcome "wrecking ball" because we needed to reimagine labs traditionally held in a space full of equipment and opportunities for "hands-on" experiences. All ten labs in the course needed to happen online. We embraced the opportunity to change the lab learning outcomes, activities, and assessments during the pandemic and abandoned plans for gradual change. During this rewriting process, I looked at Henry's drafts, offered suggestions, and realized the power of walking meetings to brainstorm learning reform! In thinking through the challenge of doing all labs online, Henry and I discovered an opportunity to add and value weekly post-lab student reflections. I contributed specific questions for post-lab student reflections. Each new lab includes a low-stakes assignment where students are given reflective prompts and earn marks for writing a 100-word response. Examples of post-lab reflective questions are: What was difficult about creating the graph? What did you learn in this lab and what would you still like to know? Describe what was most challenging about developing your own hypothesis.

Post-lab reflections give students the chance to make sense of what happened in lab and build connections between what they know and are still wondering (Moon, 1999). Creating time for reflection separate from the technical learning activities which take place in labs gives students space to interpret these activities (Gunstone, 1991). I believe the deep thinking, questioning, and sense-seeking, which takes place when a student is invited to reflect on lab learning activities is the soul of not only enriching but individualizing learning. It pushes students "to make sense of their experience in terms of what they are learning in the classroom as well as to draw implications for further application or study" (Eyler, 2009, p. 30).

The new labs also invite students to actively connect pre-lab video content with their current knowledge and experience, analyze data sets, develop hypotheses, potential research questions, and methods which align with their ex-phys curiosities. The new labs demand active learning where students are inquiring, synthesizing, and producing novel learning; they are a bold leap away from the behaviourist teaching and learning we see in classrooms where learning means students reacting correctly to stimulus, for example, being able to recite the correct answer to a question (Ertmer & Newby, 2013). The new labs centre EL by framing students as agents actively developing their skills and constructing their knowledge. When EL is intentionally designed, students can transfer their learning to novel situations and apply it to new, unanticipated problems (Mayer, 2002).

Does being Online for Labs Mean Giving Up on EL?

Joy:

When I started working on this project in the middle of the pandemic, I grappled with the idea of EL being possible online. Back then, I had a surface-level understanding of EL as "learning-by-doing" (University of Calgary, 2020), which equated to being "hands-on" with doing EL; therefore, without students being in the lab space using equipment and performing tests themselves, I thought EL was impossible. I do not think I am alone in my original interpretation of EL because many students see labs as a place to manipulate equipment but not ideas (Hofstein & Lunetta, 2003). However, as I moved deeper into our project, I started to believe EL could happen online. Wherever students are, "doing" is not simply using lab equipment or performing tests; "doing" is about thinking, questioning, and seeking. EL also requires students to be "minds-on" (Hofstein & Lunetta, 2003, p. 32). The post-lab reflections that Henry and Cari embedded in the new labs enable students to engage in "minds-on" sense making and EL. As our completely online term progressed, I realized that being "minds-on" was particularly important when standing in the lab with "hands-on" pieces of technical equipment (and legs strapped into contraptions) was not possible.

During my first year in this project and as a graduate student doing SoTL, I struggled with the belief that I would not have seen the value of EL as an undergraduate student, and I find that challenging to include here. I was accustomed to traditional teaching practices where I was given information I needed to know; I do not think I would have liked EL. I would have asked, as I think many students do today with the shift towards EL in higher education: Why should I be responsible for my own learning when I am here to learn from you, the prof?! Why should I have to teach myself? I believe we must introduce students to SoTL and engage them in the process of seeing and constructing their learning (Brookfield, 2006). I think when students become aware of the intention and purpose of each learning activity, we can facilitate a shift in their epistemology.

My thinking, concerns, and not-so-distant undergraduate experience strengthened my ability to view our reform project from a student's perspective. I think it can be easy for instructional teams to make decisions based on what *they* believe students are thinking or doing. For example, sometimes during our meetings throughout the term with the instructional team for the undergraduate ex-phys course, there were statements such as "If I could do this in three minutes, the students should be able to do it in five minutes" or "That should be easy [for the students] to do". I found myself feeling we needed to shift and assume 80 undergraduates in an introductory ex-phys course would not have the approximate knowledge nor skill of the instructional team. I began to see my own SoTL in moments like this and think critically about whether we are providing the support students need to be able to do what we are asking them to do.

Cari:

Joy's perspective on EL (OK, on everything!) is invaluable in our work, and one we have not explored deeply enough in our community, yet. One of the things it makes me wonder is whether what we learned during emergency remote teaching will help us serve diverse student backgrounds in a class like this one more effectively post-pandemic. For example, because we learned how to make short videos for students and curate supplemental resources online to support students who need or want more support as part of their lab learning journey in this course, I think we accelerated our integration of good SoTL where we are. I am wondering how we can be more transparent about EL and the use of SoTL in this course, specifically in the design of lab learning activities and reflections. I would love to hear from readers of this SPN: What teaching and learning activities that you started during the pandemic will you keep when we are back on campus full-time?

Joy:

One more point of concern for me, again through the lens of my undergraduate self, is that EL often relies on group work, which I think has become a trigger word for many students due to negative past experiences. Group work holds vast potential when it comes to EL and active learning; however, collaborative learning is only beneficial when done effectively. Students are often assigned group work and expected to work together and succeed; however, "skills and attitudes necessary for effective collaboration do not come naturally to students" (Leopold & Smith, 2019, p. 1). My experience as an undergraduate student working on countless group projects reveals this is true.

Cari:

Yikes, I read what Joy says here and think of the times I have made that false assumption. Across my teaching practice, I am always taken aback when a student resists the active, creative components of their learning. And then I start to think about how I might help students understand when they make decisions, lean into the exploratory and open-ended questions reflection invites, they take charge, they lead in learning. Because student agency is a pillar of my teaching practice, truly at the centre of any effective teaching I do, I need to surface its merit for students more consistently. I need to encourage and draw out the curiosity that precedes learning (Eyler, 2018), and connect skeptics to this fundamental impulse, which perhaps has been dampened in some formal learning contexts. But the group part, the collaboration skills, this is something I spend a lot of time on in my leadership courses and I think we need to centre it in our lab reform project. For example, I believe it would be helpful to clarify how teamwork and collaboration in lab is time spent practicing essential 21st century employability skills (Ornellas et al., 2019) for students. Highlighting a collaborative practice of the week and integrating it boldly into lab learning activities could strengthen student learning and commitment to many employability and leadership skills (The Conference Board of Canada, n.d.), which are not traditionally made visible or valued in undergraduate ex-phys labs. Learning as I read and write with Joy!

Joy:

One of the most valuable changes I see in this project is closing the gap between the intentions of the instructional team and what students are experiencing in the labs. Through advocating for student learning and embedding critical reflection on teaching and learning practices, we allow the instructional team to gauge where their students are in their learning, how their students are feeling and what they need, forming a culture that signals, "We are all on the same side of this thing called learning". Cari, I am quoting you—you said this a few times in our meetings with the instructional team and it stuck with me!

Cari:
That is a teaching and learning culture I want to be a part of Joy! I am so grateful to read your way of seeing this. I had an interesting informal conversation with one of the graduate TAs participating in this work about the role of low-stakes reflection in lab learning that makes me think of what you say here. He said the most valuable part of reading the weekly, individual reflective responses from the 25 students in his lab was the connection it enabled with each student. He taught the course pre-reform when the emphasis was on content and format only and said in that iteration, he really did not know most students in his lab. He told me what he wants to keep, wherever he teaches, is the spirit of wonder these open-ended questions invite. He truly believes having a low-stakes reflection altered the culture of his lab group, and that over time, students became increasingly comfortable asking questions about the topics and things they were deeply interested in—a big change from either no questions or only ones focused on how to get a perfect score. Finally, he said he enjoyed reading their weekly reflections very much and remembers how boring marking traditional reports was in previous iterations of the lab. Some concrete progress indeed here. Felten and Lambert (2020) call on us to educate undergraduate students in relationship-rich ways, and this graduate TA embodies this call to act.

Can a Community of Practice Transform Teaching and Learning in Labs?

We invited members of the instructional team, which consists of the lead instructor (Henry), one lab technician, and five graduate TAs, to form a pedagogy-focused community of practice (CoP). We, Joy and Cari, were not part of the instructional team but we were active members of the CoP. A CoP is a group of practitioners who collaboratively reflect, and problem solve regularly to learn to do their practice (for us, teaching) better (Wenger-Trayner & Wenger-Trayner, 2015). In the academic context, a pedagogy-focused CoP develops when individuals, both experts and novices, come together to reflect on their teaching and learning practice and work together to continuously improve each other's impact on student learning and experience (Bolander Laksov et al., 2008; Elliott et al., 2016; Herbers et al., 2011). CoPs have been used to facilitate teaching and learning change in many projects in higher education (e.g., Elliott et al., 2016; Tinnell et al., 2019). In our project, we invited the team, at the end of each week, to reflect on and share both positive and negative teaching experiences from the week. Between 30 to 60 minutes was dedicated to discussing, sharing, and solving teaching and learning problems together. Cari, with the support of Henry, facilitated the CoP and would often start by asking what went well in members' teaching during the week. They also asked what did not go well or what problems members were facing that the community could potentially help them solve. These questions helped the community come together and brainstorm ways to improve their teaching and their students' learning. This is akin to what Pyrko and colleagues (2017) call "thinking together" and label the core formative process for a healthy CoP.

Facilitating dedicated teaching-focused reflection is one of the ways we are striving to create sustainable changes in the teaching and learning culture in labs. According to Roxå, Mårtensson, and Alveteg (2011), culture in higher education emerges from a sense-making process shaped by the "shared norms, beliefs, values and traditions of the group" (p. 100). Notably, taking a cultural approach to teaching and learning change requires influencing the taken-for-granted ways of being (Roxå et al., 2011). Our early findings in this project, which we derive from four semi-structured interviews with CoP members and our reflective conversations, reveal concrete shifts in the way members are talking about teaching and learning, which is where culture change happens (Roxå et al., 2011).

Stewarding sustainable change and creating a culture that values effective teaching and student-centred learning in our faculty is a central aim of our work. Adcroft and Lockwood (2011) advise "small-scale interventions across the whole organization rather than a single-scale intervention from the top" (p. 480) and taking an organic approach to change, which is most effective. With this in mind, we are optimistic that a shift in the teaching and learning culture of the ex-phys labs we are reforming has initiated small yet sustainable culture change.

Community, Care, and High Expectations

Implementing a CoP means providing members with tools to make their work manageable, feasible, and better than it would be without this group. Our pedagogy-focused CoP is about learning together and from each other, rather than alone. Just as we create opportunities for students to develop collaborative skills through group work, teaching practices can benefit from group work, too (Kim et al., 2021).

Cari:
When you show students that you care about their welfare, you can set high expectations. We know caring university instructors who set and maintain high expectations for students develop learning environments that enable student agency (Weimer, 2013). I think creating an exciting, inclusive, enthusiastic, and supportive environment raises our expectations of ourselves and each other in a class. I think we did this in our CoP, too. I want the culture we contribute to in our faculty to pair caring for people with expecting and supporting excellent work from them.

Joy:
How graduate TAs support their students (or do not) can make or break students' experiences in labs. About halfway through the term, I started to realize the large influence graduate TAs have in labs, and it was then that my own project for my thesis evolved into exploring how they can be supported as instructors. It was a delight to hear graduate TAs in our CoP start to advocate for their students' learning. For example, they shared that the labs were too long and that students needed breaks between activities online and wondered if the activities could be made shorter. Henry was always happy to use their suggestions when he could, and in instances where it was not possible, at least in the moment, he made sure to note them down for future iterations of the ex-phys labs. The graduate TAs started seeking formative feedback from their students using strategies such as "start, stop, continue" to find out what was and was not working for their students. This helped them tailor their teaching to their students' learning needs in their lab. Responses to a survey that undergraduate students completing the course were invited to fill out anonymously at the end of the term suggests the graduate TAs' efforts created an environment where students felt comfortable asking questions and contributing during live online labs.

Cari:
This is such an important reflection and inflection point in our story to me; caring about the students is not linked to lowering our expectations of them, and I think sometimes there is a mythology around "hard courses" and making things extremely challenging so only the few can thrive. To me, this is the antithesis of learning on all levels. There is some nuanced reflection on practice and purpose needed to disrupt that and let go of the need to prove how challenging a course is, I feel. Like Joy, I was heartened to see the graduate TAs in our project over time advocate for good conditions, good support, meaningful feedback, rich discussions—really their integration of SoTL into their teaching practice exceeded my expectations.

A CoP is Just a Meeting Without Whole-heartedness

Whenever we seek culture change, we should consider community "buy in". We found the graduate TAs in our CoP bought into the teaching and learning changes we were advocating for through a practice Rodgers (2002) calls whole-heartedness. In writing about the role of reflection in continuously improving one's teaching, Rodgers (2002) says whole-heartedness signals "a genuine, no holds barred enthusiasm" (p. 858) for improving our content, our teaching practices, and student learning. We felt whole-heartedness within our CoP and feel we could not force it. We believe whole-heartedness indicated "buy-in" and saw it in graduate TAs stretching their practice, taking risks, and incorporating strategies suggested in the weekly discussions. They grew confident in advocating for EL and integrating their own questions aimed at developing their students' curiosity during labs. We saw graduate TAs trusting themselves too as they tried new things. They embodied wholeheartedness when they brought questions and solutions to our weekly CoP meeting. Whole-heartedness, however, did not happen immediately nor was it expressed identically by everyone in the CoP. Rodgers' definition of whole-heartedness might depict a fervent image of someone ready to charge through brick walls to improve teaching and learning. However, whole-heartedness, especially for those who might be skeptical about, for example, integrating science and reflection together as some of the instructional team members were initially, may simply look like leaning into the weekly conversations we have about teaching or practicing reflecting on how their teaching influences students' experiences in the labs.

We think whole-heartedness was invited and strengthened by the vulnerability shown in our CoP early on. Henry shared difficulties and asked for help, and we were all very open about what did not go well in our teaching some weeks. We also observed community members recognizing the good teaching practices their peers were doing. One graduate TA mentioned how special it was to see members of the CoP "pumping each other's tires" and to see two faculty members (Cari and Henry) support each other. This strengthened rapport between community members and celebratory feelings about teaching wins.

A popular topic in the weekly discussions was student engagement; everyone in our CoP at one time wondered out loud how to increase student engagement. Members expressed concerns with students' cameras being off and how this made it feel as though they were talking to themselves while teaching. This prompted brainstorming different ways to engage student online (e.g., private Zoom chat, Google Jamboard). Based on the success that the instructors had in using these tools, particularly those that allowed anonymous participation, it would be interesting to learn about the relationship between anonymity and engagement, which is something that we might need to translate and adapt to our in-person lab teaching. On that note, one of the things that we are thinking about today is how our CoP approach might differ when we meet in-person.

CONCLUDING THOUGHTS

Our teaching is personal. Our beliefs, experiences, and values imbue how (and what) we teach. It is important to reiterate that our goal in this project is to prompt reflection on great practice and offer SoTL broadly, and EL specifically, as new lens to see our teaching and its influence on students' learning. We created the space for collaborative reflection, problem-solving, innovation, celebration, and care. We provided practical tools to the instructional team as needed. Our experiences are deeply contextual, yet we hope our SPN catalyzes and connects to your reflective thinking, your teaching, and your educational leadership in your teaching and learning culture. We sought collegial resonance in the telling of our stories and wish you whole-heartedness in your academic community.

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