

REFLECTIVE ESSAY

Synergizing perspectives: A dual student-instructor partnership in transforming STEM recitation experiences in large enrollment courses

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In the fall of 2023, I embarked on a transformative journey that transcended the traditional boundaries of instructorship. As one of the instructors of a massive STEM course, I found myself not merely imparting knowledge but actively collaborating with two student partners, Kelsey and Samuel, to enhance the learning experience for both current and future students. Involving Kelsey and Samuel in a structured collaboration was key for me to ensure student voices are heard in our course decisions. While end-of-semester evaluations provide valuable feedback, they can be biased and limited to a particular point in time. This student-instructor partnership approach complements course surveys by providing more profound and immediate insights.

Our focus centered on the course's recitation component—the bridge between theoretical concepts discussed in lectures and real-world problem-solving. Our journey unfolded on two distinct fronts. First, my collaboration with Kelsey led us to explore the dynamics of in-person group work, a new landscape for this course. We observed and analyzed how students engaged with one another and exchanged ideas, as well as the supportive environment that facilitated these interactions. The insights we gained informed our strategies for fostering effective collaboration. Second, Samuel and I addressed the intricate landscape of artificial intelligence (AI) policies. As AI becomes increasingly integrated into education, responsible usage is paramount. Together, we explored methods for introducing students to AI responsibly while highlighting its inherent limitations.

Our joint efforts revealed the profound potential inherent in faculty-student partnerships. We brought diverse perspectives and expertise to the table, transcending hierarchical roles. Our initial insecurities gave way to empowerment, transforming concerns into shared purposes. Reflecting on this journey, I recognize that it doesn't belong solely to me as an instructor. It belongs to all who dare to learn together—the chorus of voices shaping transformative education. Thus, this reflective essay considers the insights of Kelsey, Samuel, and myself (Beatriz). Looking to the future, I wholeheartedly embrace the opportunities for collaboration between students and instructors, recognizing that diverse perspectives from both parties are essential for enhancing learning experiences, even in the most crowded classrooms. What follows is a reflection on our partnership from the perspectives of each of us involved. First, we set the stage by describing the setting of the partnership, and second, we share each of our

reflections in turn regarding two approaches to enhancing recitation experiences through partnership.

SETTING

Our reflections are framed within the context of a prominent STEM course, Human Anatomy and Physiology, which attracts over 1,100 students annually aspiring towards healthcare careers. A pivotal aspect of this course involves weekly recitations, wherein students apply lecture concepts to solve real-life situations. Their answers, submitted via our learning management system (LMS), are then graded by the teaching assistants (TAs) according to a rubric.

Traditionally, these sessions have been conducted online via our LMS. However, during the fall 2023 semester, I piloted an innovative shift, substituting virtual board discussions with in-person student meetings led by TAs. This evolution stemmed from a collective desire to cultivate a more interactive and engaging learning environment, a sentiment that found resonance among course instructors and alumni in course evaluation surveys.

TWO APPROACHES TO ENHANCING RECITATION EXPERIENCES THROUGH PARTNERSHIP

Student-instructor collaboration to assess and improve group dynamics

Beatriz's reflection (instructor)

Starting recitation sessions in a new in-person setting raised concerns about managing group dynamics, especially in a large course, which differs from online discussions. How could I make them meaningful learning experiences, not anxiety triggers? Enter the Student Pedagogy Advocates (SPA) Program and my amazing partner, Kelsey. Initially, I thought, "where do we even start?" But my openness to feedback and Kelsey's professionalism calmed us down. Together, we created a group work observation protocol to record and analyze how students interacted, engaged with tasks, and managed time. This became our guide.

Our plan seemed perfect, but a challenge arose. With 26 sections and only one student advocate attending two, would insights from just those two sessions capture the whole picture? Kelsey's detailed weekly notes were impressive, and we discussed them biweekly. Her insights led to immediate changes, like calming music to ease awkward silences, implemented in sections where the TAs felt it would be beneficial. She also noted that TAs were underutilized, so we adjusted their roles: one graded while another supported struggling groups. To maintain consistency across all sections, I regularly shared our collective insights and instructions with the head TA, who was responsible for overseeing and transmitting the information to the rest of the TAs. I also shared some of Kelsey's feedback as annotations in the TA's answer sheet for each recitation.

This experience taught me that managing group work in large classes has challenges but also exciting possibilities. Effective teaching involves adaptability and a willingness to learn from various sources. My advice for instructors facing a similar context is to create a tailored observation protocol involving both external students (student advocates who understand the student experience and can offer practical suggestions) and TAs (who have expertise in evaluation tasks) to gain diverse perspectives. This collaborative approach benefits both

instructors and learners. It enhances the overall learning experience by fostering continuous improvement.

Kelsey's reflection (student)

Stepping into the unknown, I eagerly accepted the role as a student advocate in the fall of 2022, my sophomore year at Purdue. It all started when my academic advisor reached out with an opportunity to become a student pedagogy advocate (SPA). She spoke highly of the position and explained that I would work directly with faculty members on their pedagogy. With aspirations of attending graduate school, I craved an undergraduate job that mattered. I wanted an experience that would have a lasting impact on my future. The SPA program was different from any other campus job: my voice had the potential to shape the structure of teaching and learning in higher education. This role mirrors similar initiatives at other institutions (Cook-Sather & Des-Ogugua, 2019). Here, my voice was not just heard—it was valued and could lead to meaningful changes in the classroom environment.

Fast forward to fall 2023: my third partnership as a SPA and my first time working with a vast STEM course (over 1,100 students!) began with Beatriz. Previously, I had collaborated with faculty members in the English and psychology departments who had relatively small classes (<60 students). Our partnerships focused on encouraging the connections between the instructor and students, and I felt very involved with the courses. With the giant STEM course, I was so intimidated. I wondered, will my observations be enough? During our first meeting, Beatriz's genuine excitement about having a student partner calmed me. "Don't worry," she laughed, "any feedback you can share is valuable." She saw our roles as equal, fostering a sense of trust and confidence in my contributions. Mutual respect and a shared enthusiasm for collaboration became the foundation of our partnership. I had never met an instructor so dedicated to fostering an inclusive learning environment, and every meeting felt like an energizing exchange of ideas.

Our mission was to revamp the recitation component, where students tackle case studies in groups supervised by TAs. Initially, I wondered how I could provide meaningful feedback if Beatriz wasn't even there. I shared my doubts, and we brainstormed the intended focus of my observations. That conversation served as a guide and allowed us to tackle this head-on by crafting a customized observation protocol. As per our conversation, we planned to include numeric scales to measure collaboration, group discussions, and engagement time. I piloted the protocol and recognized that I wanted a space to elaborate on the ratings. I felt disconnected from the practice of assigning a score with no explanation. Beatriz welcomed this feedback and readily updated the protocol to add this space. Together, we built a protocol that helped me connect to the class I was observing, while noting vital information about the recitation.

Our two central hurdles in improving the recitation component were navigating the complexities of group dynamics and ensuring effective facilitation through TAs. Observing 10 groups within a 50-minute window felt nearly impossible, and I expressed these concerns. Beatriz and I addressed this issue by narrowing the protocol expectations, which reduced my stress and allowed for more focused and specific feedback. The anxieties I felt about observing the groups had been calmed, but I was still contemplating how to offer more targeted feedback to TAs to improve their support. Should I observe the TAs? Is it right to gather feedback on them? Is that helpful? In the sections that I observed, each TA was vastly different from the others, which

impacted the flow of recitation. Together, Beatriz and I discussed our desire to provide all students with a similar recitation experience. In attempts to homogenize the student experience, we reduced the number of TA graders to only four graders the following semester to ensure consistency in grading. Her open receptiveness to my ideas fostered genuine trust, and that's why I'm passionate about the SPA program. It's not just about observing; it's about collaborating to create the best possible learning environment for everyone. Those moments of shared problem-solving with Beatriz, fueled by teamwork and a desire to make a difference, ignited my passion for this work.

Together, we took small steps that have the potential to create bigger changes in the recitation structure, and I am immensely proud of our progress. My feedback was not just heard; it was translated into real-time implementations. This success, I believe, stemmed from the foundation of mutual respect we established early on. This was more than a student and instructor working together; it was an equal, collaborative partnership. As I continue my journey with the SPA program, I carry the lessons learned from Beatriz—the power of open communication, the importance of shared responsibility, and the profound impact even a single voice can have. With these lessons guiding me, I step forward, ready to embark on the continuation of our partnership in the spring.

Student-faculty collaboration in elaborating AI policies

Beatriz's reflection (instructor)

While participating in a university initiative aimed at enhancing courses, a new project sparked my interest: the Algorithmic Literacy Student-Faculty Learning Community (SFLC). This program's focus on equipping educators like myself with the tools and strategies to navigate the complex task of incorporating AI into our classes resonated deeply. I lacked the experience to integrate AI in a meaningful way confidently, and the program's promise of partnering with a student to gain valuable insights was particularly appealing. Additionally, I hadn't yet had in-depth conversations with students about their perspectives on AI in the classroom. The SFLC's focus on a collaborative approach and learning from both sides of the table, fueled my optimism for the program's potential. This four-week program, however, started slow, and my initial optimism dipped with the first two meetings. They were informative, but not much progress was made on developing specific AI policies for the recitation portion of my course, which was my project's objective. Adding to the uncertainty, my first student partner left the program.

Then, during the third week, the opportunity arose to work with Samuel. Despite being assigned to different partners initially, we found that our interests and ideas aligned perfectly. His maturity in discussing AI policies impressed me, and even though we only had 1 week left, our final meetings were really productive. Driven by time constraints and wanting something concrete, we set a clear goal: a roadmap for AI integration in the recitation component of my course, complete with actionable policies for the following year. We envisioned an introductory recitation session where students learn about AI's potential and limitations while gaining crucial skills in responsible use and fact-checking.

We used a shared document guided by prompts, later turning it into a presentation. Our success hinged on asynchronous collaboration, where we divided the tasks efficiently. We then exchanged our work electronically for review before our meetings, maximizing our limited time

together. I especially appreciated Samuel's suggestion about creating prompts to help students kickstart brainstorming when building case studies with AI. It highlighted a gap I hadn't considered: the challenges students face when interfacing with large language models (LLMs) without proper guidance. It was time to bridge that gap.

Although the SFLC started differently than I had anticipated, this unexpected partnership gave me a valuable tool and approach for the recitation part of my course. I learned that even with limited time, a focused goal and a strategic approach can lead to great results. We were able to achieve a lot despite having only 1 week left in the program! This experience also provided me with a fresh perspective on collaborating with students as partners in addressing course policies—a practice I aim to extend throughout the entire course. Though student involvement in university committees exists (Sutherland et al., 2019), individual courses often lack such mechanisms. I firmly believe that viewing students as partners, not subjects, and actively integrating them into this process holds immense potential for positive change.

Samuel's reflection (student)

I first heard of the Algorithmic Literacy SFLC from a friend of mine. It instantly piqued my interest for two reasons. First, I have always wanted to work closely with a professor. Second, I wanted the opportunity to learn and create something that would last beyond my time at Purdue University. The program delivered on both fronts.

When I applied for the Algorithm Literacy SFLC, I had recently come back from a study abroad program in Stockholm, Sweden. One of the most essential concepts in Swedish culture is that of equality. This emphasis on equality has led to an egalitarian view of the student-faculty relationship within academia, where knowledge is shared and co-constructed, and communication is open and respectful. In the United States, however, I have had very mixed experiences in my relationships with faculty. These ranged from a type of communal collaboration to a sort of authoritarian, domineering relationship.

My experience working with Beatriz in this program further ingrained the benefits of developing student-faculty relationships based on egalitarianism. During the program, I felt free to share any of my ideas and opinions because I knew that Beatriz viewed me as a peer in the context of developing strategies for the implementation of AI in her classroom, despite the years of experience and knowledge that she had over me. This led to incredibly productive meetings because neither of us had inhibitions about sharing ideas. I felt personally valued, and I felt like my ideas were not less valuable based on my social or academic position but that they were more valuable because of my position as a student. When student-faculty relationships are built on the basis of mutual respect and curiosity, ideas flow freely and actions are implemented efficiently in a process that is quite enjoyable for both parties.

I learned that the model of student-faculty partnership is how I want to continue my education. I would like to seek out faculty to learn from who view me as a partner. I was challenged to think of myself as more than a receptacle for information, and, therefore, I learned much more through an active process of generation than simple input. This led to more curiosity and expression as Beatriz and I developed our plan for AI implementation.

The impact that this experience had on me also made me think about my future. I look forward to creating these types of spaces and relationships that facilitate intergenerational collaborations to move projects along in ways that are beneficial for all involved. This type of

collaborative work seems to be not only effective in accomplishing tasks but beneficial to the learning process of both parties in the partnership. This is something I aim to keep in mind as I continue my own educational journey as well as for my career and professional life.

I believe that student-faculty partnerships and egalitarian views of these relationships are the future of academia. Students like me want more involvement rather than simply receiving information. There are incredible benefits to contributing to the programs that you are a part of and developing curricula and other materials that will outlast your time at a university. These motivational factors also affect learning. To generate and implement ideas with the concepts learned in class and from readings helps with long-term memory of the materials you are working with.

I am so grateful for the opportunity to work with Beatriz as a collaborator on the Algorithmic Literacy SFLC. I felt so much more connected to the process of education and the institution of Purdue University as a whole. My time working with Beatriz serves as an exemplar of what student-faculty relationships can be. I hope that more students can experience this type of collaboration and that this becomes a more normalized pedagogical process within academia.

CLOSING REMARKS FROM THE INSTRUCTOR

This whole experience has shown me one big thing: partnerships are the key to unlocking transformative learning experiences. Not just with experienced instructors, but with curious minds, new perspectives, and the courage to ask questions, explore, and create together. By embracing this diverse range of voices, spanning from students to experts, I am convinced that even within large-scale education settings, a fertile ground for profound collaborative learning can be established.

This study received exempt status from the Institutional Review Board (IRB) at our university.

NOTE ON CONTRIBUTORS

Beatriz Castro is a continuing lecturer in Purdue University's Department of Biological Sciences, specializing in teaching introductory Human Anatomy and Physiology. Her newly established LearnerX Lab fosters collaboration with undergraduate students to design engaging and impactful personalized learning resources and experiences in life sciences.

Kelsey Smart is an undergraduate student at Purdue University majoring in Speech, Language, and Hearing Sciences, with additional pursuits in Sociology and Linguistics. She's an active participant in the student pedagogy advocate (SPA) program, currently in her fifth semester and partnership. Through the SPA program, Kelsey works to foster inclusivity in higher education and promote the value of student partnerships.

Samuel Strom graduated from Purdue University with a degree in Psychological Sciences with minors in Communications and Sociology. He now works in cognitive science researching decision making and expertise and helping to create scenario-based cognitive training materials for fields that involve time-pressure and uncertainty.

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