

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 Minecraft 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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