

Practical Learning with Dr. Patrick Pennefather

In which courses do you use Practical Learning? And how many students are generally there in the course?

Every single course has some form of project-based learning, which is what I equate to practical learning. Learning that can support students in developing skills as well as competencies to be able to create together, whether it is sound design or emerging technology.

From September 2023 to April 2024, I will interact with around 140 first-year Arts students, around 90 students in second, third, fourth year in Arts, Computer Science, Engineering, and then 35 students in an Extended Learning Certificate program targeting medical professionals. One of the courses that I will be teaching in 2023 Winter Term is a first-year course “MDIA 100 Media Objects” which will have 90 students.

What does Practical Learning mean in your discipline/course?

It means learning by doing, going back to some of the pragmatic roots of education in the early 20th Century. Practical learning for me is engaging in the practice of applying craft, technique and skill to projects that are intended to improve specific competencies. Those competencies are connected to collaborating, communicating, problem-solving, developing criticality and managing creativity with others over time. That can be anything from developing a Virtual Reality (VR) experience to working on the sound design for a Tik Tok video.

Why do you incorporate Practical Learning?

I see value in developing craft and technique, as well as competencies, which may distinguish students, and I think that they are coming to UBC for this broader educational experience. Some of the students that I encounter want practical tools that they will be able to apply to a dream job. I want to provide them with alternative practical ways to engage with learning that can support them as they start to develop an idea of their future paths. My impulse is to attract such students who might be considering ways to increase their skills and competencies to complement the other courses that they are taking.

In the disciplines I teach, centered on design and production, it is crucial that learners practice making things together. That is why all courses are project-based. In this way they develop the competencies, capacities, and resilience to eventually transition into communities of practice when they graduate.

What is an example of a course in which you used Practical Learning?

In THTR 308, a Sound Design course, students learn about different considerations when it comes to the design of sound for live or virtual productions. All course that I teach demand that students self-regulate, that they learn how to manage their own learning. I provide them with design thinking and reflective tools, including visual models for them to practice that important competency. I facilitate a learning environment

where students are provided tools, direction, and practice to understand the various characteristics that contribute towards designing sound for different media.

MDIA 470 is a course deeply embedded within the Emerging Media Lab (EML) at UBC. EML's goal is to develop technology to enhance teaching and learning at the University, working with faculty in order to develop emerging technology projects. The course that I teach in January 2024 will be called "Developing Emerging Technologies." My goal is to have learning outcomes that are related to competencies that are expected of students when they graduate and work collaboratively with others to develop technology. In this course, I start by explaining to the students that they will learn to collaborate, learn about methodologies such as Agile Project Management (Agile), and learn how to develop the required skills and orient themselves to a particular path, whether that might be project management, user experience design, 3D/2D, or art programming. The students work together during the course and create some type of workable prototype using VR or another medium, which is the deliverable for the course. The prototype is required to have minimal features that solve the problem that it is intended to.

In the next phase, the students are encouraged to move into the EML, where they can continue to work on those projects which they build during MDIA 470, and further develop them into minimum viable products. Through this course I am trying to create the beginning of a larger one-year pipeline that can be integrated with the EML, giving students the choice to extend the work that they did with me and also continue developing their competencies, such that by the end of the year, they have a strong deliverable and a lot of experience which will help and prepare them to transition into the digital media industry.

One such project that the EML is working on is Moot Courts. Moots are simulated court proceedings where law students carry out the work of counsel in an appeal, trial, or arbitration. By simulating the Judge and the courtroom, EML is trying to create a digital interactive experience in VR for students to gain practical experience. The project has been implemented in a few classes, and undergoing improvement based on the feedback received from the students who engaged with it.

What activities did the students do to develop Practical Learning skills?

The activity that I do right away in the first class is simple design thinking, which engages students in coming up with a system for their behaviour with each other, towards course content, and towards the overall teaching and learning environment. I use brainstorming tools to align students and to get them to understand that an idea contributed by them is equal to any other contribution, including that of the instructor. When we do this activity remotely, I tend to use MIRO as a visual brainstorming tool. Developing core values and rules of play for their interactions with one another is also an essential starting point for every course. The students understand that they have inputs regarding class development and evolution and that they are equally responsible towards their learning. Many students are accustomed to the way of teaching where the teacher is on a lecture podium or stage, but there are alternative teaching environments and spaces at UBC which I hope become more popular. As an instructor, I do have knowledge to share, but at the same time I feel that my responsibility is truly to impart to students that they are responsible for managing their own learning.

I include activities that allow students to experience what it is like to collaborate together on something, and that activity can be as simple as passing a ball around in a circle. In this activity the students work in teams to find ways to pass the given ball within their teams within the given time such as 45 seconds. With every round that the teams successfully complete, the stakes keep rising as the given time keeps reducing. The students think together and come up with ways to beat the clock, sometimes by creatively interpreting the rules and sometimes by bending them.

When developing a piece of emerging technology, I plan series of activities including identification of the problem, understanding the skill set of the team members, and assessing your willingness to learn new skills that may be required for the project. A part of what I teach is to be able to rationally plot out what you are able to do over short periods of time. I have students use Agile to scope out what they can achieve during the course in terms of development of their project.

All students learn basic design thinking skills that focus them on human-centered design and the building of an aligned team culture. At the beginning of every process, we engage in human-centered design techniques, such as Persona and other psycho demographic tools, we do user or customer journeys, and use storyboarding as a tool, all of which are activities that the students do. The students also explore root cause visual models to get to the root of the problem that they are trying to solve. The activity can be enhanced with an LLM like Chat GPT-4 to reinforce that there may be several roots of a problem. This activity is a tough one and could take an entire class for students to wrap their head around.

Weekly short interactive lecture topics, brainstorming activities, and discussions, lead to tangible outcomes such as low fidelity prototypes. The students learn to prototype throughout the course, creating versions of something in process. To create emerging technology, you need to iterate and improve upon your project.

Every activity I offer is always followed by a reflection. Through these activities or experiences the students are challenged to think about how to communicate, collaborate, lead, follow, and solve problems. Every week targeted reflections develop a critical muscle that is essential for any design work. The learning of week one transfers to week two and so on, so that students' knowledge of co-constructing a project together is scaffolded over time.

What did students share about their experience with the Practical Learning activities?

There are varying degrees of learner-responses and outcomes in all project-based courses that I teach. Many are not familiar with developing the design skills and competencies they experience, and less are used to working with others. However, towards the conclusion of the course, most students are satisfied, and some, more than others, have embodied a way of creating work that is going to have lasting resonance. They learn how to collaborate, and also learn about their affinity towards this way of working, which is an important outcome of the course. Most of the comments about the course reflect that students consider the experience of co-constructing something with others valuable, they have increased their skills, and they have better understood what they may need to learn to be successful in a particular industry.

Student responses to learning in this way fall within various fluid categories:

- Initial resistance and confusion to some course content, assignments, and course direction
- Habitual learning pattern of needing to be told what to do
- Understanding that learning can also be fun and openness to learning from others
- Lack of experience in documenting self-reflection
- Giving and listening to feedback from their peers
- Slow acceptance of their own creative competencies
- Managing communication in team-based work over time
- Becoming aware of their own heuristics or their own rules of play around identifying and solving problems
- Radical transformation of how they learn that influences the remainder of their learning journey

How did you assess students' development of Practical Learning skills?

The tricky thing with any project-based course that involves group projects is you have to individuate grades, and also provide a group grade. I have worked on and developed the specific rubrics associated with each activity for at least 15 years, breaking down the competencies that I want students to learn. These competencies form the assessment criteria, such as potential to communicate with others and the evidence of that communication.

Assessment is an open door in my courses. I always task learners to also assess themselves over time and reflective activities they engage in weekly support that assessment. I assess the accuracy these self-assessments, especially if there are also peer assessments. In cases of clear discrepancy between the two assessments-self and peer-I also provide feedback to help students re-evaluate their self-assessment, such as if they have been hypercritical of themselves contrary to the opinion of their teammates.

To assess students, I look at parameters such as contribution to class discussions and how well they follow instructions. I give them short assignments in class such as drawing your dream home in 2 minutes or reflecting on a particular assignment and writing something within 5 minutes. Initially many students do not sufficiently understand how deeply they need to reflect based on the assignment that was given, so the reflections are one-liners or vague. I explain to them that even if a single word such as respect is used to reflect, it needs to be explained in their own words what they mean by respect, as different people may understand or perceive a word differently.

I follow iterative assessment, for almost every assignment, except for the final project, I give students an opportunity to improve and resubmit it. I am not interested in testing students' knowledge necessarily; I am more interested in providing supportive feedback and assessment that can help them improve themselves and what they deliver over time.

What are some changes or improvements which you wish to include in future?

Availability of computing resources for students is a persistent problem. I think that these resources are necessary for students, and I need more of those for my students, so I am always trying to find funding or partnerships within the university and externally. I also want more time with students, more than a 3-credit course. I have taught 12-credit courses in a single semester at another university, which are intense and

beneficial to students, helping them grow quicker. More time to engage with content and to work with and learn from one another would support and reinforce competencies associated with the course.

Do you have any suggestions for instructors considering this Practical Learning for their course?

Anyone who teaches project-based courses should have the commitment to learn and to facilitate others to learn. You need to be actively interested in the community of practice associated with what you are teaching. If I am teaching about VR, I need to understand what the latest tools are and keep up with the technology. You also need to maintain a connection to that industry to be able to invite them to teach. Many of my students are embedded in the digital media industry who I bring into my classes. They have more specific and direct knowledge, and insights which I would not possibly have. It is important to give students this exposure.

Instructors need to understand that a project-based course will shift, change, and need to adapt to the unique characteristics of learners in the course. An openness to shifting direction, slowing down, accelerating sometimes, going beyond what is written in a course outline is essential, so is communicating at the beginning of the course that that may happen. In addition:

- Being reflective at the end of each course
- Facilitating learning vs trying hard to teach students something.
- Learning from teaching
- Seeing each learner that you teach as someone who comes to your class with knowledge
- Respecting differences in learning and affirming those differences
- Facilitating learners to participate in the co-creation of class values and rules of play during the first class that will govern how learners interact with one another and course content.
- Being clear how learners will be assessed and drawing from the rich history of project-based learning to identify competencies that can be assessed and how students can demonstrate these.
- Involve students in providing you persistent feedback so that you too can improve your offering to them

Do you wish to share anything further?

I am passionate about this kind of learning and there are so many benefits. I would just encourage those who are considering it that it is a rewarding path to go down. The best thing to do is to try it to see if it works for you. If anyone wants to learn more about my methodological approach to designing project-based interactions informed by social constructivism, I have recently published a book called *Mentoring Digital Media Projects*.