Teaching Dossier 2021

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Table of Contents

1.0 Initial Reflections

As a result of reflecting on my experiences, in combination with feedback from students and colleagues, as well a focus on continuing education, I have identified three key pillars in my educational philosophy that greatly influence my approach to pedagogy (Figure 1). My time in the classroom has revealed that education is very much a reciprocal process, and my interaction with learners has greatly informed my teaching practice. Recognizing learners as unique individuals that bring their own set of expectations and goals to the classroom is key. It is an ongoing dialogue with students that has allowed me to transform my approach to pedagogy.
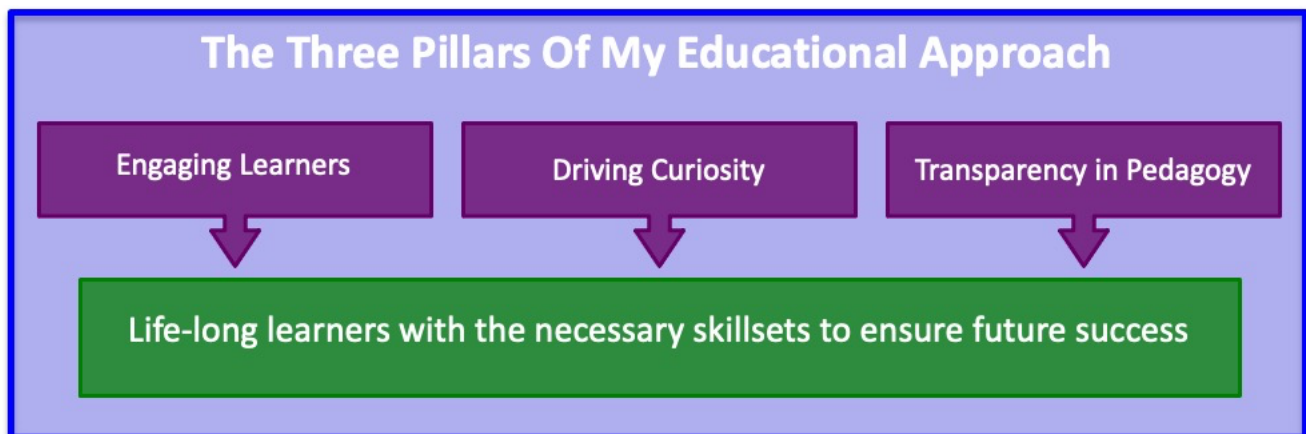

Figure 1. My broad educational approach includes three pillars that inform my teaching practice. I believe these to be foundational in preparing students for success beyond the classroom.

2.0 Teaching Philosophy

When I was tasked with writing my first teaching philosophy I began with the statement "My role as a university instructor is to transmit the knowledge associated with a topic in a manner that engages and excites students". Upon reflection and feedback from learners my approach to pedagogy has transformed. **My goal is to facilitate knowledge acquisition and encourage mastery in the learners I interact with; this includes enhancing understanding and motivating curiosity in the student population.** This can vary from becoming proficient in the basics of a topic, to the ability to think independently, and effectively synthesize, evaluate, and communicate information. My philosophy began to form during my work as a ski instructor in my undergraduate degree. However it wasn't until I reflected on my experiences that I realized I could incorporate the active learning strategies I employed on the ski hill directly in the classroom.

I have found that a hands-on approach to education facilitates the comprehension of material, whether on the ski hill, or in front of a class of 300 undergraduates. Although a solid background of knowledge is indispensable to understanding a topic, critical thinking, problem solving abilities, and effective communication of ideas are essential. Whether in introductory courses, seminars, or individual training, **my aim is to encourage students to 'get their hands dirty' and engage with course material such that they learn to analyze, evaluate, and communicate information effectively.** These are the skills that will prepare them for success in the future.

Engaging Learners. Early on I discovered that experiential learning increased student engagement and aided in their understanding of course material. I continue to employ these techniques, aiming to discuss topics in a manner that encourages participatory learning. Through the use of real-time digital surveys (e.g., Top Hat), flipped learning, multimedia, buzz groups (small discussion groups), and brainstorming sessions, it is possible to shift from monologue to dialogue in any size classroom. **When students are engaged and take ownership of course material there is a noticeable increase in their enthusiasm for a given topic, translating to mastery of course content.** I continue to be impressed as to how learners respond to this methodology.

Driving Curiosity. While the approaches above have proved effective components of my pedagogical toolbox, it is perhaps my curiosity about the world that I am most excited to share with those who take my courses. It has been my pleasure to explore the wonder of the natural world with students, and my ambition has been to leave them 'wanting for more'. Curiosity is a hallmark of successful people, and **one of my major goals is to provide students with the tools necessary to effectively explore their passions beyond the confines of the classroom.**

Transparency in Pedagogy. Recently I have incorporated transparency into my pedagogical practice, with the intention of ensuring that students understand my philosophy in regard to teaching and learning. This can be as simple as clearly outlining the purpose of an assignment or discussing the "big picture" when it comes to course material. When learners appreciate the reasons for an educational approach their connection to course material increases. **By showing students that the skills they learn in the classroom have real world applications they can also see the connection between their university experience and the skillsets required for future success.**

My overall goal is to encourage and facilitate curiosity in the student population, while developing trainees that possess a mastery of course material. The ability of students to successfully analyze, evaluate, and synthesize information not only defines their success as trainees, but my success as an educator.

3.0 Courses Taught

Below is a table of the courses that I have been responsible for developing and delivering over the last six years. I have chosen to focus on two courses specifically (**PSYC 375** and **PSYC 475**), **which demonstrate my flexible approach to course design**, including the three pillars (see Figure 1) I consider fundamental to post-secondary education, and also provide evidence of my scaffolding strategy in regard to the educational process.

Course Name	Enrollment Cap	Times Taught
PSYC 204 (Human Sexuality)	300	3
PSYC 375 (Brain and Behaviour)	**120**	**18**
PSYC 400.03 (Applied Methods in Brain and Behaviour)	40	3
PSYC 474 (Neuroscience of Learning and Memory)	40	3
PSYC 475 (Drugs and Behaviour)	**40**	**5**
PSYC 478 (Behavioural Neuroscience)	30	9
PSYC 501 (Animal Behaviour)	20	2
ARTS 601 (Theory and Practice of Teaching & Learning)	16	1
PSYC 620 (Behavioural Neuroscience)	1	3

Figure 2. List of courses that I have been responsible for delivering. Highlighted in red text are the two courses I have chosen to focus on.

4.0 Putting Theory Into Practice

Brain and Behaviour (PSYC 375)

Brain and Behaviour is a required course for psychology majors, and frankly was the one that most of them feared. When I inherited the course it utilized a purely lecture-based approach, as well as three multiple-choice based assessments throughout the semester. In discussion with a number of undergraduate students I soon learned that most felt the material was inaccessible, boring, and 'beyond them'. My approach to this course continues to evolve and listed below are some of the major changes that I have made to date, as well as some of the successes and challenges I have experienced along the way.

A First Attempt (Successes and Challenges)

My first attempt at Brain and Behaviour took place in the fall semester of 2015. I had just started my instructor position at the university and was adamant that I would build a fantastic rapport with the undergraduate population. Lectures were built from the ground up, with a focus on producing engaging slides that placed the course material in context and delivering content with a sense of humour. A component of the course was dedicated to "Neuroscience in the News" in which we discussed recent media articles about the brain.

In addition to modifying content delivery, several low stakes quizzes were added to ensure that students 'kept up' with the material. These had the additional benefit of allowing me to assess intended learning and adapt my approach to course material in order to better suit the needs of the students.
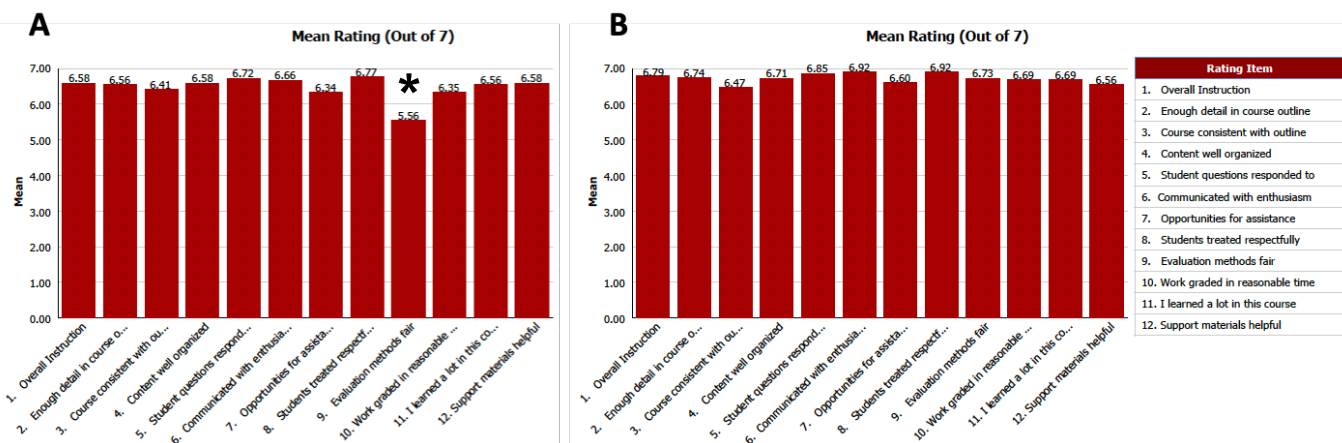
Figure 3. USRI data collected for PSYC 375 from the fall semester of 2015 (**A**) and the winter semester of 2019 (**B**). While overall ratings were high, a noticeable dip was apparent in the data collected during the 2015 semester, specifically relating to the fairness of evaluation methods (highlighted by asterisk).

Overall reviews were positive for my early attempts at Brain and Behaviour as evidenced by USRIs (Figure 3A), faculty surveys, and **unsolicited student comments** (Figure 4). It was clear that students enjoyed my lecture style and appreciated my 'passion for the field'.

- *"Thank you for a fantastic semester! I loved the enthusiasm and humor you put into the class. You have definitely been one of the best professors I've had so far."*
- *"I really enjoyed your PSYC 375 class; it was probably my favorite class so far! Thanks for making it great."*
- *"It was an awesome semester and you are a brilliant instructor! Hoping I'll have the opportunity to take more classes with you in the future!"*

Figure 4. A sample of **unsolicited student comments** (via email) for PSYC 375 from the fall semester of 2015. Names have been removed to conform with FOIP guidelines.

A terse examination of these comments seemed positive; however, they didn't provide the depth of analysis regarding my teaching practice that I was looking for. A deeper investigation into the available material revealed that my assessment methodology required some work. Evidence from the USRIs highlighted that students did not consider my evaluation methods fair (Figure 3A). This was mirrored in a number of comments in the faculty surveys:

- *"Not relevant to the bigger picture of the course"*
- *"Would be better if tested on concepts rather than memorizing"*

While initially a difficult pill to swallow, I took these sentiments as an opportunity to reflect on my teaching. My approach, while amusing to students, almost entirely involved lecturing about course content, resulting in an incredibly passive learning experience. A focus purely on information delivery came at the expense of ensuring student understanding and mastery of the material. My assessment techniques relied heavily on test-banks, prioritized rote memorization, and were likely an invalid method of determining students' mastery of course topics. Conversations with peers, insight from the primary literature, and feedback from students encouraged me to take a risk and engage in course redesign.

Through a combination of my involvement in communities of practice and attendance at a number of workshops offered by the Department of Psychology, Faculty of Arts, and Taylor Institute, I was afforded fantastic insight into more appropriate methods of instruction and assessment. I attended

the 'Open Classroom Week' and observed Dr. Isabelle Barrette-Ng utilize a flipped approach to teaching (much to the surprise of some of my students who happened to be in her class).

I have also been fortunate enough to develop a community of practice with Dr. Melissa Boyce (see attached letter of support). This has been an incredibly fruitful exercise and has been a key component in my transformation as an educator. It was these experiences that acted as a catalyst, **shifting my pedagogical approach from lecturer to learner**, and **encouraged me to adopt a collaborative approach to improving my educational strategies.**

Evolving Course Redesign (A Shift in Pedagogical Approach)

Although my first attempt at teaching Brain and Behaviour resulted in a major redesign of the course, it is important to understand that this is very much an ongoing process. **My pedagogical approach continues to evolve as a result of my interactions with students, faculty, and evidence from the primary literature.** Below I outline some of the modifications that have been made to Brain and Behaviour over the last few years which are framed from the perspective of the three pillars of my overall approach to education (Figure 1).

1. **Engaging Learners** – There are of course many mechanisms to increase student engagement within the classroom; document cameras have afforded me the opportunity to explore comparative neuroanatomy using real brains (human, sheep, cat, and mouse; students love this!). Online content and digital videos can serve as a fantastic starting point for discussion (what are the ethical implications of modifying the human genome for example) and can highlight the practical implications of course material.

   It is important to note that innovation in teaching does not need to rely on technology. By far the most successful method of increasing engagement in my classroom has been the pair-share technique, allowing students to reflect on material and discuss it with their neighbors. When this is followed by a class-wide discussion to bring in multiple views/opinions I am always impressed with the high level at which we discuss course topics.

   It is also important to mention that course engagement can mean different things to different people. There will always be students who are unwilling or unable to communicate in-class (I am one of those people who struggles with the social risk of raising my hand to ask a question). I have an open-door policy when it comes to students, something that I address on the first day of all of my courses. **As a facilitator of student success, in all its forms, I am more than happy to chat about course material, insights into neuroscience, or 'life, the universe, and everything'.** Many of my most engaged students are quiet in class but stop by on a regular basis to share their insights into the natural world.

   I have found that adopting an empathetic and student-centric approach to education benefits people greatly, not just as learners but also as individuals. This has become increasingly important during the current pandemic. It can be as simple as reminding students to engage in self-care in the last few minutes of a lecture, or devoting class time for a 'KaffeeKlatsch' (German for coffee chatter) halfway through the semester to help build a sense of community in the classroom. I truly believe that building connections with learners is key to their success.

2. **Driving curiosity** – Closely related to learner engagement is my drive to instill curiosity in learners. Interestingly the scientific data suggests that curiosity changes the brain and improves learning (https://www.sciencedaily.com/releases/2014/10/141002123631.htm). As a neuroscientist and educator it behooves me to practice what I preach. I currently employ a

partially flipped approach to Brain and Behaviour, and this has been incredibly successful in encouraging curiosity-driven discussion. Topics vary from 'how illusions can inform us about brain function' in which students interact with visual illusions outside of class and then discuss what their experiences have to say about the nature of consciousness, to an open discussion regarding the use of animals in scientific research. **I have found that when you provide students with the opportunity to reflect on information and follow it with a safe and respectful venue for discussion, the results can be remarkable.**

Based on student feedback I continue to include the 'Neuroscience in the News' segments (in which we discuss the latest neuroscience findings); however, I now devote class time to investigating how these findings relate back to course material. I have also added a 'have you ever wondered?' component, which highlights purely curiosity-driven questions (for example, have you ever wondered why woodpeckers don't get concussions?). These changes to content delivery form part of a larger paradigm shift within my classrooms.

In addition to modifying content delivery I have also attempted to build curiosity into my assessments. Specifically I have designed a 'Neuroscience in the News' assignment that requires students to compare a recent media article about the brain to the primary source material it cites. Students are also asked to relate the findings in the primary source article back to course content. The overarching goal of the assignment is to encourage students to seek out and critically assess information. This assignment has the added benefit of aligning well with the Department of Psychology program learning outcomes (https://arts.ucalgary.ca/psychology/about).

In all honesty there is nothing better than the emails I get from students each semester that begin with "I was just looking around and saw something that relates to our in-class discussion"; these messages truly make my day.

3. **Transparency in pedagogy** – Historically I have spent a significant portion of my time concerned with content delivery in the classroom and attempting to increase the validity of my assessments. It is within the last few years that I have focused my efforts on ensuring that students understand why I am assessing them the way I do. I now include Bloom's taxonomy as a component of my course introductions. **This allows me to openly share my pedagogy and teaching intentions.** Day 1 in all of my courses involves a discussion of Bloom's hierarchical approach to learning, ranging from low level ('remember' – recollection of facts) to higher level (analyze, evaluate, and create) learning objectives. My aim is to clearly identify for learners the reasons behind my assessment methodology.

To better align with my updated teaching philosophy I have made a number of changes to my assessment methodology. For example, I have transitioned to open book quizzes that are designed to assess higher levels of Bloom's taxonomy. **Students can look up information, but are required to analyze, evaluate, and synthesize concepts; this is much more applicable to the real world.** I provide students with example questions that we work through as a class and highlight what I am looking for prior to their first assessment. I have found that these low stakes evaluations provide students with a venue to practice the skills that will ensure their future success.

My transparent approach to pedagogy is also evident in my Neuroscience in the News assignment in which I provide assignment details, a number of support documents on D2L, and a rubric that clearly outlines expectations (Figure 5). A portion of class time is also

dedicated to working through an example together and explaining the reasoning behind the design of the assignment as well as the skills students will gain from completing it.

Criteria	Expectations Exceeded (4/4 or 12/12)	Expectations Met (3/4 or 9/12)	Minimal Expectations Met (2/4 or 6/12)	Expectations Not Met (0)
Depth of Analysis (12)	A full explanation of the news article is stated in a clear and concise manner. The appropriate information from the journal and news article is compared effectively. The information contained in the articles is clearly related back to our discussion of brain and behaviour.	News article explained but some missing or irrelevant details. Information from the journal and news article is compared. The information contained in the articles is related back to the course.	News article is not fully explained. Some comparison between the journal and news articles. The information contained in the articles is minimally related back to the course material.	Unfocused explanation of the news article. Information is minimally compared between the journal and news articles. The information contained in the articles is not related back to the course material.
Organization (4)	Particularly clear and logical flow of information throughout. Transitions between the discussion of the news and journal articles are clear and well articulated.	Logical flow of information. Transitions between the discussion of journal and news articles are clear.	Mostly logical flow of information. Transitions between the discussion of the journal and news articles are relatively coherent, but may be unclear.	Flow is not logical Transitions between the discussion of the news and journal articles are unclear.
Mechanics (4)	No spelling errors. Excellent grammar, sentence structure, and use of punctuation. APA formatting adhered to and correct throughout the document.	No spelling errors. Occasional grammatical or punctuation errors that do not affect meaning. May contain a couple of minor APA formatting issues.	A couple of spelling and/or punctuation errors. Some grammatical errors or errors in sentence structure, but meaning is clear. Several APA formatting issues.	Several spelling and/or punctuation errors. Grammatical/sentence structure errors that cause meaning to be unclear. No adherence to APA formatting/references nonexistent.

Figure 5. Rubric from the "Neuroscience in the News" written assignment in which students are required to compare a recent media article about the brain to the primary source it cites. This represents a single component of my approach to assessment, in which students are provided with the necessary resources to be successful.

I am pleased to say that the current design of Brain and Behaviour represents a significant positive departure from my earlier attempts at the course, as is evidenced by several end-point metrics. While my overall instruction scores remain high, there has been a significant increase in the "Evaluations are fair" component of my USRIs (Figure 3B). Additionally, there has been a shift in student perception and appreciation for my teaching and assessment methods (Figure 6) as measured by faculty surveys. There has also been a change in how my classes are organized, reflecting a much more dynamic learning environment. **Students are no longer passively consuming information, rather they are actively engaging with it.**

Which activities in this course helped you to learn, and why?

- *"The quizzes I found the most useful since they made you think and expand on what was learned."*
- *"Essay, discussions, **ability to form opinions with your neighbor**. **These all enhanced learning.**"*

What advice would you give to students about how to be successful in this course?

- *"**Be an engaged student** when listening to your prof lecture, listening and **being active in conversations** will help your success in this course."*
- *"Take good notes! Quizzes are open book so having good notes really helps. Plus they help you remember in the long run."*

Figure 6. Example comments taken from faculty surveys for the Winter 2019 semester of Brain and Behaviour (PSYC 375). These represent a transformation in student experience in my courses. Students now understand the importance of active engagement and collaboration in the learning environment.

Perhaps most important to me are the informal interactions I have with students. There has been a noticeable increase in curiosity and engagement with course material. Whether it is in my introductory Brain and Behaviour course (PSYC 375) or a graduate course on the Theory and Practice of Teaching and Learning (ARTS 601), learners respond well to an active learning environment.

My ongoing dialogue with students has also encouraged me to adopt a patient and empathetic approach to education. I have found that this not only facilitates discovery but also encourages mental wellbeing. Recognizing one another as unique individuals creates a sense of connectedness in and beyond the educational setting. This is vital to the success of our students. It is these changes that have led me to believe that **teaching at all levels can truly be a transformative experience.**

Drugs and Behaviour (PSYC 475)

PSYC 475 represents the biggest challenge of my teaching career; it is by far the course that I have struggled with the most. Dialogue with students, collaboration with a community of practice (Dr. Melissa Boyce and several other colleagues), and attendance at a number of workshops have provided me with the tools necessary to revamp my organization of the course. Based on my success in PSYC 375 my early approach utilized the same instructional techniques I employed at the introductory level. I rapidly discovered that this was not an effective pedagogical strategy… **Senior-level courses bring with them a more nuanced discussion of topics and require a scaffolded approach to effectively facilitate knowledge acquisition.**

My first attempt at a redesign for PSYC 475 was catalyzed by a discussion with Heather Iverson (see letter of support), who happened to be enrolled in another of my courses in the winter semester of 2017. A frank conversation regarding the lack of student participation in PSYC 475 encouraged me to add more in-class activities. Although this was a seemingly small change I can honestly point to the discussion with Heather as the starting point for a shift in my philosophy, and it is largely responsible for the transformation of this course that is described in detail below.

Student-Driven Change

As a result of my conversation with Heather, and despite the risk associated with a redesign mid-semester, I immediately worked to increase student engagement in PSYC 475. **One of my major goals was to encourage students to apply the foundational knowledge they had acquired in their introductory courses to contemporary issues in the real world**. Perhaps one of the most popular learning activities was our discussion around the impending legalization of marijuana. Students were broken up into groups and asked to come up with a list of concerns/considerations regarding legalization. We then discussed these as a class, after which each group was charged with researching a specific consideration (for example, risks associated with long-term marijuana consumption). Each group then acted as experts and disseminated this information to their peers.

To provide further insight into the effectiveness of this teaching strategy I composed an anonymous online survey (Figure 7). Based on the feedback I received **I have adopted a problem-solving approach in my other courses**. I often task students with difficult real-world problems and have been impressed with the positive impact on student learning. **Learners engage with the material more****, understand concepts better, and can apply these concepts to novel situations.**

What aspects of the group exercise most facilitated your learning?

- *"Talking about the questions with other students, having one designated question to work on in-depth rather than several questions in a limited amount of time, discussing and explaining all group questions as a class."*
- *"Practice with research skills is very helpful for other courses."*
- *"The questions to guide our research were very helpful. Also, it helped that whatever we found was put up on the boards to help everyone learn as well because that way we had to be very selective (helped us to be concise)."*
- *"I think that researching material myself and having time to discuss it with classmates aided my understanding, and I felt more actively involved in the learning process."*

Figure 7. Example comments taken from the mid-semester Qualtrics survey in PSYC 475. Feedback revealed that the problem-solving approach was viewed by students as a useful method to enhance their learning.

During the following summer I took the opportunity to revisit PSYC 475 and began work on a major course redesign. A brief examination of my assessment techniques revealed a traditional approach to quantifying knowledge in learners. A midterm and final exam, two short assignments, and a term written project "on a topic of their choice within the field of psychopharmacology" were indicative of a rather uninspired assessment methodology. **As a direct result of my attendance at a workshop during the 2017 University of Calgary Conference on Postsecondary Learning and Teaching I modified my approach.** One of the presentations during the workshop discussed a poster as a novel way to assess student learning. Invigorated by this idea I immediately re-invented the assessment component of PSYC 475.

The current iteration of the course now challenges students to create a public information poster that describes a drug of abuse. In addition to incorporating the concepts we discuss throughout the semester; students are required to think about how to effectively communicate information to a specific population (the general public). This has proven an incredible impactful project, as measured by student comments (see Figure 8 below).
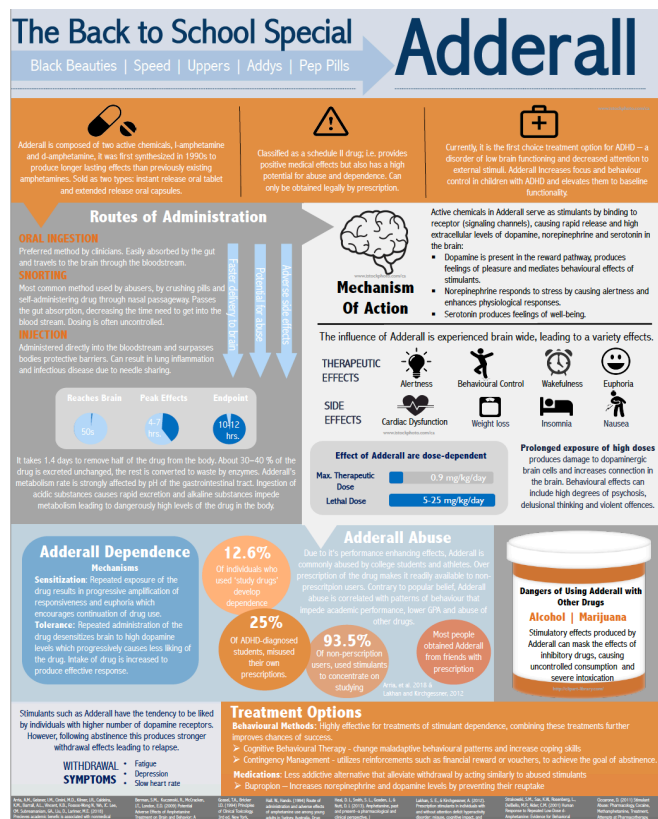

Figure 8. An example of student output for the PSYC 475 (Drugs and Behaviour) term project. Students are required to choose a drug of abuse and construct an informational poster aimed at educating the general public. Assignment details and a rubric are made available at the beginning of the semester. A portion of the course is dedicated to critically assessing poster examples (provided by me), and brainstorming ideas as to how to improve them. Students are assessed on a number of metrics including poster design and effectively communicating the information at the appropriate level. As measured by Faculty Surveys the response to this approach has been overwhelmingly positive.

"This was a unique project and I'm very pleased that it was included in the course."

"The term project was a poster and not a paper, it was more engaging and I was more motivated."

"Love that we get to do a poster instead of a paper"

"The poster was a great way to incorporate all aspects of what we learned."

I have witnessed a significant increase in curiosity, as students are now exploring course material at a much broader level. I have also modified my brief assignments to focus on application of course material. A recent example requires students to apply their knowledge of behavioural pharmacology to propose a social policy to help combat the fentanyl crisis in Alberta. I have come to appreciate that **it is unlikely that students will remember most of the course material; rather it is the skills they will internalize and employ in the future.**

With this in mind I am constantly exploring avenues of participatory learning. A great activity involves breaking students into groups and having them come up with potential short-answer exam questions (a version of two appear on the midterm). This is followed with a discussion of the reasons for the questions they have created, and how one would go about answering them. **This allows me to incorporate transparency in my pedagogical approach** and **requires learners to think about the course material from a conceptual basis.** I continue to take risks in the classroom; recently I altered the trajectory of PSYC 475 to include a discussion of the War on Drugs, asking students to assess the idea using an evidence-based approach. If I am honest, I still struggle with this course, but through reflection on my practice it is improving vastly. Student feedback, a community of practice, and workshops offered by the Faculty of Arts and Taylor Institute have been instrumental to my success. Evidence of my transformation is perhaps best reflected in an **unsolicited student comment** from the last iteration of PSYC 475. **This is why I teach:**

> *"PSYC 475 was the first course in my degree where I feel like I truly retained the content, and can honestly say it has improved my knowledge base and personal conversations. At the beginning of the semester, I had honestly started to think that all I would learn in my degree was how to write exams and blindly consume content (which don't get me wrong, is an important skill, but should not be an endgoal), so thank you for showing me this side of my degree."*

Figure 9. Unsolicited student comment from the 2019 winter semester from PSYC 475.

5.0 Some Last Thoughts…

I have come to appreciate that this document represents a portion of a much larger journey relating to my pedagogical practice. Rather it is ever evolving, my transformation takes place on a daily basis as I continue to **engage** with and explore the art and science of effectively facilitating transformation in learners. I too am a learner and hope that through collaboration with a strong community and a **transparent** approach to my methods I can inspire those I interact with.

My continued growth as an educator is perhaps best highlighted by recent events. While I have always been an advocate for student wellbeing, the current pandemic has caused me to formalize my approach. I now devote time in all of my courses to highlight mental health resources and to check in with students once a week to discuss ongoing issues. I am pleased to say that the response from students has been overwhelmingly positive. I am also currently working with Dr. Melissa Boyce (see letter of support) and Dr. Andrew Szeto to collect data from the student population so that we may better deploy resources to support student wellbeing and coping skills.

These ongoing challenges, while difficult at times, have given me the opportunity to examine my teaching practice. I am genuinely **curious** to see how I will reflect on this work in the future.