

## Shifting Phases

# *A trade school instructor learns to learning*

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MYLÈNE

## Assessment Practices and Transforming Relationships to Power

Today at the American Association of Physics Teachers summer meeting how assessment practices can start to transform our relationships to power in the classroom. I started by talking about how to balance rigour, accessibility, sustainability. The assessment techniques I presented were

- Standards-Based Grading
- Critical thinking-based rubric for assessing evidence
- Emergent curriculum

I've written a lot about all of those; see the post categories (to the right or these).

Those led me to collective struggle against the status quo, liberatory practices. To find out how I got there, a rough transcript is below.

I created screencasts of the [Introduction](#), the [Land Acknowledgment](#), and [assessment practices](#) I focused on. If you watch the screencasts, you'll get [resources](#) that I created to accompany the talk.



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**Student Self-  
Determination**



**Collectivity**

I teach algebra-based circuit analysis and embedded systems in a 2-year course there after working as a software developer, serving with the Canadian Centre for electronic R&D in an oceanographic institute.

## Assessment Techniques

The focus for my 10 years of teaching has been on assessment practices that align with alignment, accessibility, growth mindset, sense-making, and, diversity. I use conflict mediation, pastoral care, and techniques for making student thinking visible. I learn to incorporate liberatory philosophies, and balance self-determination with collectivity. And try not to burn myself out. You know, just a light week.

I've tried lots of things, but there are three assessment practices that overlap:

- Standards Based Grading (I call it Skills Based Grading)
- Explicit instruction in critical thinking
- Emergent curriculum

In this presentation, for each of those techniques, I'll propose an exercise and how they could be adapted in your context. Those exercises are linked either to the resource [mind map](#) called Assessment Techniques; the same thing is also on a poster around the room.

Lots of people do those things. In the interests of time, I won't talk much about things that are fairly well documented; I've left lots of resources in this room and the ways I've modified them to work together.

## Assessment, Power, and Control

The theme is this: I found that increasing the rigor AND accuracy of my assessment required me to reconsider my relationship to power and control. After all, how can I acc

# Land Acknowledgement

This presentation is being given in Provo, Utah; to the best of my understanding the [traditional, current, and unsundered territory of the Ute, Goshute, Shoshone](#), although it may be the contemporary territory of other Indigenous nations here by the US government, and territory for seasonal hunting and gathering.

In talking to Franci Taylor (from the University of Utah American Indian Center) and other Indigenous organizations, there are some reports that there were treaties, but none were ever upheld by the US government.

In 2016, a coalition of tribes lobbied to have the land around Bears Ears National Monument. But last year, the federal government slashed it by 85% in order to allow for mining.

I come from Mi'kmaki, the traditional and never-sundered territory of the Mi'kmaq, and the peace and friendship treaties that guarantee the Mi'kmaq the right to fish and practice their culture without interference, which have never been upheld by the Canadian government. As someone who inherits my legal status on that land from the British who signed the 1725 Friendship Treaty, I am part of that treaty relationship.

Keep that in mind, it will come back later.

## Using This Presentation

I welcome you to interact with the material in any other way that works for you. You can ask me, or go straight to the exercises, or just poke around the [mind map](#). Even if you don't do anything, it's still something. Feel free to work on your own, or not, — whatever makes sense for you and what you came here for.

I'll try to answer the most common questions that come up. Please add the

very good grades who didn't seem to understand the material and who I dangerous in the workplace.

## Standards-Based Grading (SBG)

I started using SBG to get accurate info about what skills students need to actually do by the end of the semester. I use [tracking sheets](#) that list the skills that are mandatory; you can't pass without them. That raised the level possible to pass if you can 60% do 100% of the things. You have to be able to do all the things. And I control which 60%.

But the heart of SBG is reassessment: if a student's demonstration of a skill doesn't meet requirements, they can demonstrate again next week, or the week after, or the week after that. There's no penalty for how many tries it takes.

The skill itself should be the only bar; there should be no other barriers.

## Self-Determination and Universal Design for Learning (

To remove as many other barriers as I could, I needed to make it possible much self-determination as possible. If there was *any* way that they could to see it. I started using a framework called Universal Design for Learning disability rights advocacy, which uses the slogan “tight goals, loose mean

One possible interpretation of UDL is that, instead of the instructor needing students are “allowed, supported, and encouraged” to invent and control using [Zaretta Hammond’s](#) language here; she created the [Ready4Rigor](#) for responsive pedagogy, building on the work of [Gloria Ladon-Billings](#) and easily with UDL.

It shouldn't matter whether students read the textbook, or watch videos, or go to a museum, or ask grandma who works for NASA, to get their information.

# Emergent Curriculum

At the beginning of the year, the class works on question-generating experiments that require few safety precautions. I have my students make [yellow conductive play dough](#), or experiment with small light bulbs and AA batteries. They take note of what they notice and what they wonder. I add the keeping them in the students words. That [curiosity-tracking spreadsheet](#) technique that I propose people might consider adapting. The next day, I each student chooses a topic to investigate. They find evidence, assess it, strongest, and present it to the class. The class then peer reviews it – again assessing evidence. Ideas that are well-supported by the evidence get added to the “class model” – a shared reference of what the class has found out so far. something students *can* use on tests and other assessments; it’s something to, either to show support or contradictions for new ideas.

There are always some ideas that don’t have enough evidence to accept, or results. These generate new questions, which go in the spreadsheet, and

If I find it necessary to take control of the topics, I can simply choose to be assign the relevant textbook section and Wikipedia article, and have students use the rubric for assessing evidence, the same way they assess their own and each other’s. I use the curiosity tracking spreadsheet, by focusing on one topic before another, and then return to the questions from our regular class cycle.

## Effectiveness

I have only anecdotal data, but so far it appears that men and women complete the program in the same proportions, as do students who self-disclose as having disabilities. Indigenous, Black, and students of colour seem to complete the program at the average. We see a similar phenomenon with women in the trades sometimes because of many barriers that the only women who attempt the program are the one

analysis, probably in their second or third year. My students, four month program, consistently outperform university students on 21-25 of 29 measures.

## Try It

I hope that gives you an idea of how these practices work together. I'm glad people try things on their own. You can try one of the three exercises linked around the room. Or, use this time to do what works for you. We too can learn from our learning!

if you need help, please congregate at the corresponding station; help each other come around too. And don't forget to add your questions to the web form

# Conclusions

There are 2 main reasons I find assessment so fruitful in contributing to the

1. Assessment can help generate data that exposes structural injustices.
2. Assessment is where I've been given the power to police the borders c to learning and science. Where I have that power is where I can trans

For those two reasons, the question that's been keeping me up at night is wondered what science would look like today if it had developed with every rightful place at the table?

Of course, enormous contributions to science have been made by every group of people at every time in history. But the dominant idea of science today, which grows out of the Scientific Revolution, is only about 500 years old. And that is exactly why the groups we today try to “include” got excluded in the first place.

Also emerging at the same time: private ownership of land in fee simple. land any more than you could buy a river. Also, the nation state, and the was needed to enforce it. In other words, rigid control over the borders of did this first in Europe, then extended it around the world, in combination invention: whiteness and white supremacy. These were used to justify ch

## The Scientific Revolution Begins In a Sheltered Bubble

It's important to know all this because the other thing that happened about Copernicus published *On the Revolutions of the Celestial Spheres*, marking the consider the scientific revolution: the emergence of the form of science that

That science developed in a sheltered bubble, protected from the kind of would have faced if people of all cultures and genders had been taking the the table. If today's science, as a seedling, had been required to be accountable doubt in my mind that it would be something entirely different today. It individualism, hierarchy, and focus on control over natural forces to that and suppression in which it grew.

And, it has accomplished amazing things! Relativity is amazing. Quantum those things are necessarily a pale shadow of what could have been accomplished could have been.

So now that our current view of science has grown deep thick roots, and is reshape, NOW we invite the pushed out people to return and participate

## Diversity and Inclusion: Where Are They Leading Us?

I'm going to suggest that diversity and inclusion are the Bohr model of science accessible to many people, important in our path of changing ourselves and very, very far away from the whole story.