

**Student questions: Wendy Smythe colloquium on “Indigenous Geoscience Community: Creating Capacity and Safe Spaces”**

11/3/21

**Note that Indigenous defines a people and the I should be capitalized.**

In your teaching and learning experience, what are the challenges that you have faced in your efforts of integrating traditional/indigenous knowledge and the western science?

**Some of the challenges is in getting permissions to use the stories, even being from the tribal community we have to ask permission and make sure that we interpret the story correctly without assigning our own personal bias which is easy to do. Another is in making people understand that knowledge from one tribe does not necessarily translate to another tribe knowledge systems are different.**

Thank you for the story about the sun/stars/moon and the water cycle, it was very nice! In the Pacific Northwest, there was a massive, thousand-mile long 9.2 Richter Scale earthquake in 1700 called the Cascadia Earthquake. Only two human records exist of it exist: the Japanese recorded a tsunami (they recorded that it lacked the usual accompanying earthquake), and the Native Americans in the area added the event to their oral traditions, describing it as a fight between a thunderbird and a whale. Are you aware of any historical events in your own tribe that have been passed down as oral “stories”?

**Yes there are stories of giants throwing massive “rocks” to make islands.**

Would you recommend educators adapt to a more traditional knowledge way of learning?

**Yes, but it takes building trust relationships with tribes to understand the meaning (how the community views the world) and intention of a particular story being used so that correct meaning is relayed. If you don’t understand world view then you are just taking a story and assigning your own world view. All of this moves forward honoring Indigenous peoples.**

What does this have to do with geoscience?

**Well if you listened to the lecture you would have had discussion about coupling TEK and STEM geoscience, and about creating a space for Indigenous Geoscientists to share their knowledge systems as related to geoscience.**

Has your community changed in significant ways throughout your life, or is it something you feel is more stable? I've had colleagues in situations where they felt the way their people celebrated customs changed immensely as they got older to reflect changing values, and others who have always looked to their traditions as something solid to fall back on when times are tough, and I wanted to hear your thoughts on your personal experience in that regard.

**Yes, my tribe has changed in their view of education as a result of the education work I do in the community, it has been tied to trauma from boarding schools. This resulted in stories, protocols, customs, and language not being taught out of fear. Today not only does the community view education as something positive, but there is a reclamation of culture and language which took time to get buy in from older generations.**

In your experience, do minority students tend to suffer from impostor syndrome more than average?

**Diverse scholars suffer from impostor syndrome more than definitely. However who are we defining as diverse? Academia was and is build around abelism, privlidge, and access which most racial and ethnic groups don't have access to, women don't have access to, and those with disabilty don't have access to. Currently studetns dealing with diverse gender identites are underrepresented and are not considered an underrepresented group by funding agencies so there are few programs for these diverse scholars. I am intentionally using diverse scholar rather than minority to change the language from deficit based to asset.**

In the effort to make STEM relevant to indigenous students, is it appropriate for nonindigenous teachers to teach indigenous concepts?

**SAME ANSWER AS Question listed above: Yes, but it takes building trust relationships with tribes to understand the meaning (how the community views the world) and intention of a particular story being used so that correct meaning is relayed. If you don't understand world view then you are just taking a story and assigning your own world view. All of this moves forward honoring Indigenous peoples.**

What are the greatest challenges that are encountered in reclaiming indigenous spaces for geosciences in a positive way?

**We are just now gaining capacity in that there are more of us getting advanced degrees and taking up space, the greatest challenge is from non-natives who do not want to let us in this space as it is what they built their career around and there is fear of power sharing or a sense of loss.**

Are the workshops mainly geoscience related or broadly applied to all disciplines?

**Geoscience is holistic in that it considers geology, physics, math, biology, chemistry, and social science. For example, ground water chemistry (geochemistry) is influenced by bedrock (geology), which influences the composition of microbial communities (biology) that use dissolved ions and recycle these elements (chemistry) into the rock record (geology). In addition, at one of my research sites there are more and larger berries growing, and the area is known to have the largest deer. The berry and deer size if due to the carbon and calcium rich rock which result in stronger bones and thus larger deer. In turn more community members come to this area to harvest berries and to hunt (social science)**

You talked about deconstructing traditional stories, and I do think there's merit to teaching students from them, but is it difficult for students to separate the cultural parts from the scientific parts?

**No, it is easier for them to relate to something they are familiar with and culture is part of everyday life so it does not seem so obvious when learning science concepts.**

Do you think social media has made inclusion easier or harder?

**Easier in that more people have access to learning and harder in that it has made negative behaviors easier as there is not repercussions and it is easier to be rude and disrespectful when you are not face to face with someone.**

Are there additional efforts or programs for indigenous women specifically, given the unique challenges faced by women in STEM?

**AISES and SACNAS**

Looking at your work with fossilized bacteria, if bacteria was found on the Martian meteorite, how would you tell if that bacteria was truly Martian or from Earth?

**That's the million dollar question: the work with fossilized microorganisms is to give us a better understanding of what a biosignature looks like or could look like and then we have to see if we can recreate without biology. As far as telling if it was from Earth or Mars this would be where metagenomics would come in to help answer that question looking at the genome.**

Is there also an Indigenous Astronomy Community?

**There are some people doing this and I will look to find the names.**

Do you see any differences with inclusivity among different genders in the Indigenous Geoscience Community?

**Not really.**

In what other ways can non-people of color promote indigenous voices in the sciences?

**Build authentic trusting relationships with communities, learn who you are working with and not working on, and as you do work with diverse communities give them voice. For example when you are asked to speak or write about a community allow a community member to speak.**

What would be the top thing grad students can do to make the community more welcoming?

**Include all gender identities, abilities, races, ethnicities and take time to share knowledge and cultural views of the world in a safe space.**

What are some common things that non-indigenous people do when interacting with Indigenous people that, although done with good intentions, are actually damaging?

**Oh, presume to be an expert in all things Native, knowing one Native community does not mean you know or can speak for another.**

**Maintain voice for the community, people become known as experts and are continually invited to speak about Indigenous people, knowledge, history etc., you rarely see these people invite a community member to speak or have a platform to share knowledge.**

Have organizations like the NSF or NASA been supportive of efforts to empower young Indigenous researchers?

**Yes, absolutely. There are policy changes in the works to acknowledge tribes as sovereign nations which has not been done before, and more diverse scholars are doing the work. One problem is that these agencies do not hire many diverse Program Officers and thus have non-diverse experts which is a problem.**

Has the tradition of indigenous people speaking up for their beliefs when something is wrong affected how non-indigenous people interact with them?

**Yes, absolutely. There is a mainstream majority and a lack of willingness to understand another's beliefs that is ingrained in US culture. Just because someone sees the world differently does not make them wrong or your view of the world wrong, we have to become comfortable being uncomfortable.**

How do you account for different land beliefs between different Native American groups when studying geoscience, or is belief in land usage fairly uniform between different groups?

**There is a common thread of relationality with connection to land, water, and air, but it is incredibly fascinating to see how different groups view them differently. Typically I engage in this as cross cultural knowledge exchange which enriches my understanding of land use in specific regions.**

How did you navigate out of particularly tough situations in academia that hit a nerve?

**I have maintained a cultural mentor and rely heavily on my elders guidance. While we often hear "its not personal" it absolutely is personal sometimes but we cant react with emotion we have to react with logic and that can be very hard sometimes.**

Why is it popular now-a-days to judge people from hundreds or thousands of years ago on today's standards - wouldn't that make every single human ever in existence a bad person in today's standard?

**Check out the book Unsettling Truths it is interesting to see how groups are viewed through history and how policy have worked to ingrain negative stereotypes.**

Have you found that it is easier to teach science through indigenous traditional knowledge with a certain age group of students?

**Yes, because it is something they can relate to and it is easy to tie science concepts when there is a foundation or something familiar to build on.**

What are some ways in which science organizations and their officers, such as the NSF, can improve in how they interact with indigenous students and communities?

**Continued trainings, NSF has been engaging in diversity training but it takes more than a single intervention, and there needs to be more effort in hiring diverse Program Officers.**

Because of hate crime, groups around the U.S interfere with the safety of indigenous people in the field and the statistical map showed hate crime groups in every state; what is being done to protect students that are in the field?

**Knowledge of knowing volatile areas, training of students and faculty, universities are providing professional university labeled magnets to go on car doors and official vests/jackets for students to wear to identify them as university affiliated researchers.**

As a teaching assistant, part of the curriculum (one lab) I was told to teach was to tell students to set up settlements in the southwest and find water and farm land and building materials. I am not an indigenous person to the region or even this body of land and I found the material incredibly insensitive. How would you recommend I teach this material that I am required to teach but recognize that it is incredibly insensitive?

**Discuss with faculty and leadership in department, discuss with on campus tribal organization to advocate for you.**

There must be many difficulties you have to confront when you conduct the project of scientific education to indigenous peoples, like the language and cultural differences. How do you overcome these problems ?

**My goal is to make western lesson modules and to allow tribes to pair lessons with cultural stories of their choosing and they incorporate their language.**

Would it be appropriate to seek out volunteer opportunities with a local indigenous nation as a white person?

**No, connect with a Native group or mentor on campus to help you.**