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Taking the Frog’s Eye View: How Place-Based Education and Talking
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Taking the Frog’s Eye View: How Place-Based Education and Talking Circles Foster Student Retention, Academic Achievement, and Life-Long Learning

*Emma S. Norman, Michigan Technological University*

In this article, Emma Norman argues that place-based pedagogy and talking circles are effective teaching methods for tribal college student populations, suggesting that these approaches significantly increase student engagement in class material and cultivate the desire for lifelong learning among students. As part of an action-research project designed to refine instructional methods to enhance student engagement and retention, Norman used qualitative research methods—including observation, evaluation, and reflection—to examine an entry-level core course she taught at Northwest Indian College from 2002 through 2011, Biology and the Natural History of the Salish Sea. Based on her research, Norman theorizes a four-stage process through which students connect with content and place: Awakening, Ownership, Empathy, and Cultural Relevance, with particular focus on the sciences.

**Overview**

Over the past several years, designing curriculum rooted in place-based pedagogy has gained increased attention in higher education (Bowie's, 2001; Fien, 1993; Smith, 2002; Tanner, 1998; Theobald, 1997; Theobald & Curtiss, 2000). Previous research has shown that situating course material within a place-based model can significantly increase student engagement and understanding of content (Gruenewald, 2003; Haas & Nachtigal, 1998; Smith, 2002; Stevenson, 2008; Theobald & Curtiss, 2000). Despite these findings, mainstream education policies remain rooted in generalized and universalized curricula that are void of references to a specific place or community (Gruenewald, 2003). In addition, the previous research has a limited scope, as it mostly centers on specific fields such as environmental education.

This paper broadens the place-based conversation to highlight the practices within tribal colleges to explicitly link course content to place.
— across the curriculum and between disciplines. In addition, the work reports on how restructuring the classroom dynamic to include talking circles is a successful classroom technique that allows students to build confidence, connect with the material, and gain critical thinking skills. Thus, this article examines how incorporating the pedagogical practices of place-based learning and talking circles into the classroom impact student connection to course material and cultivates a practice of life-long learning. This article follows both Cajete’s (1999) groundbreaking book, *Igniting the Sparkle*, which advocates the use of place-based education for Native students and the concept of seeing through a “frog’s eye view,” which advocates experiencing things “up close.”¹ The success of this framework is directly linked to what Native scholar, Galindo (2009), suggests is the ability to link the heart and the head through educational practice (see also Kanu, 2006). This article builds on these earlier works by suggesting that employing talking circles to process course material is more effective than traditional “lecture style” approaches, as it fosters a supportive environment.

I base my reflections on experiences working with student learners at Northwest Indian College (NWIC) on Lummi Nation (Bellingham, Washington, USA) over an eleven-year period (2001–2012). I also draw on the results of an action research project at NWIC in 2010, which explored how students responded to these pedagogical techniques. NWIC is a tribal college on Lummi Nation in the Pacific Northwest that serves more than 100 tribes and bands throughout North America.² The school’s mission is: “Through education, Northwest

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¹ The concept of “Frog’s Eye View” was first introduced to me by Native American scholar and writer, David Wilkinson. Wilkinson attributes his use of the phrase to Gunnar Myrdal’s influential book, *An American Dilemma: The Negro Problem and Modern Democracy* (1944).

² In addition to the main campus on Lummi Nation, there are five site campuses, including Muckleshoot, Nez Perce, Port Gamble S’Klallam, Swinomish, and
Indian College promotes indigenous self-determination and knowledge.” Place-based pedagogy and roundtable discussions are useful pathways to achieve this mission through the inclusion of ideological and cultural belief systems into the course curriculum (Kanu, 2006). Engaging these methods also help schools to actively meet goals of student empowerment — helping the students find their voice early in their educational career. Thus, situating course content within a framework advocating betterment of one’s own community is congruent with the core values and mission of tribal colleges. In order to work towards the mission of the college, I argue that the pedagogy is equal in importance to the content. “Igniting the sparkle,” as Cajete eloquently describes it, is crucial for a successful educational journey.

In the text below, I define place-based education and talking circles, present student reflections on the impacts of these methodologies, and introduce a new framework for characterizing the stages in student development.

**Place-Based Education**

Place-based education has several distinctive characteristics.

- It emerges from the particular attributes of place,
- It is inherently multidisciplinary,
- It is inherently experiential,
- It is reflective of an educational philosophy that is broader than “learning to earn,” and
- It connects place with self and community. (Woodhouse & Knapp, 2000)

**Place as Radical in Education**

Perhaps the most revolutionary characteristic of place-based education is that it emerges from the particular attributes of place. On

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Tulalip. Although the findings are applicable to all sites, the research was conducted at the Lummi campus.

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first brush, this idea may seem far from revolutionary. However, a survey of standardized educational curricula reveals that current educational discourse seeks to standardize the experience of students from diverse geographical and cultural places so that they may compete on a level playing field in the global economy. As Gruenewald (2003) notes, “such a goal essentially dismisses the idea of place as a primary experiential or educational context, displaces it with traditional disciplinary content and technological skills, and abandons places to the workings of the global market” (p. 7).

The study of places can help increase student engagement and understanding through multidisciplinary, experiential, and intergenerational learning that is not only relevant, but potentially contributes to the well-being of community life (Gruenewald, 2003; Haas & Nachtigal, 1998; Smith, 2002; Theobald & Curtsis, 2000). This model does not compromise the importance of content and skills, but rather enhances the curriculum through student engagement in community life and focuses on content that is meaningful for our students.

In general, place-based educators advocate a classroom experience that relates directly to student experience of the world, one that improves the quality of life for people and communities (Gruenewald, 2003). This is of importance particularly for Native American and Alaska Native students, who have the lowest rate of graduation from higher education of all ethnic groups in the United States (Bigfoot, 2008; Galindo, 2009). However, this approach can be useful to a diverse range of learners, including more traditional students in a larger university setting. In short, the ability to link content to values, content to culture, and content to community significantly increases the students’ engagement in class material.
Talking Circles

Equally important in learning how to engage with material (through place), is learning how to engage with the students in the class. The talking circle approach fits well with many Native students whose traditional life ways are based on collectivist, rather than individualistic values (Battiste & Barman, 1995; Cajete, 1999; Thom, 2010). This is in contrast to the lecture-style approach, which remains a dominant teaching style in mainstream educational institutions (Rhodes, 1988).

A talking circle approach provides the opportunity for every student to participate in discussion, in a safe, non-confrontational and non-hierarchical manner. Although talking circles — or peace circles — are traditional practice for Indigenous peoples throughout North America, the use of talking circles in higher education is relatively rare (Umbrecht, 2003). However, the application of this pedagogical strategy can yield numerous benefits to students, such as inclusion, opportunity to reflect critically, development of deep listening skills, preparedness, and patience.

The subject matter can vary, but the approach remains the same. In general, the method for a talking circle has several key characteristics:

1) The circle keeper (instructor) provides a brief introduction, sets a tone for interaction in the circle as relaxed and thoughtful, and also reminds the participants of the few ground rules.
2) Every student has a turn to talk.
3) The order is systematic, going from one student to the next, usually in a clockwise rotation.
4) There is no interrupting.
5) The student may choose to skip his or her turn. After the circle is complete, the student has the opportunity to contribute if they so choose. No one is 'forced' to talk.

The talking circle approach holds some similarities to the more commonly utilized roundtable approach, in which the tables are configured as a circle.
and the discussion is more open. Roundtable also is an excellent way to facilitate class discussion; however, it is important to be cognizant of the importance of opening up space for all students to participate. To ensure all voices are heard, I often start the class with a talking circle and then transition to roundtable and then small group work.

As discussed below, my experience suggests that it is possible to cover the same materials through meaningful discussions rather than lecture-style teaching, even in entry-level courses. A noteworthy benefit of this approach is that students must come prepared, having finished the readings (as they take ownership of the material, rather than having the material given to them by an instructor). In addition, the students move quickly into internalizing the material because they find personal connections to help connect with the material. Overall, my experience suggests that moving away from lecture style (where the teacher is the authoritative figure) to a talking circle/roundtable approach directly reinforces goals of student empowerment and self-determination; it contributes to goals of becoming life-long learners.

*The Practice of Place-Based Education and Talking Circles*

Place-based education and talking-circles can be implemented in a variety of settings and in a range of disciplines. For this project, I incorporated these techniques into the course, *Biology and Natural History of Salish Sea Basin*³ (BIOL 104), which is a required core class for all incoming students at Northwest Indian College. I designed the content of the course so major concepts are introduced and developed through a deep connection to place. That is, the material is linked to the local

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³ The official title of the course is “Biology and the Natural History of Place.” The “place” varies depending on the location of the course taught. On the Lummi campus, the name is “Biology and the Natural History of the Salish Sea”; on Nez Perce campus, it is “Natural History of Nez Perce.” The fundamentals are the same, but the examples and supporting material change.
waterways, terrain, and environmental issues. As the students gain understanding of wider ecological and biological processes, they begin to link the course content to the physical place they call home. Although many courses within NWIC curriculum employ the place-based approach (including literature, political science, and Native American studies), this is one of the first to explicitly employ the terminology and framework into the design of its curriculum, and it has served as a model for other course development.

In addition, this class provided me with opportunities for sustained evaluation and reflection, as I taught the course continuously between 2002-2011 (overall, I have 15 years of teaching experience in a higher education setting, 12 of which were at a tribal college). The evaluation of these techniques is based on in-class observations and attempts to adapt course material to reflect students' strengths and needs. To better understand how students respond to place-based learning and to measure connection to material, I monitored students' progress through a combination of writing assessment, class discussion, and presentations. For the writing evaluation, I used samples at the beginning and end of the quarter as well as weekly reflection papers. In addition, discussion during the field excursions and in the classroom were used to measure the students' critical thinking skills, and ability to link wider course concepts to place. In addition, as part of an action-research project, I closely monitored the progress of 12 students in the BIOL 104 course during spring quarter 2010. Although this class is required for all incoming students at NWIC (and it is best practice for students to take it

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4 The action-research project was part of a college-wide initiative at NWIC for faculty to refine instructional strategies to improve student learning. This knowledge exchange initiative was part of the W'oksupi Ojate (Wisdom of the People) Project.
their first year on campus), the students often range in educational status from first year to third year students.\textsuperscript{5}

The age of the students for the spring quarter course ranged from 18 to the mid-forties. However, in previous courses, the ages ranged from 16 to 80. The course description for BIOL 104 is:

Explore local ecosystem from the perspective of a natural resource with cultural significance. Themes may include salmon, water, or cedar. View complex nature of environmental problems from disciplines such as terrestrial biology, forest ecology, water, geological economics and policy.

In the sections below, I reflect on lessons gleaned from teaching from the frog's eye view and participating in talking circles.

*Learning from Students --- Connection to Place*

A central component of grounding the curriculum in place is the inclusion of experiential education (field labs) and service-learning projects. Every section of the course has a supporting field excursion that allows the students to contextualize the curriculum and supports exploration and understanding of place. The field component helps to sensitize students to the material through experiential learning, in which they use many of their senses to engage in the course material. Walking along the river's edge, the students feel the soil under their feet, they feel the crisp air on their cheeks; they hear the birds and the river running. They see how the trees bend over the river and provide shade to keep the water cool — a necessity for healthy salmon populations. These exercises help bring key ideas full circle by literally walking through the talking points discussed in the classroom.

\textsuperscript{5} This discrepancy occurs as students test into different courses. Students who take pre-college preparation courses (particularly in math and English) will wait to take the BIOL 104 course until they pass through these skill development courses.
To further emphasize the material (and reinforce place-based and experiential education) the course includes a service-learning component. Service-learning activities allow students to help meet a community need while applying course material to ‘real-world’ settings. Service learning usually has the following common attributes: the projects are place-based, experiential, community focused and they encourage both critical thinking and citizen engagement. Although there are many approaches to including service learning into the classroom, the following are five easy steps to plan for service learning projects: 1) identify the area in the curriculum you want to reinforce; 2) work with the relevant community partner or partners to define the service project; 3) plan ahead, plan early, and prepare students; 4) implement the service learning activity or activities; 5) reflect and celebrate.

For the Biology 104 course, the course content is linked to service learning projects coordinated with the non-profit organization, Nooksack Salmon Enhancement Association (NSEA) and an early childhood education program, Lummi Head Start. NSEA’s primary goal is to connect community members (through direct environmental education and restoration projects) with conservation activities that protect salmon habitat. Lummi Head Start’s mission is to prepare young children for positive associations with education and wellness. This mission aligns with the values and priorities of the wider Salish communities and student populations. In addition, partnering with these organizations affords the added benefit of a multi-generational approach by providing students the opportunity to teach the lessons of habitat restoration activities to the youth.

This teacher-training model has two important components: it empowers the college students to become teachers (a proven pedagogical approach for retaining material), and it provides role models for the youth (ages 4 and 5) as they see the NWIC students taking leadership roles and
advocating for a clean environment that protects salmon habitat. It also
fits in with the curriculum of the Head Start program (See Figures 1, 2, 3).
The third component involves taking the lessons learned back to the
entire Lummi Head Start program through a child-friendly science fair
which is based on one of the key themes of the class: salmon. This also
fits into a unit of the Head Start program, so we are aligning the goals of
three organizations with this single service-learning project (NSEA,
NWIC, and Lummi Head Start).

Figure 1: NWIC student, Wyatt Sewell, teaching Lummi Head Start
students about habitat restoration. Photo taken by author.
Figure 2: NWIC students teaching Lummi Head Start students how to plant trees along a river bed. Photo taken by author.

Figure 3: First Graduate of Northwest Indian College’s Bachelor’s of Science Program, Jessica Urbanec, teaching Lummi Head Start Children about Salmon Cycle at the Lummi Head Start’s Science Fair. Photo taken by author.
Reflections on Student Transformation and Connection to Place

Through years of teaching, I began to see patterns emerging related to students' connections to material and place. To help characterize these transitions, I suggest the following schematic loosely defined into four stages:

1) Awakening
2) Ownership
3) Empathy
4) Cultural Relevance

In the Awakening stage, students realize an interest in the course material and begin to draw connections with place. The students tend to realize that the natural world has many interesting and important characteristics that hold direct and immediate significance for themselves and their community. During this stage, students will often reflect on how they are seeing the world through a new lens. As one male NWIC student noted, "I thought I hated Biology, but now I see that there is so much more to Biology than what I learned in high school." Another middle-aged returning female student noted, "Science was always my bad subject, but now I see that science is everywhere, in everything that I do." It is often common in this stage for students to start linking their daily life practices with the Biology of the area. One female student and mother of three noted, "Everywhere I look now, I see the importance of the natural world. It has always been there, but I now I see it."

The reflection paper from one young female student from the Lummi Community in BIOL 104 (an independent learning course where the labs are built in as take-home exercises) demonstrates this awakening stage. She writes:
As I approached the beach I could hear the very familiar sound of the breeze through the grasses and the waves splashing on the shoreline. The smell of the salt water that always told me I was home. I lived in New Mexico for a period and always looked forward to the smell of the salt water every time I had the chance to come home to Lummi. The area of the beach I went to was more rocky than sandy and faced toward Bellingham Bay. The larger rocks near the road, occasionally, have indents on their surfaces indicating that they have been worn down by the wind and spray of salt water over the years. There aren’t any sand dunes in this area, but on the sparse patches of sand, you can see where the recent currents have shaped the flow lines into the sand.

She concludes by reflecting,

Life here on the Lummi reservation, with its many places to observe wildlife on the edge of salt water, is an excellent place to grow up and have the chance to learn about all the wonders of sea life and life on the shore. It goes without saying that I’ll definitely be spending time on the beaches again and again. (To read full reflection, see Appendix A)

In the Ownership stage, students begin to draw more explicit, unprompted connections between material and their experiences. In this stage, students begin to do what I call “metabolize the material” — that is, they make it their own.

In one poignant vignette, a 20-year-old male student from the Lummi campus connected a childhood memory with a class lesson on estuaries. We were standing on a bridge over the mouth of the Nooksack River conducting a water quality test. As one of the students read out the results of the salinity test, the young man shared his “aha” moment: “I remember horning around in this river as a kid — one day a bunch of us jumped off the bridge and I got a mouth full of water. My mouth tasted salty and I remember being surprised. I always wondered why the water
was salty because the river came down from the mountains. That question stayed with me after all of these years. Now I know it is because the water is part of an estuarine system and the water is brackish.” This moment was a turning point for this student. After that defining moment, the student became increasingly engaged in the course and consistently came to class engaged and ready to share insights and outside materials.

In this stage, it is common for students to start visiting with relatives or community members to further investigate the questions that come up in class. For the coastal communities, many of these conversations relate to stories of fish. The historical culture abounds with stories of fish being so plentiful that the rivers were darkened with the returning salmon. In one case, a young male student visited his uncle who had told him about the increased prevalence of diseased fish along the Columbia River. Now, understanding the causal relationship between environmental change and the changing fish made him want to learn more about the direct causes of this change and what could be done.

In the Empathy stage, students start to problem-solve. Having metabolized the information, they can better articulate how their actions have direct and immediate impacts on their natural environment. Place becomes very important at this stage as students explore how changes in the environment have direct relevance to the students' community. In this stage, the processes move from the abstract to the personal. The quote below from a student in the Spring 2010 course reflects this stage:

There comes a point when meditation is necessary. You can stop whatever you are doing to take a deep breath and focus your mind. When the class is together there is a lot of knowledge in that one room and if you put everyone on together — problems are solved. The Northwest Indian College has opened my eyes and this makes me smile repeatedly. All the hopes and dreams that are developed here will help the whole community
and beyond. How can we stop the bad and replace it with the good? We all have to think about this every day.

This phase can be extremely empowering, as students find ways to feel they can make a difference. However, this stage can also seem overwhelming, as many of the impacts on culturally-relevant resources in tribal communities are extra-territorial and not necessarily controlled within the community. Examples include such things as the way global climate change affects salmon populations or how the conversion of upland habitat affects access to and availability of medicinal plants. Service-learning projects such as the ones described above are well-suited for this stage, as it is designed to help connect students with options to facilitate change and to take charge of a situation. Reinforcing ways that the students can reclaim these important resources through political voice, building allies, or habitat preservation within their own community, helps in this transitional stage.

Lastly, the Cultural Relevance stage is where students begin to see the connections between traditional knowledge and scientific inquiry. In this stage, students transcend the conceptual dichotomy between “Western Science” and “Traditional Ecological Knowledge” (TEK) and are able to identify the overlap between the frameworks. This transition requires a higher level of comprehension and understanding of theoretical concepts such as the production of knowledge, discourse, and power. The end result is the understanding that applied “science” is integral to a traditional Native American lifestyle and has much relevance to their communities. Further, they learn that the traditional knowledge base is a valid and important form of scientific inquiry. This is an important stage for students, because it opens them up, making them more receptive to new ideas, and builds confidence in their academic aptitude. It also assists them in moving beyond the idea that science is somehow not relevant to
them, or that they are not good at the sciences. Overall, this stage allows for a validation of worldviews and an empowerment related to self-determination and governance.

Talking Circle

The talking circle approach has the added benefit of engaging students in critical thinking, which is important as students explore concepts of “multiple ways of knowing” in multi-cultural education (Deloria, 1990). A central value of this approach is that every student has an opportunity to participate through speaking and listening to their peers. This is important, particularly for more reserved students who would not necessarily participate in open-ended discussion.

In addition, this shift naturally opens up conceptual space to incorporate culturally-relevant material into the course material — a goal central to the mission of tribal colleges such as NWIC. By bringing the course content to the table and soliciting feedback through guided conversation, incorporation of cultural content into classroom discussion occurs effortlessly and through the voice of the students. This shift, in turn, mitigates the need for the teacher to be the “expert” regarding cultural content in the course — something that is unrealistic in a multi-cultural setting, as the quotation below illustrates:

You cannot, and need not, be an expert on the aspects of all the different cultures represented in your class, but you should be sensitive to the fact there are differences and that such differences must be treated respectfully. (Howe, 2009)

In short, adapting to a roundtable style holds numerous benefits:
1) The less formal setting puts the student at ease, encourages greater participation and fosters trust between students and faculty;

2) The students learn from each other; they become the “experts” in their own field and are able to link their own experiences to the curriculum. This grounding of material helps students retain information;

3) This style provides sufficient flexibility to respond to “teachable moments,” such as current events that link to curriculum;

4) Students remain engaged throughout the class periods, as there is less opportunity to “check out” in a roundtable setting;

5) This approach resonates with many of our students who are familiar (and comfortable) with talking circles;

6) The students come to class more prepared, as they are accountable for the out-of-class materials. They read the assignments (and pre-process the material, which is a much more effective use of class time). This is in line with the newly conceived “flipped teaching” methods, which are advocated by universities such as Harvard and Stanford. In this approach, the first exposure to course material occurs outside of class, while class time is dedicated to processing the material.

7) This approach is congruent with a collectivist or communal framework — in which the class progresses as a whole — which is a common governance style for Coast Salish communities.

Building Trust

Physically moving the tables around to form a roundtable, where students feel that they are on equal footing with the rest of the class and with the instructor, has proven to foster dialogue and trust between students, and between students and the instructor. This roundtable approach provides the opportunity for students to speak with their peers and build on ideas in class. Such a setting also allows students and instructors to pick up on subtle questions that often are lost in a lecture-

Flexibly appro proximating “cogni tive learning” to teach in a more “real-world” Cultural context to be re sure the classroom relation circle an framework is a cult from Cc of the cl together articulate
style environment. Students and teachers often reflect on how much they learn from each other’s insights and are able to see the similarities and differences between perspectives.

Flexibility and Teachable Moments

Talking circles fall under the umbrella of “active learning,” an approach which educational theorists have long linked to greater retention of ideas (Bruner, 1961). More recently, theorists have suggested that being “cognitively active” rather than just “behaviorally active” promotes higher learning in the classroom (Gersten & Baker, 2000). From my experience teaching an entry-level biology course in this manner, I have found that students come to class more prepared, and bring in extra material, such as newspaper articles, that builds on the course content. They generally are more engaged in the class and they are able to link course material to “real-world” issues, all of which promote retention.

Cultural Content

Educational studies generally have recognized that teachers need to be responsive to how students learn to learn at home so that they make sure the “work contexts and social interaction requirements of the classroom” are “made compatible with work contexts and social relationships in the culture” (Jordan, 1984, p. 62). Given this, the talking-circle and roundtable approach fits well with a collectivist and communal framework, in which cooperation for the greater good of the community is a cultural value. This plays out in the classroom as students, particularly from Coast Salish communities, generally work toward the greater good of the classroom in which they literally and figuratively are “all in this together.” The metaphor of “pulling together” is often used at NWIC to articulate how all paddlers — in this case, students, faculty, staff,
administration, and community members — need to be equally strong to meet the goals of the college.

Educational theorists Reyhner, Lee, and Gabbard (1993) observe that: “Higher education accreditation requirements push tribal colleges to follow traditional [mainstream] patterns, while teacher certification requirements of both public and Bureau of Indian Affairs schools reinforce that trend. But research in Native education in particular and minority education in general indicates that these institutions should develop unique programs to meet the special needs of Native students.” Although accreditation practices have become more flexible since this observation, it is imperative for tribal colleges to continue to work towards fostering educational practices that match with the learning style and approach of the communities that they serve.

Round Table and Interactive Television Classroom (ITV)

For many tribal colleges, ITV is an important component of the educational experience. For students at satellite schools, it is important to be able to connect to students remotely; I have found that it is still possible to reap the benefits of talking circle approach using an ITV system. In fact, this type of engagement allows students to feel more connected, and they listen to their peers intently as they reflect on readings and class material, each in turn. This can be made possible by positioning the camera and television at the end of the table. The off-site students mirror the set up of the roundtable on their end, thus creating a virtual roundtable. The same effects can be experienced with the off-site students, particularly if the instructor actively encourages and guides cross-dialogue between sites. After a couple of prompts for discussion between sites, students begin to develop a rapport with each other (and trust), and communication happens effortlessly.
First Generation Students and Retention

The roundtable approach is an effective strategy for teaching first-generation college students. Wilson (2009) promotes this more informal teaching approach as a way for students to feel more comfortable in the classroom. For first generation college students, creating a learning-conducive environment can be crucial for overcoming barriers associated with being the first in their families to attend college. This is particularly important for first-year courses where students are becoming "imprinted" with the college experience. Ironically, seminar-type discussions are generally reserved for third or fourth year courses. As a smaller community college, with exceptional teacher-student ratios, NWIC has the flexibility to include seminar-style courses in introductory courses. Research suggests that engaging the students in this rewarding and thought-provoking learning style early on in their educational careers will have the added benefit of increasing retention (Wilson, 2009).

Ongoing Reflections

Teaching, like learning, is an ongoing process. I always tell my students that my goal for them is not to walk away with a list of facts that they can rattle off at the end of the quarter (and all too often forget after the term is over). My goal is for students to become life-long learners, to engage with material in a way that ignites a passion so deep and a curiosity so strong that students undertake a transformation in how they see the world.

Thus, approaching teaching as an opportunity to open up space for self-discovery, to allow students to look critically at the material presented to them and to place the material within a historical context affords a rich tapestry of discovery. This approach allows students to engage with the course content in a manner and context that is
meaningful to them and their communities. In this framework, the instructor serves as a guide in the educational process. The instructor takes on the role to help students find their way — keeping enough distance for them to explore but not letting them stray too far, and intervening in key moments to offer insights or to challenge thinking.

There is no formula for this work. However, the most important ingredient certainly is trust. Creating an environment where students trust the instructor — and each other — is essential to undertake this cognitive growth. The challenge in a classroom is to create an environment where students feel safe enough to let down their defenses and open themselves up to engage fully in the learning process. When students commit to this engagement, amazing growth occurs. Transformations transpire where students build confidence and, in turn, hone important skills to grow academically as well as personally.

To meet these goals, it is imperative to cater to diverse learning styles. In this article, I have described two such approaches: the place-based model and the talking circle approach. I have reflected on how these approaches enhance student engagement with the material, promote connectedness between students and their environment, and help reach goals of self-determination by opening up space for student participation. As the students gained understanding of wider ecological and biological processes, they were able to clearly link the course content directly to their physical surroundings. The exams, research papers, and weekly reflection papers showed a high-level of comprehension of the course material, and a level of empathy that is linked to the educational framings. In addition, I found that the students became more exposed to (and connected to) their natural surroundings; they were able not only to articulate the relevant biological and ecological concepts relevant to the geographic region, but also could take that knowledge further by linking to community needs and concerns. These approaches, I suggest, help to link
content to values, culture, and community, which, in turn, significantly increases the students’ engagement with class material. Perhaps most importantly, it helps them make great progress toward becoming “life-long learners.”

All disciplines have the potential of engaging these models to help students strengthen the link between community and education. These pedagogical tools have a tremendous potential to enhance the students’ classroom experience, increase retention, and have our students become “ignited” by a journey of life-long learning and self-determination.

References


APPENDIX A:

BIOL 104IL Report

Lab 2 – Ecology of the Edge of Salt Water

The area of land along the shore of the Lummi reservation is very rich with wild life; from birds and waterfowl to shellfish and various starfish and anemones. There are several different species of animals throughout the year and often vary from season to season. Having grown up on the Lummi reservation, I was able to take advantage of the knowledge of the better places to see the different types of marine life in person on several accounts. I’ll go over the things I was able to observe on my trip to the beach.

As I approached the beach I could hear the very familiar sound of the breeze through the grasses and the waves splashing on the shoreline. The smell of the salt water that always told me I was home. I lived in New Mexico for a period and always looked forward to the smell of the salt water every time I had the chance to come home to Lummi. The area of the beach I went to was more rocky than sandy and faced toward Bellingham Bay. The larger rocks near the road, occasionally, have indents on their surfaces indicating that they have been worn down by the wind and spray of salt water over the years. There aren’t any sand dunes in this area, but on the sparse patches of sand, you can see where the recent currents have shaped the flow lines into the sand.

There isn’t much vegetation along the shore, but in there is evidence of the plant life in the intertidal zone. Large stalks of kelp (Nereocystis luetkeana) as well as several beds of eelgrass (Zostera marina) along with other types of seaweed can be found throughout the area; although the part of the shore that I visited didn’t have much of this here.
I had the opportunity to see quite a bit of bird life along the shore while on my visit. I was able to observe two fantastic looking specimens of the Bald Eagle (Haliaeetus leucocephalus) watching out from their high tree top perches, waiting to see a fish that it can make a dive for. I was able to learn that, not only do they like to eat Salmon, but they also prey on trout. One thing I didn’t know about the Bald Eagle is that it is an opportunist and will scavenge food from places like campsites and/or dumpsters. Eagles will also prey on mammals such as rabbits, raccoons, beavers and deer fawns. Even though I’ve seen these majestic birds more times than I can count, I still stop and watch them flying or
sitting in the high tree, where they build their large nests. Another bird, waterfowl, I observed was the Seagull (Larus californicus). There were several floating out along the surface of the water, while still more of them were patrolling the shore in search of food.

** Pictures courtesy of Wikipedia

Walking among the rocks of the intertidal zone, I was able to see several of the life forms that wait for the tide to come back in. One of the
The largest creatures I noticed was the Sunflower Starfish (Pycnopodia helianthoides), which I've always found a bit interesting yet disturbing. I've always thought they looked like they're bleeding through cracked flesh. They usually have as many as twenty or more arms, or rays that will grow back if they are detached from the body. They feed on a wide variety of shellfish and even live or dying squid.

**Pictures courtesy of Wikipedia**

I also had the chance to find a couple of one of my favorite shellfish to eat. The Dungeness Crab (Metacarcinus magister), staying wet and cool among its bed of eelgrass where it prefers to hide when the tide is in as well. They have incredibly strong pincers on their front legs that will grip and can cut up their food. I know this from personal experience; their pincers hurt very badly. I've had quite a bit of experience catching them out on the waters of Puget Sound with my Uncles and noticed that they'll eat just about anything.
I didn't notice any mammals along the beach that made the shore their home. From my experience, at least along the shores of the Lummi reservation, there aren't any that live on the beaches. There is, of course, the occasional domesticated dog that roams the reservations. There is however an estuary at the mouth of the Nooksack river where it drains into Bellingham Bay. An estuary is an area of land where a river or stream (fresh water) drains into a bay, or the open sea (salt water). They are always teeming with life; from birds to mammals to shellfish and spawning fish. The soils around the edge of the land are usually rich and dotted with clams and different types of food for the larger animals. Estuaries are subjected to conditions of the sea, such as tides and waves, as well as flows of fresh water and sediment from the rivers that drain into them. The tides of the oceans and seas are pulled in and out with the gravitational pull of the moon and sun, along with the alignment of the Earth. They generally last approximately twelve hours. The shape of the near-shore bottom also plays its part in the transition of the tides.

Life here on the Lummi reservation, with its many places to observe wildlife on the edge of salt water, is an excellent place to grow up and have the chance to learn about all the wonders of sea life and life on
the shore. It goes without saying that I'll definitely be spending time on the beaches again and again.