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Educating the Mind and Spirit

MELLON TRIBAL COLLEGE RESEARCH JOURNAL
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Foreword

Cheryl Crazy Bull, President and CEO
American Indian College Fund

Mitakuyepi, my relatives.

An incredible shift in research and scholarship has occurred in indigenous communities over the last 45 years, and Tribal Colleges and Universities (TCUs) lead the way. This shift is toward a deeper understanding of how research can be a tool that informs our approach to the challenges and opportunities of modern life for American Indian and Alaska Native citizens. Native scholars have guided the practice of research — along the continuum from identification of the problem to the presentation of findings and recommendations — into the realm of the personal and spiritual. No longer is research done on Native people for the purpose of investigating them or preserving their knowledge. Now research is conducted by and with Native people in order to help us address our current circumstances and to prepare the path toward our prosperous future.

The American Indian College Fund is honored to be a part of this incredible shift through the sharing of the research of the scholars who are part of the College Fund's fellowship programs. These scholars are among the creators of the new indigenous research agenda that has emerged in the higher education world. The College Fund's publication of this research series featuring the Andrew W. Mellon Fellows who are all tribal college faculty contributes important information to the current body of indigenous knowledge. The Mellon Fellows represent diverse areas of study and diverse TCU populations. Some of the Fellows are themselves indigenous while others are not. Some Fellows remain at TCUs upon completion of their studies while others move along different

career paths. What is significant is that each of the Fellows studied and learned within the physical, cultural, and societal framework of their host tribal college. The resultant research, and now its publication, reaffirms the place-based, unique identity of each tribe and its post-secondary institution.

Writing this introduction prompted me to look back at the early years of my involvement with the field of research in tribal communities. In 1996, I had the opportunity to serve as the reporter of a gathering of scholars hosted by the Tribal College Journal (TCJ) at a summer convening of the American Indian Higher Education Consortium. This convening marked one of the first times that the tribal colleges were able to bring several of their scholars to a place where they could share their work. This gathering at Orcas Island in the waters of the Pacific Northwest was reported in the Summer 1997 issue of the Tribal College Journal (Volume 9, Issue 1). It was at this convening that I made the connection that our tribal ways of knowing were based in "intuitive, spiritual, and experiential knowledge" and that indigenous knowledge is alive and as valuable as any scientific knowledge. In fact, indigenous knowledge is so holistic and integrative that it may have greater value than knowledge that we gain solely through the observation and discovery methods of western science.

In Volume I, the College Fund's Mellon Fellows present a variety of research. The range of research — from practical to conceptual to theoretical — correlates with the experience of indigenous scholars all over the world. Most significant, however, is that all of this research is culturally informed — the experience of developing and conducting the research is as culturally informed as the findings and recommendations. The basis of the research experience is not just to report findings on an important topic, but to show that indigenous communities have an investment in the practice of research. Research helps us remain a living

people; research helps us solve problems; research helps us gather wisdom; and research helps us see ourselves as possessing great intellectual and spiritual capacity.

> *Just as the seventh generation of our ancestors before us thought of us even though they did not know us, so must we think of our future generations. We were loved by our ancestors so they left us with the culture we live today. We must do the same. We must leave a rich culture, enhanced by our tribal commitment to knowledge gathering and sharing. How we share our stories and our experiences will be our test. This sharing constitutes our campfires, our lodges, our relationships, our research voice.*

The above paragraph, which closes *A Native Conversation about Research and Scholarship* published in the 1997 TCJ issue referenced earlier, is still timely and still true. Our indigenous scholarship builds our communities, tells our stories, and ensures our prosperity as distinct tribal peoples.

Wopila, thank you.

Introduction

Ethan Yazzie-Mintz, Editor-In-Chief
Mellon Tribal College Research Journal

Welcome to Volume One of the Mellon Tribal College Research Journal, a journal published by the American Indian College Fund and funded by the Andrew W. Mellon Foundation. This effort brings to the fore one of the hidden treasures of Tribal Colleges and Universities (TCUs) --- research conducted by faculty and students. Since 2003, the American Indian College Fund has partnered with the Mellon Foundation to support tribal college faculty through fellowship programs, producing a fascinating and wide-ranging body of research and scholarship. This current effort provides a forum through which this research can be published and disseminated to the wider communities of research and practice, and offers these scholars the opportunity to engage in the writing and publication process.

TCUs traditionally are teaching institutions, driven by mission, tied to place, and based in their respective Native culture and language. Research emerging from TCUs is often locally-based, much like the TCUs themselves, conducted for the improvement of the TCUs. However, this research also carries important lessons and implications for the wider education and research communities; this journal is a first effort toward connecting this research to these larger communities. The pieces in this volume --- written by current or former TCU faculty and students --- open up a world of scholarship generated by these teachers and researchers, many of whom have attained or are pursuing doctoral degrees in a range of fields.

TCUs are unique among institutions of higher education, as sites that continually wrestle with issues of culture, language, politics, place, curriculum, and pedagogy, all framed within their commitment to the

people and nations they serve. The importance of the research that emerges from these institutions is built on their ability to simultaneously address these issues, serve the local communities, improve education for students at their institutions, implement a variety of research methodologies, and generate new knowledge.

Matthew Martinez's historical piece, *Travels And Image Making In The Land Of Enchantment, 1880-1940*, uses archival research and personal history to tell the story of the role New Mexico Pueblos played in the tourism industry in New Mexico, as the territory marketed itself to outsiders and moved toward statehood. Martinez uses these multiple lenses and research methodologies to bring new insight to the concept and politics of "tourism," a term often used to denote outsiders looking in at a static phenomenon. Analyzing the tourism industry during this period from the Pueblo perspective, Martinez opens up a new way of understanding "tourism":

> *Over the last hundred-plus years of involvement with tourism, Pueblos have developed a culture that is conducive to maintaining Pueblo values and sensibilities in ways that are not kept frozen in time. Tourism for the Pueblos is about creating meaningful relationships with the modern world on their own terms. The persistence of securing a human existence for future generations has always been a core indigenous and Pueblo value.*

TCUs are the ultimate institutions of personalized learning in higher education, in that curriculum and pedagogy are closely tied to local culture, language, and place, and continually face the challenges of providing the kind of teaching and learning that are effective on both an individual and institutional level. The authors in this volume investigate and analyze various aspects of these challenges that TCUs face, with important implications for the wider educational community.

Carmelita Lamb, in her article, *Cohort Model Learning Communities: The Tribal College Perspective of Best Practices in Teacher Education*, examines the practice of learning communities in the six tribal colleges that were

implementing this educational innovation at the time the research was conducted. Lamb's analysis of her data reveals important lessons about the effective use of learning communities in tribal colleges, as well as the connections between the principles driving this innovation and students' traditional ways of learning and knowing. Learning community practitioners outside of TCUs will gain a great deal of insight from Lamb's research as well.

Jessie Antonellis takes on the critical issue of non-Native faculty members at TCUs in the sciences. In *Third Space for Cultural Relevance and Conceptual Understanding in the Tribal College Science Classroom*, Antonellis examines her own practice as an "outsider" teaching at Tohono O'odham Community College (TOCC), investigating her work with students in the *third space*, the dialogue between the content and the personal:

> *…allowing students free reign to make connections – with their culture, their interests, and their personal lives – and empowering them to make decisions about their own learning – including what to learn, how to learn, and how to assess that learning – were all means of encouraging students to develop meaningful conceptual understanding. The third space created in the classroom by the students and instructor gave voice to the struggle to build these conceptual understandings, and space to ponder the implications in the group setting.*

Ildiko Melis examines the awkward phenomenon of using standardized assessments for writing and math placement at a tribal college, in her article, *Mission not so Impossible: Standardized Testing in a Tribal College*. Melis highlights the conflicts between standardization on one hand and local knowledge and assessment on the other. While standardized assessments are an issue for debate across the educational landscape, Melis, through analysis of both observational and student survey data, sees possibilities when tribal colleges focus on their mission while utilizing standardized tests, and incorporate local practices in test preparation and administration.

How do science instructors integrate culture and curriculum at tribal colleges? Stephanie Grater and Jessie Antonellis, in a unique student-faculty collaboration, take on this question in their article, *Tribal College Faculty Motivations for Integrating Science & Culture*, surveying science faculty members on their perceptions of their work. Providing "culturally relevant" and "culturally appropriate" curriculum and pedagogy for students is critical at TCUs, as it is across many educational institutions and communities. Grater and Antonellis, in their analysis, provide widely applicable lessons on the importance of understanding the culture --- including ways of knowing and ways of learning --- of students and sharing power in the classroom to create effective teaching practices and maximize student learning.

As part of an action-research project designed to improve instruction and strengthen student engagement and retention, Emma Norman investigated her own classroom at Northwest Indian College, examining the effectiveness of place-based pedagogy and talking circles for tribal college student populations. Norman's article, *Taking the Frog's Eye View: How Place-Based Education and Talking Circles Foster Student Retention, Academic Achievement, and Life-Long Learning*, presents her theory of a four-stage process through which students connect with content and place: Awakening, Ownership, Empathy, and Cultural Relevance. Norman's work provides insight for instruction focused on engagement and relevance, an important area of research and practice within the current educational environment.

These articles in Volume One comprise an exciting body of research and insight. The research is both personal and rigorous; the analysis both innovative and familiar; and the lessons both local and far-reaching. We hope that this will be a groundbreaking volume, bringing important scholarship to audiences both inside and outside of TCUs. And we hope that the ground will not stop breaking, opening up the

world of scholarship within TCUs to the wider educational and research communities while simultaneously fostering the development of Native scholars and scholars serving Native students. Enjoy this first volume, and thank you for joining these scholars on their journey.

Travels And Image Making In The Land Of Enchantment, 1880-1940

Matthew J. Martinez, Northern New Mexico College

The tourism industry in the Southwestern United States is embedded where American Indians continue in the nation's imagination as artisans, as living relics of the past, and as performers of spiritually authentic rituals. In order to understand travel in New Mexico, it is critical to recognize how Pueblo people have shaped and engaged in tourism practices. In this article, Matthew Martinez highlights how, beginning in the late 1800s and into the early twentieth century, narratives — through travel writings, postcards, and performances — became central to the marking and marketing of New Mexico. Starting from a very personal point of view and then widening the lens, Martinez examines the conflicts, challenges, and, ultimately, the critical role the Pueblos played in the economics, politics, and narratives of the tourism industry in New Mexico, as the territory moved toward and beyond statehood.

Fig. 1: "Greeting the First Iron Horse"
Courtesy of Douglas Johnson, 2007[1]

My *Sa'yâa* (grandmother) was most comfortable sharing stories in her home located just outside the main village area in Yungeh — a quiet place surrounded by fruit orchards, horses, and fishing holes. Our

[1] The image is by Douglas Johnson, who is an avid painter of Southwest indigenous peoples. I shared my story with Douglas and he was inspired to paint a rendition of how Tewa people may have gathered to bless the train. For more examples of Douglas' work, see *Douglas Johnson: A Painter's Odyssey* by Robert A. Ewing, Clear Light Publishing, 1998.

family's kitchen table often served as a meeting ground for storytelling and sharing food with all who came to visit. During one of our many conversations I asked my *Sa'yâa* about stories she knew about the railroads. As a kid I was fascinated with running along the old tracks that crossed near the property. She recalls the following story when the Denver and Rio Grande Railroad arrived in 1890 in northern New Mexico:

> My grandfather told me a story about the train, about when the whole village came to see what the train looks like. They [Tewa people] came with cornmeal. Cornmeal is used to pray in Indian whenever they [Tewa people] go anywhere, when they gather medicine from nature they always throw cornmeal and ask for the earth's permission to get the medicine and tell her what they need it for, before they take it — and that is the same way for pottery clay, always throw cornmeal, ask for clay and tell her what they need the clay for. So they came prepared with cornmeal when they heard the train whistle. There used to be a hill that came down, where the river [Rio Grande] came around, the train track they had to cut into the hill to make it run straight through. The train whistled loud, you know how it steams loud and sounds like it was breathing hard, so they thought it was alive and they were afraid of the loud sound. . . [they said] you're welcome to come here but please don't be angry, come peacefully, and then they threw cornmeal. It stopped. They said it was breathing hard; [they] thought it must have come from a long way and was tired. That was their first sight. After that they [presumably railroad staff] told the Indian people they could travel for free, for free anytime they wanted, anywhere the train took them. [There would be] plenty of places to sell their pottery. [Pueblo] People sold mostly pottery to the people on the train. They could travel anywhere they want, anytime to sell their ware to other places." (Martinez, 2003)

This was the first sight of the *ohibay,* steam container, for the Tewa people in 1890 (Fig. 1). The train officially known as the Denver and Rio Grande

Railroad cut through much of the northern Pueblo villages. No longer in existence, the paths created to lay the tracks are still visible today on the western banks along the northern pueblos of Taos, Ohkay Owingeh, Santa Clara, San Ildefonso, and Tesuque. The railroads that cut through New Mexico sparked a new change and transition into the cultural landscape that would be evident in the decades that followed.

Railroad travel catapulted Pueblo Country into a new time and space that quickly made lands accessible from coast to coast. Growing up in Ohkay Owingeh (formerly San Juan Pueblo), located between Santa Fe and Taos, New Mexico, I was exposed to a culture of tourism at an early age. As a child I remember my father telling me stories of visitors passing through the village in the summertime. My father and aunts recalled how, as children, they used to sit at the church and wait for tourists to drive by so they could get paid to have their pictures taken. They would then walk across the street to the general store to buy pockets full of penny candy. A nickel back in the late 1940s and early 1950s would buy plenty of sugar goodies to spread among their brothers and sisters.

This article carries a personal connection to place and experience. Writing about *naví Towa* — my Pueblo people — was a logical research step for me to pursue. My research path has created an opportunity to explore questions I developed on travel, home, and the places in between that shape who we are as Pueblo people. By conducting archival research, this article seeks to demonstrate how Pueblo people have shaped and engaged in the larger tourism industries.[2] Beginning in

[2] For this article I conducted archival research at the Western History Collection at the Denver Public Library, Colorado Historical Society, Photo Archives at the Palace of the Governors in Santa Fe, New Mexico State Records Center and Archives and the Patricia C. Albers Postcard Collection at the University of Minnesota. The aim of sifting through these collections was to survey the travel images and narratives produced to better understand the historical context of tourism and Pueblo history.

the late 1800s and into the early twentieth century, this article draws upon historical narratives – through travel writings, postcards and performances – to illustrate the makings and marketing of New Mexico.

Railroad Travels, 1880-1917

The Bureau of Immigration of New Mexico was established in 1880 and was comprised of twenty commissioners. The primary duty of this agency was to publish information concerning economic issues of Territorial New Mexico to attract outside capital and immigration into the territory. More importantly, another agenda of the Bureau of Immigration was to convince Congress that Territorial New Mexico was well underway to achieving statehood (Camp, 1881a). After all, neighboring Colorado became a state in 1876 and many felt it was time for New Mexico to become the next state. Part of the practice of convincing Congress was by improving the capital of New Mexico and the marketing of state landscapes and cultures in a more palatable form.

One of the earliest state-organized events to promote tourism to New Mexico was the 1883 Tertio-Millennial Celebration and Exposition that commemorated the 333rd anniversary of the "founding" of Santa Fe designed to "attract the attention of eastern people to Santa Fe, to induce them to visit the city and thereby to acquaint them with its historic interest, its climatic excellence and its great business advantages" (Trujillo, 2003, p. 28).[3] The Exposition reflected much of the conventions of World's Fairs during the same time period which positioned American Indians as relics of the past on a path toward modernity. One Tertio-Millennial brochure advertised the following:

> exhibits of Indian and Mexican relics, curiosities and antiquities; Indian games, dances and feasts by bands of Pueblo, Apache and Navajo Indians; demonstrations of

[3] Original citation quoted from *Daily New Mexican*, 11 December 1882.

> Navajo weaving, Apache beadwork and Pueblo pottery; demonstrations of lariat-throwing by Mexican vaqueros; and other characteristic "Spanish and Mexican" games.[4]

According to Dennis Trujillo (2003), "what the local exposition did was to codify the expectations of marketing in the West and set an example for the larger World's Columbian Exposition in Chicago in 1893 and the Trans-Mississippi International Exposition in Omaha in 1898" (p. 31).

From the Bureau of Immigration's point of view, the Tertio-Millenial Celebration and Exposition was a success that spurred the development of statehood. This was despite the fact that three years earlier the United States was experiencing conflict between Apache tribes, territorial law enforcement and the Mexican army. In 1886, the War Department put five thousand soldiers into the fields to capture Geronimo and his "army" of twenty-four members of the Chiricahua Apache who throughout the summer of 1886 were also under constant pursuit by thousands of Mexican Army soldiers (Brown, 1970). This "unsettling" arena of the Southwestern United States was a major reason why it took New Mexico more than half a century to shed its territorial status to achieve statehood (granted January 6, 1912).

Many reasons have been suggested as to why it took New Mexico so long to become a state. According to Robert J. Torrez (1998), early efforts were hampered, in part, by a general ignorance about the territory and suspicions towards its people. Statehood was opposed by those who felt that New Mexico's predominantly Hispanic and Indian population was too foreign and too Catholic for admission to the American Union. There was periodic debate as to whether a new name for the territory would help the cause of statehood. Interestingly, names

[4] Brochure information from *The Santa Fe Tertio-Millennial Anniversary, Character Celebration and Industrial Exposition*, Santa Fe, 1883.

such as Navajo and Lincoln were suggested and seriously considered (Larson, 1968; Torrez, 1998).

Newcomers to New Mexico, turned travel writers, fueled the attempt to speed up statehood. By highlighting the beauty of the region, travel writers played a major part in the development and marketing of the region. The best known at the time was Charles Fletcher Lummis. In 1884, Lummis embarked on a trek across the continent from Cincinnati to Los Angeles. Travel westward for Lummis meant a deliberate move away from an "East perceived as economically and morally corrupt" (Padget, 2004, p. 115). In the late nineteenth and early twentieth centuries Lummis was part of a generation of Anglos who became fascinated with New Mexico and began documenting their experiences. Others following Lummis included Mable Dodge Lujan and D.H. Lawrence, to name a few. Lummis' voluminous writings through 1928 about New Mexico's landscapes and Native peoples created a "new cultural geography of the Southwest" (Padget, 2004, p. 116).

One of Lummis' (1893/1952) most popular phrases described New Mexico as "the land of *poco tiempo*." Lummis' interpretation of New Mexico was one place in the country where time stood still. Included in his mixture of travelogue, part history, ethnology and storytelling, were common adjectives detailing Pueblo people as "wondrous," "curious," "marvelous," "astonishing," "weird," and "strange" (Lummis, 1891/1989, 1892/1982, 1893/1952). It is no coincidence that Lummis' *Some Strange Corners of Our Country* was published a year before the opening of the Chicago World's Fair in 1893. The book shared the same undertones and displays of "primitive" peoples from different parts of the world.

Between 1876 and 1916, a network of international expositions spanned the nation, putting global cultures on display and shaping the world view of millions of Americans. Central to the Chicago World's Fair, for example, were anthropological attractions that included ethnological

villages with representatives from various tribes across the United States. In Chicago, exhibits included representatives in Native garb and activities organized by soon-to-be leading anthropologists like Franz Boas, Alice Fletcher, John Wesley Powell, Elizabeth Coxe Stevenson, and James Mooney (Rydell, 1984). Lummis' travel writings complemented much of the anthropological descriptions at the World's Fairs in which "strange" and "weird" were intricately woven into the exhibit narratives.

In a handbook of the resources and products of New Mexico, titled the "Land of Sunshine," the Bureau of Immigration prominently noted the following benefits of visiting: "New Mexico extends the glad hand to the tourist. It will give him his money's worth, be he interested in scenery, in ethnology, in romance, in history, in the quaint, in the picturesque or in the sublime . . . it is the land of the Cliff Dwellers, the Pueblos, the Navajos, the Apaches, of the Indian dances" (Camp, 1881a, p. 15). While the handbook still focused on railroads, land and natural resources, there was growing attention to local Indian peoples.[5] It was common in state publications to present the Pueblos as peaceful and civilized by stating that "the Pueblos have reservations of their own and are the most advanced of all Indian tribes, being husbandmen and self-supporting" (Camp, 1881a).[6] Because the Pueblos were viewed as living relatively sedentary lifestyles in permanent adobe structures and as planting people, they often became a safe and approachable model to

[5] See also Camp, 1881b.

[6] Neighboring Colorado was also steadfast on recruiting people to move into the state. Several newspaper accounts in the *Denver Times* publicized the positive outcomes stating, "it looks like Colorado is passing the threshold of success this year, and from now on there will be crowds coming here that will be much larger than what we are seeing already: In other words, Colorado will be the resort of the United States in the future" (*Denver Times*, July 12, 1900, p. 8). See also "Traffic is Heavy, Another Great Rush of Tourists to the State," quoted in *Denver Times*, August 3, 1900 (p. 2), and Edwin L. Sabin, "America's Playground for Americans: An Appreciation of Colorado and Utah," United States Railroad Administration, 1949.

interpret Indianness. In contrast, because of their history of "hostile" relations with the United States government, the Apaches were perceived as marauding Indians and written as such in newspaper coverage. [7] Meanwhile, up north in Colorado, the Utes were resisting confinement on reservations and were also seen as hostile and uncooperative (Dutton, 1983).

In the face of this "marauding" history, the Bureau of Immigration made a conscious effort to change popular perceptions. One example of these efforts was a statement which conveyed that "Apaches and Navahos have made considerable advance in civilization and till the soil or are owners of herds of cattle, sheep and goats . . . they are law abiding and send their children to reservation or training schools provided by the Indian office" (Camp, 1881a). By 1912, with the influence of widely read romanticized travel writers such as Lummis and the Bureau of Immigration initiatives, New Mexico was well underway to statehood. In the spirit of entrepreneurism, New Mexico was fertile ground for attracting tourists and development to the region (Camp, 1881a; Camp, 1881b; Larson, 1968; Trujillo, 2003).

Early image making in New Mexico coincided with the introduction of travel via the railroads. Photography mainly of Pueblo women selling pottery at train stops like the Alvarado station in Albuquerque was common (Fig. 2). In contrast, less visible were women and men who were employed in domestic service work, railway, and construction work at sites that sustained the infrastructure of the region's tourism. The southern pueblos - mainly Isleta - which borders Albuquerque on the south side and Sandia Pueblo on the north side, and

[7] It was not only "marauding Indians" in New Mexico who caused fear; New Mexico was notorious for outlaws. For example, the legendary Billy the Kid was still fresh in the nation's memory. For a more thorough history of statehood, see Robert W. Larson's *New Mexico's Quest for Statehood, 1846-1912*, University of New Mexico Press, 1968.

Laguna and Acoma, which are located to the west of Albuquerque on I-40 (en route to Gallup) were exposed to the early effects of railroad expansion. Figure 2 is a typical image scene at the popular Alvarado Depot stop. Here Pueblo women have shawls wrapped over their heads when displaying their pottery along the sidewalk in front of the "Indian Building" next to the Hotel Alvarado. The Hotel Alvarado was completed in 1902 to serve lunch to train passengers. A round sign with an eagle symbol hangs at the entrance to the "Indian Building."

Fig. 2: "Hotel Alvarado, Albuquerque", Circa 1910
Courtesy of the Western History/Genealogy Department, Denver Public Library (# L-485)

Kurt Peters (1996) documented the labor of Laguna people who arrived in Richmond, California, in 1922 as employees of the Santa Fe Railroad. Peters' research pre-dates much of the existing literature that discusses the push for urban Indian migration in the 1940s and 1950s. Pueblo communities, in relation to the types of work performed, are negated in popular understandings and perceptions of Pueblo people. With some of the early conventional railroad images of Pueblo women as vendors, we do not get a sense of their work involved in the production of arts and crafts. Fundamentally hidden were images of Pueblo people as railroad laborers. Even though this infrastructure has been in plain sight ever since, it is hidden in the world made visible to the tourist because it is

symbolically unmarked and outside the roles in which the travel media has cast Pueblo people (Albers, 1996).

There exists little visual documentation of Pueblo people working along the railroads. There are even fewer examples of photographs in archives that include a significant number of Pueblos who traveled to work as farmers of southern Colorado in the potato and beet industries.[8] Archival research conducted at the railroad history collections and tourism development files at the Denver Public Library and the Museum of New Mexico reflected the lack of Pueblo people as contributors to the building of the Southwest. It was common for these archives to separate Indians out of labor and development history. The "Indian files" were recognizably marked and sectioned off by subject headings such as "pueblo dwellings," "pottery," "food production," and "ceremonies." At the Museum of New Mexico's photography archive, files were ordered by tribe, and folders within each pueblo were marked by types of pottery and weaving samples. Files and photography collections at the Denver Public Library were separated out with regard to types of dances by tribes and time periods. There were no archival files containing images or information illustrating Pueblo people who participated in the development of the railroad industry. Regardless, it is known from community and oral traditions as well as documented historical testimonies (Peters 1995, 1996) that Pueblo people had a hand in the development in both the Albuquerque railroads and in northern New Mexico (Norwood, 1991). Pueblo people have always played a critical role in the expansion of travel and labor to New Mexico that has not always been tied to ethnic markers of selling pottery and ceremonials.

[8] There is little written about the Pueblo's role in these industries; however, Ruben Donato discusses some of this beet labor history from a Latino perspective in "Sugar Beets, Segregation, and Schools: Mexican Americans in a Northern Colorado Community, 1920-1960" *Journal of Latinos and Education*, Volume 2, Issue 2, April 2003, pp. 69-88.

In northern New Mexico, the Denver and Rio Grande Railroad came into sharp conflict with the Atchison, Topeka and Santa Fe Railway (ATSF). The Denver and Rio Grande was often referred to as the "Chili Line" because it carried such products as potatoes and chili when it stopped in the area. The Denver and Rio Grande began to entertain transcontinental dreams for expanding south and west from Colorado. In 1878 the two organizations clashed over the historic Raton Pass route to Santa Fe and over the canyon of the Arkansas River leading to the booming silver mines at Leadville. Rival work crews fought in the Royal Gorge to secure the narrow route, but the contest was soon transferred to the courts. The differences between the two organizations were finally resolved by the "Treaty of Boston" in early 1880. The Denver and Rio Grande Railroad was awarded the Leadville route but gave up plans to build from Pueblo, Colorado, to Denver and into the Colorado Mountains. The ATSF went on to complete its transcontinental connection. This was the country's second transcontinental; the first was the Pacific in 1881, followed by the Atlantic and Pacific (Denver Public Library, 1976; Norwood, 1991). For a brief time, the Denver and Rio Grande Railroad operated the "Around the Circle Tour." The 1,000-mile train tour was a popular destination for many early adventurers. This tour began southward from Denver and continued westward from Pueblo, around Dolores, south into Chama, New Mexico, and around back north through Antonito, Alamosa, and Denver. One of the main attractions for tourists included a stop at Mesa Verde Cliff Dwellings. Here, travelers on the "Circle" stopped and photographed rustic mountain landscapes alongside picturesque cliff dwellings.

As the growth of railroads across the United States created a booming economy, business entrepreneurs like Fred Harvey had a major hand in shaping the travel landscape. Originally, trains in the West did not offer meal service, which often left the passengers to fend for themselves

at mealtimes. Fred Harvey established a series of restaurants on the Santa Fe lines. The Fred Harvey Company recruited women via newspaper ads from towns and cities across the United States. From 1880 to 1950, young women, known as the Harvey Girls, were hired to work in Fred Harvey's restaurants along the ATSF routes. Many of the workers had misconceptions about traveling out West. Not only were there perceived dangers of being a single female in the West, but the threat of Geronimo still plagued the minds of the easterners. Regardless, women with "good moral character" who displayed "good manners" left the protection of home for the opportunity to travel and earn their own way out West (Poling-Kemples, 1994). The Harvey Girls are legendary in New Mexico history and current scholarship continues to emphasize the "civilizing" efforts and "manners" that East coast women brought to New Mexico (Poling-Kemples, 1994; Weigle & Babcock, 1996).[9]

Performances, Postcards & Photographs

With the development of New Mexico's infrastructure, other advances took place in the arena of performance and participation among Pueblo people outside their villages. In the early 1900s, Pueblo people participated in performances and artist demonstrations at selected sites that contributed to the marketing, mystique, and lure of the Southwest. However, an entrepreneurial push to showcase Indian art coexisted with government attempts at civilizing Pueblo people and washing away their

[9] For example Poling-Kemples (1994) states that the Harvey Girls came at a time when there were no ladies west of Dodge City and no women west of Albuquerque. They came as waitresses, but many stayed and settled, founding the struggling cattle and mining towns. On a similar note, Juddi Morris (1996) published a children's book titled, *The Harvey Girls: The Women Who Civilized the West*. She presents a narrative of how these carefully groomed, capable waitresses and hostesses had a "civilizing" effect on the rough men and people of the frontier. Furthermore, Judy Garland's role in the film *The Harvey Girls* (1946) embodies much of the tone of East Coast women who traveled to New Mexico who felt it was their rightful duty to teach etiquette and hospitality.

identity. In the midst of this tension, the Santa Fe Indian School was established as part of the boarding school initiatives across the country to remove Indian children from communities and educate them in Western traditions. By 1900, there were 300 students at the Santa Fe Indian School: 60% were Pueblo and the remainder from southwestern tribes. To handle the growing number of students, a laundry, classroom building, hospital, barn and four employee houses were built mostly with student labor (Hyer, 1990). Curriculum at the school mainly focused on manual labor and vocational training such as sewing for girls and carpentry for boys. The Santa Fe Indian School was part of the larger wave of federal policies and civilizing efforts by the federal government to push American Indians to become "Americans" (Szasz, 1999; Wallace, 1995; Willinsky, 1998). In 1879, General Richard H. Pratt established the Carlisle Indian School at the site of an unused cavalry barracks in Carlisle, Pennsylvania. Carlisle was the first, and perhaps the most infamous, of the off-reservation boarding schools established by the U.S. Office of Indian Affairs (later the Bureau of Indian Affairs). Pratt insisted the best way to civilize the Indian was to "immerse him in civilization and keep him there until well soaked" (Utley, 1964). The federal assimilation campaign to "Kill the Indian, Save the Man" from about 1875 to 1928 was intended to remove Indian children from homes in order to extinguish any remnants of Indian culture and practices. While the civilizing efforts of federal policies were flourishing across the United States, travel imagery and Pueblo performances reflected another agenda.

Of the many attendees at the St. Louis World's Fair were Pedro Cajete and a group of Santa Clara Pueblo representatives who participated in the Cliff Dweller exhibit. According to the 1904 World's Fair Society the cost of admission to the Cliff Dweller exhibit was 25 cents for adults and 15 cents for children. Here, "Stone age" caves reproduced as cliff dwellings stood 100' tall and 250 feet wide. There was a trail that could be

climbed by either walking or taking a burro ride. For the first time the Fair featured a five-acre replica of a Pueblo village. The Cliff Dweller exhibit was comprised of 12 buildings and 300 natives, including Hopi and Zuni. The type of performances included variations of Snake Dances and pseudo "kachina" dances. In addition, a variety of "cliff dweller" people sold wares and souvenirs (Rydell, 1984; Trennert, 1987a, 1987b).

A significant portion of participants at the Cliff Dweller exhibit were Pueblo people. Much of the ceremonial dress in souvenir postcards resembled Pueblo styles. The women typically wore a long cotton *manta* black dress tied with a woven belt around the waistline. Most women wore a shawl over a cotton dress, along with knee-high moccasin leather "wraps." Pueblo men typically wore cotton style dress pants and long shirts. At times, depending on the events, men would dress in ribbon shirts and "chapped style" cotton or buckskin pants. What most distinguished "Indian men" was the marked image of a warbonnet. This was not only the case with the St. Louis World's Fair, but notably in the early photographs and postcards taken of Pueblo people performing in Colorado from about 1915-1930.

Early image making in the Southwest was further popularized when northern Pueblos traveled to tourist sites in Santa Fe, Garden of the Gods and Manitou Springs in southern Colorado. Similar to the Cliff Dweller exhibit at the World's Fair, Manitou Springs, west of Colorado Springs, featured a more localized performance. According to the Manitou Cliff Dwellings Museum, "for nearly a century Native American Indians have been amazing and delighting tourists from all over the world with their costumes, dances, songs and narrative at the Manitou Cliff Dwellings" (Manitou Cliff Dwellings, 2007). First opened in 1906, individuals and families from the northern pueblos were among the first to participate as dancers for tourists. Members of the Tafoya family from Santa Clara were dancing, drumming and singing since 1916. In addition,

several Pueblo families from Taos and Tesuque also traveled during this time to perform at Manitou Springs.

Performances, much like organized ceremonials, were public events that existed apart from traditional Pueblo ritual calendars. These dance events typically involved audiences largely composed of tourists. At Manitou Springs, events normally took place during the peak tourist summer months. At times it was, however, typical to have performances throughout the year in places like Manitou Springs, Garden of the Gods, Indian Hills, and the Grand Canyon. Popular tourist postcards reflected the performance aspect of dance. One postcard from Manitou Springs titled "Tewa House and Indians Ready for Buffalo Dance" featured a line of male dancers in warbonnets (Fig. 3). The typical Buffalo Dance for Pueblos includes buffalo headdresses, *not* warbonnets. This could perhaps be a mislabeling in the postcard or what was told to the photographer who labeled the depicted performance as "Buffalo Dance." In any case, the dances carried out at places like Manitou Springs included a mixture of pseudo-Plains Indian regalia. In fact, the Pueblos adopted and developed their own style of feathered headdress long before tourists arrived on the scene (Martinez & Albers, 2009). The use of warbonnets was typically worn for "Comanche Dances" in the pueblos. Almost every pueblo has some version of the Comanche Dance as a result of trade and warfare with Plains nations after the adoption of horses in the 1600s (Lamadrid, 2003). Manitou Springs included not only "pueblo style" adobe houses constructed for performance use but teepees surrounding the adobe building were central to making the site appear more Indian and authentic.

Fig. 3: Manitou "Buffalo Dance", Circa 1920
Author's Collection

Many of the postcards were produced on a small scale as real photos or printed on travel ephemera in black and white or sepia tones. Sometimes the images appeared in tinted or hand-colored formats, but these never matched the prolific and colorful views representing Fred Harvey's Southwestern world, which drew initially on the pueblos near Albuquerque, Grants, and Gallup, New Mexico (Martinez & Albers, 2009; Weigle & Babcock, 1996). An example description from a postcard at the time, titled "Pueblo Indians Dancers," stated that, "In the busier seasons weird dances are daily, given such as the Pueblo war dance, buffalo dance, sun dance and others. The Manitou Sky Line Drive, the road of enchanting vistas, is a part of this trip."

Another popular attraction was Na-Te-So at Indian Hills located southwest of Denver. Originally a summer campground for Ute Indians, in the 1920s the Na-Te-So "pueblo" was an imaginative promotional project for realty development and tourist business endeavors. In the spring of 1925, recruiters from Santa Fe began canvassing the pueblos of Tesuque and San Ildefonso for the builders and artisans of the planned pueblo. Several buses and cars left the pueblos for Colorado carrying about 20 families (Lang, 1966). Navajo, Tesuque and San Ildefonso people constructed the adobe dwellings and the name combined a syllable from each of the three tribes, Na-Te-So.

Fig. 4: "The Matachina [sic] Dance at Nat-Te-So"
#X-24680, Circa 1920-1930, Indian Hills, Colorado
Courtesy of the Western History/Genealogy Department,
Denver Public Library

Buses left Denver twice a day to transport the interested and curious to the "pueblo," where the Indians demonstrated pottery making, weaving, and other Indian crafts (Brush & Dittman, 1976). One of the potters working at Indian Hills was Rose Gonzales from San Ildefonso Pueblo. Rose and her brother had been part of the first settlement in Na-Te-So. Later, a group of people from Santa Clara and surrounding pueblos would join Rose and others to demonstrate pottery making and perform dances (Fig. 4). While people toured the "pueblo," watched dances, and artist demonstrations, real estate companies would promote buying plots of land in the area. The "Indian" dances were used to lure in potential home and land buyers. One of the most photographed individuals was Chief Evergreen Tree who apparently was one of the more colorful of the Indians. Although his origin is unclear, Tewas guess he may have been from Cochiti Pueblo. According to newspaper accounts, he is said to have ridden on a painted pony in full Plains Indian regalia and entertained the visitors with a repertoire of bird calls. He had an evergreen tree painted on his cheek, which is how he got his name (Brush & Dittman, 1976; Lang, 1966). In addition to Chief Evergreen Tree at Indian Hills, there was Chief White Eagle who also danced for tourists. However, Chief Evergreen Tree appeared in more photographs

because of his elaborate bird calls. He also rode in his Plains-style regalia on a touring car to advertise the town of Indian Hills (Lang, 1966).

Pedro Cajete (also known as "Chief Manitou") and Cheripee Tafoya (known as "Indian Joe") entertained thousands of people in the Pikes Peak region for more than 35 years. According to one account, Cajete was born in Pojoaque Pueblo and around the turn of the twentieth century came to Colorado in search of a better life for his family (Davant, 2001). For the Pueblos, traveling up north to Colorado was a common practice to find employment. Cajete was a small man with an outgoing personality. He began greeting tourists and taking pictures at the downtown railroad depot (Davant, 2001). Cajete was later part of the "Sociability Tour" which caravanned to the Midwest and East promoting good will and interest in the vacation possibilities of the Pikes Peak Region in 1915. One article described how "everywhere Chief Manitou stole the show" by wearing "full war paint and regalia" (*Colorado Springs Gazette*, 1945). Chief Manitou appeared in postcards as far away as San Gabriel, California (Fig. 5).

Fig. 5: "Chief Manitou"
San Gabriel, California, Circa 1915
Patricia C. Albers Collection

"Indian Joe's" name was recorded as Cheripee Tafoya but more than likely his Tewa name was *Tsídeh Pí* (Red Bird) and he was between 86 and 90 years old when he passed away. He and "Chief Manitou" apparently passed away days apart in March, 1947 (*Colorado Springs Gazette*, 1947a). The newspapers covering the story about "Indian Joe" said that he was "loquacious . . he was always in Indian costume, he danced more tribal dances than a tabulating machine could count. Postcard pictures of himself and his companions are distributed throughout the country and abroad. Many men and women will remember when, as children, they gazed at him with awe and thrilled at the sight of a real live Indian, decorated with war paint, and carrying a bow and arrows, although no one could have been a gentler soul" (*Colorado Springs Gazette*, 1947b). Photos and postcards of Indian chiefs as dancers contributed to the markings and public meanings of Indians as a noble "race" of warriors. Brochures and postcards also took on features associated with the epic discourse of America's Frontier West with its equestrian warbonneted warriors, which formulated a visually masculine space. This noble masculine space published in popular postcards coincided with state tourism initiatives to pacify travelers. After all, in the state's imagination, Pueblos were tranquil people who built and lived in their own homes. Even though much of the travel imagery featured men posed wearing warbonnets or in various dances, the language surrounding the images was subdued and the Pueblos were described as proud people. In short, the images pictured in the travel media were ones that best represented northern Pueblo life as an idyllic, pastoral world (Martinez & Albers, 2009). Even though these individuals worked in Colorado, postcards were circulated and tourists traveled southward to the pueblos already ingrained with the presentation of dances from Chief Manitou, Indian Joe and Chief Evergreen Tree.

Despite the fascination of postcards and anthropological writings discussing Pueblo dance and ceremonies, there was a significant

attempt in 1921 by the Bureau of Indian Affairs to eradicate Native dancing. Commissioner Charles H. Burke addressed to all Indian Superintendents a document called Circular 1665. He stated that the Sun Dance and all other similar dances and so-called religious ceremonies are considered 'Indian Offenses' under existing regulations, explaining which corrective penalties apply.[10] On February 14, 1923, a supplement to Circular 1665 was issued. Some of the main features of the amendment were the following:

> Indian dances be limited to one day in the midweek and at one center of each district; the months of March, April, June, July and August being exempted (no dances in these months). That none take part in the dances or be present who are under 50 years of age. That a careful propaganda be undertaken to educate public opinion against the (Indian religious) dance. (Burke, 1923)

Ten days later, the Commissioner broadcast a "Message to All Indians":

> I could issue an order against these useless and harmful performances, but I would rather have you give them up of your own free will, and, therefore, I ask you in this letter to do so. If at the end of one year the reports which I receive show that you are doing as requested, I shall be glad, for I shall know that you are making progress -- but if the reports show that you reject this plea, then some other course will have to be taken. (Burke, 1923)

With this national initiative perhaps more focused on the Sun Dance of the Plains Indians, it is unclear to what extent Circular 1665 affected the Pueblos of New Mexico. Margaret D. Jacobs (1999) notes

[10] Burke regarded such restrictions as applicable to any (religious) dance which involves . . . the reckless giving away of property . . . frequent and prolonged periods of celebration . . . in fact, any disorderly or plainly excessive performance that promotes superstitions, cruelty, licentiousness, idleness, danger of health, and shiftless indifference of family welfare. In all such instance, the regulations should be enforced." (Burke, 1923)

how the Hopi at times came under scrutiny from religious reformers who viewed dances as "immoral relations between the sexes" (p. 179). The Pueblos, in a general sense, were often characterized by women reformers as barbaric and needing to be "uplifted" into civilization. By the 1920s, however, the Pueblos were widely admired by activist Anglo-American women, who challenged assimilation policies and worked hard to protect the Pueblos' "traditional" way of life (Jacobs, 1999). In 1922, a year before Burke's plea to regulate Indian dances and lifestyle, the Gallup Inter-Tribal Ceremonial was established as an annual gathering for Indians throughout the Southwest. Also in 1922, the Santa Fe Indian Market was established as a venue to promote "authentic Indian arts and crafts" as well as a venue for performances (Bernstein, 2012; Mullin, 2001).

New Mexico's Pueblos appeared to be somewhat unaffected by Circular 1665. This was perhaps due to that fact that Pueblo people were, in the eyes of assimilationists, significantly different from the Apaches, Utes, and Plains Indians. After all, Pueblo people were not historically nomadic and had lived primarily as farmers along the Rio Grande (Sando, 1992). This stood in contrast to the "renegade" narrative of Apache people portrayed in select promotional material as well as the larger descriptions of the horse-riding culture of the Plains. In early travel writing, the Pueblos were solidified in New Mexico's imagination as "different," "peaceful," "content," and "quiet" (Lummis, 1891/1989; McLuhan, 1985). Moreover, members of the Taos Society of Artists were steadfast in painting a visual representation of northern Pueblos as peaceful and quiet people. The vast majority of scenes picturing dances and domestic activities were taken clearly within and alongside marked village settings. The most typical were of northern Pueblo women depicted baking bread, making pottery, and husking or grinding corn. Men were pictured as silversmiths with the tools of their trade, drummers and

dancers wearing ceremonial regalia, and as leaders with "canes" (Martinez & Albers, 2009).

United States occupation, tourism, trade, and mobility along the Rio Grande often served as contact zones for understanding Pueblo history and relations with outside forces. Mary Louise Pratt's (1992) notion of "contact zones" is used to describe the spaces of colonial encounters. A "contact" perspective emphasizes how subjects are constituted in and by their relations to each other. In other words, "it treats the relations among colonizers and colonized, or travelers and 'travelees,' not in terms of separateness or apartheid, but in terms of co-presence, interaction, interlocking understandings and practices, often within radically asymmetrical relations of power" (Pratt, 1992, p. 7). In the early twentieth century, the New Mexico stage for contact zones was manifested through railroad expansion, postcards, and Pueblo performances outside of villages. These sites of contact and interaction were further fueled by non-Indian desires to capture and market people and communities.

At the turn of the twentieth century, textual and image-making initiatives were central to the expansion of New Mexico tourism. Some fundamental key players in travel imaginings included the work of territorial agencies, travel writers, and anthropologists. In addition, Pueblo people as performers through dancing and pottery demonstrations were major players who captured the limelight of the camera. New cash economies and wage labor forced Pueblo people to travel outside of reservations in search of work. Despite "playing Indian" (Deloria, 1998), Pueblos were key to New Mexico statehood and further fueled the travel and tourism industry. Later, *New Mexico Magazine* became *the* major state publication to promote the cultures and histories of New Mexico. Pueblo people and *New Mexico Magazine* became synonymous with tourists and cameras. The language of marketing "a land surpassing beauty and

attraction" became solidified in travel guides, postcards and artist colonies (Works Progress Administration, 1930).

Travel writers of the early twentieth century actively sought out places that were different in landscape and steeped in ancient history. Lummis' writings charted a sense of self in relation to his perceptions of what it meant to be living in "Some Strange Corners of our Country" (Lummis, 1891/1989). For Lummis, documenting "quaint" peoples served as a way to fulfill his own desires in a place that was not evident in many original East Coast homelands. The practice of playing into the notions of Indian desires, through writing, collecting, and photographing demonstrates something more about Anglo desires and perceptions than it does about those of American Indians (Berkhofer, 1988; Deloria, 1998). Pueblo people were a byproduct of the larger colonial practice of documenting and photographing. Edward S. Curtis was convinced that American Indians were going to disappear and photography was the primary means to capture and save the original inhabitants of the United States (Lyman, 1982). The Fred Harvey Company realized that they too could capitalize on this romantic niche and offer luxury travel to New Mexico. We know that American Indians have not disappeared and that the romantic notion of the West only existed in the non-Indian imagination. The abundance of travel narratives with ethnic markings was further solidified in venues like *New Mexico Magazine*, postcards and travel brochures. These continued well into the late twentieth century through the recycling of popular vintage photographs. Despite Pueblos being subjected to new forces in travels and tourism, they remain steadfast as active contributors toward the well-being of their families and communities. In fact, early twentieth century exposure to tourism was not a new experience for Pueblo people. Pueblo people have long endured outside influences under the earlier regimes of Spain and Mexico (Sando,

1992). Now contentiously under United States expansionism, Pueblo people clearly navigated their roles by riding the onset of tourist waves.

The foundation of this article was based on stories interwoven with archival material discussing image making and performances that shaped travel narratives. It is through story, the essence that started for me at my *Sa'yâa*'s kitchen table and my father's recollection as a young boy, by which I was able to connect local histories to outside forces that shaped our Pueblo world and experiences. I continue to wonder what ever happened to any of those old photographs that travelers took of my father, aunts, and uncles as children. I imagine that they may be stored in some dusty attic of some family's long forgotten vacation to New Mexico during the summer of 1950. Much like the railroads carved out a path of new beginnings in the late 1800s and early twentieth century, so too did this writing path create a critical juncture for understanding Pueblo history. Over the last hundred-plus years of involvement with tourism, Pueblos have developed a culture that is conducive to maintaining Pueblo values and sensibilities in ways that are not kept frozen in time. Tourism for the Pueblos is about creating meaningful relationships with the modern world on their own terms. The persistence of securing a human existence for future generations has always been a core indigenous and Pueblo value. Regardless of outside forces, a fundamental practice of Pueblo cultures has been the adaptability to sustain a unique way of life. Alongside the confluences of travel, it is the persistence of community-centered core values that continue to guide Pueblo people.

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Cohort Model Learning Communities: The Tribal College Perspective of Best Practices in Teacher Education

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Cohort model learning communities are growing as an important and "best" practice in teacher education programs in tribal colleges. In this study, Carmelita Lamb investigates the six tribal colleges utilizing this educational innovation, examining the degree to which learning communities in these six tribal colleges purposefully implement Snider and Venable's (2000) eight characteristics of a learning community. Through student interviews, a student survey, and teacher education faculty interviews, Lamb finds important elements of learning communities being implemented in unique ways at the tribal colleges, with significant impacts on the academic success of students. Emerging themes include: cultural alliances between cohort members, the cohort as a family, the impact of student-faculty relationships on student success, the relationship between learning communities and student persistence in teacher education, and the pedagogical significance of learning communities in tribal colleges serving American Indian students.

Introduction

The purpose of this mixed methods case study was to determine whether cohort model learning communities (LCs) within teacher education programs in tribal college institutions reflect the eight characteristics of a learning community. This model has been adopted by a number of tribal colleges to facilitate the academic success of Native American students.

Within its brief 40-year history, the tribal college movement has made a significant impact on American Indian college student success. The American Indian Higher Education Consortium (AIHEC) currently recognizes 37 tribal colleges in the United States and one in Canada (American Indian Higher Education Consortium, 2013). Tribal colleges are flexible and responsive institutions that promote the self-determination aspirations of Indian people, and draw upon tribal history

and culture as they integrate the disciplinary knowledge of mainstream society into their culturally responsive academic programs (Boyer, 1995). An open admissions policy, lower annual tuition rates, and diligent financial aid officers describe some of the student services provided at most tribal colleges. These amenities exist in an environment where each student feels an intimate connection to the academic community; that community is typified by a culturally relevant and diverse curriculum designed to serve the needs of the students and community alike. According to Crazy Bull (2012),

> Our educational approaches are rooted in tribal knowledge and derive from the teachings of our ancestors. Tribal colleges and universities have emerged from the sacred to do the necessary, present-day work of our ancestors. They teach our languages, socialize our children and support their families, protect and manage our resources and assets, and preserve our identities and our ways of living for future generations (p. 13).

Thirty-one tribal colleges are located on reservations, allowing many students to maintain close family ties and connections to home. The College of Muscogee Nation and Comanche Nation College, both in Oklahoma, are located in tribal communities identified as tribal designated statistical areas (TDSA). TDSAs are identified by the U.S. Census Bureau as consisting of federally-recognized American Indian tribes that do not currently have a legally established land base (U.S. Census Bureau, 2010). The lands designated as TDSAs in Oklahoma are based upon former reservation boundaries within that state. Four tribal colleges are located in urban areas: United Tribes Technical College, Bismarck, ND; Haskell Indian Nations University, Lawrence, KS; The Institute of American Indian Arts, Santa Fe, NM; and Southwestern Indian Polytechnic Institute, Albuquerque, NM. Ilisagvik College is located on the North Slope Borough in Alaska.

Conceptual Framework and Definition of Terms

In the past 20 years, much has been learned in the area of student characteristics that may lead to departure from an institution. This body of research and theory has resulted in a general consensus among researchers as to what factors influence retention and persistence (Clark, 2005; Davis, 1992; Kuh & Love, 2000; Larimore & McClellan, 2005; Pike & Kuh, 2005; Tinto, 1993, 1998; Zhao & Kuh, 2004; Zurita, 2004). An appropriate expansion of current theory regarding student persistence would include pedagogical adaptations made by colleges and universities designed to enhance persistence among college students. One suggestion has been that institutions of higher education adopt a community model of academic organization which promotes involvement though the use of shared connected learning experiences among its members, students, and faculty (Tinto, 1998). Learning communities can be transformative in their manifestation of the learning process in which students find themselves, altering the way students experience both the curriculum and learning (Tinto, 2000). While learning communities have been studied in many environments within higher education (Basom & Yerkes, 2001; Dinsmore & Wenger, 2001; Dinsmore & Wenger, 2006; Hugo, 2002; Kuh & Love, 2000; Lawrence, 2002; Snider & Venable, 2000; Tinto, 1998, 2000; Tinto & Russo, 1994; Zhao & Kuh, 2004), virtually no empirical studies relating to learning communities and American Indian students within the tribal college setting have been conducted. Thus this study sought to broaden the empirical dataset by considering demographically non-traditional students within a tribal college setting — specifically, American Indian students in their junior/senior year within the teacher education professional program. The following operational definitions will guide this study:

- Cohort: *Students who simultaneously enter a degree program, follow a specific curriculum, and complete or graduate from that program at the same time.*

- Culture: *Shared knowledge by a group of people which affects behavior, beliefs, art, relationships, stories, language and general human navigation through a community.*

- Knowledge Constructivism: *Students engage in the development of new understandings based upon prior knowledge and experiences.*

- Learning community: *An educational environment that fosters student opportunities for deeper understanding and integration of the material they are learning, and more interaction with one another and their teachers as fellow participants in the learning enterprise (Gabelnick, MacGregor, Matthews, & Smith, 1990).*

- Perspectivism: *Students recognize a variety of perspectives in the world as well as incorporate these in their efforts to better understand their environment (Snider & Venable, 2000).*

- Purposeful Design: *The cognizant implementation of a learning community that employs all eight of the measures described by Snider and Venable (2000).*

Literature Review

Spatial localities or places are given meaning through the human experiences in them (Semken, 2005). American Indians are deeply rooted to a sense of "place," geographic or otherwise, most likely due to the historical dispossession of traditional tribal homelands. According to Guillory (2009), infrastructure such as a Native American or Multicultural Student Center provides critical social support to alleviate feelings of isolation and alienation among Native students. Centers such as these create a welcoming "place" (Jehangir, Wiliams, & Jeske, 2012) for Native students to gather and share experiences inside and outside of the college classroom. American Indian college students coming from reservations

which are rural, isolated, and generally homogeneous in tribal population are more likely to experience feelings of loneliness and isolation in mainstream institutions. Feelings of academic inadequacy, isolation, and marginalization may escalate, resulting in student departure (Guillory & Wolverton, 2008; Jehangir, Wiliams, & Jeske, 2012; Osborne, 1985; Pavel & Padilla, 1993; Tinto, 1993). There is little doubt that adjusting to college life presents challenges among minorities striving to complete a college degree; among these minorities, American Indians have long been reported to be the least successful (Astin, 1982; Falk & Aitken, 1984; Tijerina & Biemer, 1988). Thus, providing a space in which Native students can gather and develop communities and "families" is critical for American Indian student retention (Jehangir, 2008, 2009, 2010; Jehangir, Williams, & Jeske, 2012; Rendon, 1994, 2009).

Theoretically and conceptually, the learning community (LC) appears to be a potentially powerful educational practice (Zhao & Kuh, 2004). Although many forms and definitions of learning communities exist, there are common features that incorporate a variety of curricular structures that link together several existing courses, or new curricula, so that students have opportunities for deeper understanding of, and integration of, the material they are learning, and more interaction with one another and their teachers as fellow participants in the learning enterprise (Gabelnick, MacGregor, Matthews, & Smith, 1990).

According to Zhao and Kuh (2004), support for LCs follows three empirical understandings: (a) developmental research (Baxter-Magolda, 1996; Chickering & Reisser, 1993; King & Kitchener, 1994; Perry, 1970; Piaget, 1964), (b) cognitive science (Bransford, Brown, & Cocking, 2000), and (c) learning outcomes (Matthews, 1993; Pike, 1999; Tinto & Russo, 1994).

Developmentally, LCs should be constructed to support and challenge students to achieve higher intellectual and psychological levels.

In this way, the LC promotes cognition in critical thinking and contextual learning skills that are increasingly important in an era of information overload (Bredemeier, 1998; MacGregor, 1991; Shenk, 1997). Desirable student outcomes directly associated with LCs include the following: (a) students creating their own supportive peer groups that extend beyond the classroom; (b) students becoming more involved in both in-class and out-of-class activities; (c) students spending more time and effort on academic and other educationally purposeful activities; and (d) students becoming more actively involved and taking more responsibility for their own learning instead of being passive receivers of information (Tinto & Russo, 1994).

Tribal colleges share many of the academic goals and challenges of mainstream institutions; however, their ability to meet the social and cultural needs of American Indian students is exceptional. This is particularly true in the teacher education bachelor's degree program, where the cohort model learning community (LC) acts as the academic/social framework supporting the professional curriculum. There have been six types of learning communities reported within higher education: (1) *Linked Courses*, in which two courses, taught by two professors, are linked together by content and skills; (2) *Learning Clusters*, which expands upon the linked course format to include three to four courses thematically connected; (3) *Freshman Interest Groups (FIG)*, which target first-year students in linked courses with the additional support from student advisors; (4) *Federated Learning Communities*, which are similar to FIG but are not limited to a specific class status and include a faculty member outside the content area who serves as a mentor for those professors directly involved with course instruction; (5) *Coordinated Study Programs*, which are associated with professional programs of study and extend for several semesters or years; and (6) *Residence-Based Learning Communities*, which link college study to residential life to develop

connections between academics and real life situations (Chesebro, Green, Mino, Snider, & Venable, 1999; Laufgraben, 2005; Snider & Venable, 2000).

In this study, the Coordinated Study Program model of learning communities most closely matches how students in teacher education operate in tribal colleges. According to Laufgraben (2005), "For a learning communities program to be successful, the model or approach to learning communities must fit the student, faculty and institutional culture" (p. 191). Students in tribal college cohort model learning communities are admitted collectively as cohorts and matriculate together through the teacher preparation program of study, which may entail four to six semesters, including summer sessions. Tribal colleges use this model because student participation in learning communities has been linked favorably to student academic performance, engagement in educationally purposeful activities (academic integration, active and collaborative learning, and interaction with faculty members), positive academic gains associated with college attendance, and overall satisfaction with the college experience (Jehangir, Wiliams, & Jeske, 2012; Zhao & Kuh, 2004).

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Tinto & Russo, 1994; Zhao & Kuh, 2004), there are no empirical studies related to learning communities and American Indian students within the tribal college setting.

Six tribal colleges within the American Indian Higher Education Consortium (AIHEC) conferred accredited baccalaureate degrees in teacher education during the data collection period of this study. In each instance, cohort model learning communities were reported as the institutional academic structure for the teacher education professional plan of study (Dr. K. Froelich, Sitting Bull College; Dr. R. Blackbird, Haskell Indian Nations University; C. Medearis, Sinte Gleska University; A. Fisher, Oglala Lakota College; Dr. C. O'Dell, Salish Kootenai College; and Dr. V. Allery, Turtle Mountain Community College, Personal Communications, March, 2007).

Purpose of the Study

The purpose of this mixed methods case study was to determine whether cohort model learning communities within teacher education programs in tribal college institutions reflect the eight characteristics of a learning community, as described by Snider and Venable (2000). These are:

(a) The classroom structure is designed to promote *student-student collaboration*;
(b) The classroom structure is designed to promote *student-faculty collaboration*;
(c) The students demonstrate a marked increase in *academic involvement*;
(d) The classroom is designed to promote *perspectivism*, seeing ideas from many viewpoints;
(e) The classroom structure is designed to promote *cooperative learning*;
(f) The classroom structure is designed to *link academic issues to life experiences*;
(g) The classroom structure is designed to promote *interdisciplinary learning*; and

(h) The classroom structure is designed to promote *knowledge constructivism.*

The Snider and Venable (2000) model for the assessment of learning communities was selected based upon the comprehensive nature of the variables measured by the Learning Community Experiences Questionnaire (LCEQ-36) used in this seminal study. The following questions guided the current study:

1. To what extent do the six tribal institutions that offered a baccalaureate degree in teacher education during the period of data collection reflect the eight measures of a learning community posed by Snider and Venable (2000)?

2. Are the learning communities within the tribal institutions that offer baccalaureate degrees in teacher education purposeful?

3. Does the purposeful implementation of the cohort model using learning community strategies influence student persistence?

Learning communities explicitly use learning as a way of promoting social cohesion, regeneration, and economic development, involving all parts of the community (Yarnit, 2000). As facilitators of cohort groups, instructors and advisors engage in the purposeful implementation of a cohort model learning community by personally guiding students through the process of identifying concerns, gathering and analyzing data related to beliefs and function of the collaboration, promoting problem solving and action planning, and fostering critical assessment of the overt and covert meanings of the learning community within their program or curriculum. The cohort or learning community in the tribal college setting can be characterized as a culture where pre-service teacher socialization is shaped through the college classroom, practicum field experience, and K-12-based community service projects. In some teacher preparation programs, the cohort structure has been

shown to model actual community building within the teacher socialization process (Fullan, Galluzzo, Morris, & Watson, 1998).

Research Methodology

The research design in this study utilized a combination of qualitative and quantitative data sets to reveal a central theme describing the cohort model learning community in tribal college teacher preparation programs. A multiple case study approach, which included within-case analysis as well as cross-case examination, was undertaken. This methodology has been employed in previous work (Guillory, 2009) and facilitates understanding of the unique characteristics of each tribal institution's teacher education students and program. It also builds a general explanation of activities across all tribal colleges within the study. This accounts for differences among institutions. The overreaching rationale for this research included the following points of reference:

(a) There had not been an empirical study describing the cohort model learning community academic structure in the tribal college environment;
(b) The study intended to draw a relationship between the collected data and established practices (i.e., the eight criteria of a learning community); and
(c) The research sought to describe the learning community from the perspective of the tribal college faculty and students who were direct participants in the teacher education program.

Students, staff members, and faculty in the programs were recruited as participants. Compared to state universities, tribal college faculty earn significantly less and, with the exception of Turtle Mountain Community College, serve a lower ratio of students in the classroom. At the time of data collection, only six tribal colleges offered an accredited

bachelor's degree in teacher education; participants were solicited from these institutions. The sample for this study, students and faculty directly engaged in a teacher preparation bachelor's degree program at these six tribal colleges, therefore, constituted a reasonable subset of the population: students within tribal college teacher education programs who were participating in a cohort model learning community. At the time of this study, tribal college students were generally older than the average college student and they were females who had a number of responsibilities and commitments, such as family and work. These commitments added a unique dimension to the overall rigor of the academic curriculum. Volunteer student participants in this study were individuals who were currently enrolled in teacher education and were either juniors or seniors in class standing. A meeting was held for each case group (both students and faculty/staff) describing the purpose of the study, the data collection technique (survey and interview), how the data would be analyzed, and subsequent reporting of findings. Student participants were given a modest honorarium for their time and effort in this project. In addition, focus group interviews were conducted between the researcher and faculty/staff members of each tribal college teacher education department.

Independent variables in this study were the following: student-student collaboration, student-faculty collaboration, academic involvement, perspectivism, cooperative learning, linking academic and life experiences, interdisciplinary learning, and knowledge construction. The dependent variable was the existence of a purposeful cohort model learning community.

Three data collection methods were used: a student survey, student interviews, and tribal college faculty/staff focus group interviews. Quantitative data collection was facilitated by administration of a

modified version of the Learning Community Experiences Questionnaire (LCEQ-36) (Snider & Venable, 2000).

Survey Protocol

Forty-two questions (Appendix A) comprised the survey instrument. The LCEQ-36 measures the eight key characteristics of a learning community, as described by Snider and Venable (2000), arrayed within three learning domains: cognitive (are the students learning?); motivational (do the students enjoy learning?); and behavioral (do the students participate in the behavior specified by the objective?). In addition, the survey examined three components of student perception of the value of education: academic adjustment (do students appreciate the value of a college education, and are they fully engaged in academics?), and personal adjustment (do students feel competent and confident in the academic environment?) (Snider & Venable, 2000). Six additional questions (Appendix A) were included to measure the extent to which culture played a role in tribal college learning communities, student satisfaction with the tribal college environment, and student participation in cultural activities.

Interview Protocol

To more fully describe the cohort model learning community in teacher education at tribal colleges from the perspective of the student, a semi-structured interview protocol was designed. The qualitative interview data were analyzed with the expectation of drawing parallels to the quantitative survey data findings. The faculty and staff focus group interview data provided the researcher with a collective benchmark from which to assess whether the cohort model learning community at each independent case study site was purposeful in its implementation, how influential the LC was in affecting student persistence toward degree

completion, and finally, how closely the student perspective of a learning community matched that of the faculty and staff who were actively engaged in this academic structure within the teacher education program at their tribal college. The triangulation of data (student interviews, student survey, faculty/staff interviews) in this case study research design contributed to the validity of the resultant data and subsequent findings.

Data Analysis

Survey data were sorted in three ways: (a) collectively as one composite data set, (b) by learning community criteria as reported by Snider and Venable (2000), and (c) by institution. Descriptive statistics (means and standard deviations) were calculated for each survey question, to further develop the existing theory on learning communities in mainstream institutions of higher education by focusing on the relevant implications for tribal college teacher education programs. The questions in this investigation were designed by the researcher to further develop the existing theory on learning communities in mainstream institutions of higher education, and generalize it to tribal college teacher education programs. A key tool in the analysis of all interview data (student and faculty/staff) was pattern-matching. Pattern-matching, reported to play an essential role in case study research (Cao, 2007), has three components: (a) a theory is specified on the basis of predicted patterns of events — these event patterns act as a series of benchmarks against which actual data are compared; (b) information on all events is collected and stored in an empirical pattern; and (c) the empirical pattern and the predicted patterns are matched by analyzing whether they are congruent with each other. If the predicted pattern matches the empirical pattern, the theory is seen to be tested and to be able to predict the situation in the case study (Cao, 2007).

Survey data from this study were treated according to a pattern-matching protocol using the eight learning community criteria (Snider & Venable, 2000) as the informing theory to which the empirical data were matched, along with the additional criteria of culture. Culture has been defined as the shared knowledge of a group of people, which affects behavior, beliefs, art, relationships, stories, language, and general human navigation through a community. The tribal college is a deeply cultural environment in which students are able to access opportunities in higher education. The survey asked students to identify the importance of the tribal college to them, the importance of being able to attend a tribal college, and the importance of their participation in the social activities associated with student life in a tribal college. According to Chesebro, Green, Mino, Snider, and Venable (1999) a common thread running through all models of learning communities is a focus on a learner-centered model of education. However in the tribal college, the learning community is more than this: it represents the cultural extension of the indigenous family within the setting of higher education.

Student Interview Analysis

Tape recordings of student interviews were transcribed verbatim. The transcribed data were then treated to a preliminary analysis, highlighting those passages within the text that referenced the interview questions directly. Those passages were then transferred to a matrix that integrated the eight learning community criteria with student responses and tribal institution, to delineate direct references to established learning community practices — the eight learning community criteria. Finally the data were categorized according to learning community criteria and tribal college.

Faculty and Staff Interview Analysis

Data from the semi-structured group interviews conducted by the researcher with teacher education faculty and staff at each research site were processed in the same way as the student interview data. The faculty/staff interview data were analyzed by looking for evidence of the learning community criteria and extra-curricular activities to promote student-faculty collaboration, examination of the history of the cohort model at each independent case study site, elicitation of faculty and staff perceptions of what a learning community should actually look like, and opinions about the possible effect of a learning community on student persistence toward degree completion in teacher education in a tribal college.

Findings

The American Indian Higher Education Consortium (AIHEC) provides leadership and influences public policy on issues related to American Indian higher education. Within the existing 37 tribal institutions, only six conferred a bachelor's degree in teacher education at the time of the study: Salish Kootenai College (SKC), Pablo, Montana; Haskell Indian Nations University (HINU), Lawrence, Kansas; Sitting Bull College (SBC), Ft. Yates, North Dakota; Sinte Gleska University (SGU), Mission, South Dakota; Oglala Lakota College (OLC), Kyle, South Dakota; and Turtle Mountain Community College (TMCC), Belcourt, North Dakota. Oglala Lakota College contributed only to the faculty and staff interview data due to the recent dissolution of their cohort model learning community in teacher education. OLC operates 11 college centers across nine districts of the Pine Ridge Reservation, Rapid City, South Dakota, and the Cheyenne River Reservation in Eagle Butte, South Dakota. Geographically, the cohort model learning community did not

prove to be a sustainable institutional learning support in such a remote area. Perhaps with continued advancements in virtual technology, successful strategies in on-line learning communities will be a possibility at OLC. With one exception, each of these institutions is designated as a tribal college under the Tribally Controlled Community College Act of 1978. The exception, Haskell Indian Nations University, is a Bureau of Indian Affairs (BIA) institution and has non-voting associate membership within the American Indian Higher Education Consortium (Gipp, 2009). As noted earlier, five of the six tribal institutions are located on reservations and primarily serve the tribal population in that geographical area, although not all students enrolled in tribal colleges are of American Indian heritage. Haskell Indian Nations University is unique in that it represents an American Indian student population composed of members from more than 100 tribes from across the United States. Salish Kootenai College offers bachelor's degrees, associate's degrees, and certificate programs from its main campus on the Flathead Reservation, as well as satellite campuses in Washington (Colville, Spokane, and Wellpinit). Sitting Bull College is situated on the Standing Rock Indian Reservation, which has a land base in both North and South Dakota; the college has two campuses which support the Lakota/Dakota traditions and culture, one in Ft. Yates, North Dakota, and one in McLaughlin, South Dakota. Sinte Gleska University (SGU) has one of the most extensively developed academic programs within the tribal college system. Students enrolled at this institution may select from 25 associate's programs, 23 bachelor's programs, and/or two master's programs. SGU is located on the Rosebud Sioux Reservation, South Dakota, home to the Sicangu Lakota Oyate. Directly west of the Rosebud Sioux Reservation is Pine Ridge Reservation, where Oglala Lakota College is located. OLC also offers degree programming to the master's level and is most noted for its extensive network system across the Pine Ridge Reservation territory.

OLC operates a central campus in Kyle, South Dakota, and has branches on each of the nine reservation districts, in Rapid City, and on the Cheyenne River Reservation. Turtle Mountain Community College (TMCC) is located on the Turtle Mountain Indian Reservation in north central North Dakota. TMCC was chartered by the Turtle Mountain Band of Chippewa in 1972, making it one of the oldest tribal colleges currently in operation. TMCC offers associate's, bachelor's, and certificate programs, and boasts a green campus with a wind turbine (erected in 2008), which provides a major portion of the electrical power to the main campus.

One hundred and nine respondents contributed to the three datasets. For the student survey, N=83; for the face-to-face student interview, N=20; and for the teacher education faculty and staff focus group interviews, N=6 (one focus group interview was conducted per tribal institution in the study). Student interview, student survey, and faculty/staff interview findings have been summarized briefly according to the relationship that the three research questions have to the learning community criteria, and to measures of personal and academic adjustment. In many instances, student voices are included in the narrative to provide deeper contextual understanding of their personal stories.

Student Perspectives: Student-Student Collaboration

In the interviews, students described having a positive collaborative relationship with their peers that mimicked a family in many respects. The presence of this concept was reinforced by senior Haskell Indian Nations University students in teacher education, referring to the cohort as a support system that acted more like a family. "We all get along really [well]. I love all of them — I really do. They are like another family to me." Survey data indicated that when compared to the period

before admission into the teacher education program and its cohort model learning community, students experienced an increase in time spent studying together in collaborative groups, and an increase in the amount of learning that occurred when collaborating with each other. In most instances, students reported they enjoyed working together in groups.

Student Perspectives: Student-Faculty Collaboration

Interview data categorized as student-faculty collaboration revealed a common perception among learning community students of the importance of faculty accessibility. Faculty demonstrating characteristics of compassion, encouragement, dedication, and overall closeness in their relationship with the students were considered critical factors in the development of a meaningful student-faculty collaborative association. According to a student from HINU, "[If] we are just having a bad day, they just reach out and just talk to us." Another female student from SBC contributed, "I just see the passion coming through … they are just so inspired and just so enthusiastic!" Students reported in their surveys that they experienced an increase in student support, student learning, and motivation to learn following admission into the teacher education program.

Student Perspectives: Academic Involvement

Academic involvement is typically characterized by an increase in time spent studying. According to student interview data, the number of hours spent studying after being admitted into the teacher education program increased. In some instances, students indicated they did not study more hours than they had before admission into the program, but rather they studied in different ways, which integrated their new knowledge into their daily lives and increased their understanding of how this knowledge will contribute to their future effectiveness as educators.

Increased difficulty of course work, and the perception that academic involvement was critical to their future professional preparation, also were key factors in student responses. "Now in the teacher education program I'm studying for a purpose … I need to know these things because they are going to impact the way that I teach," reported a SGU student. Survey data revealed that prior to entering the cohort, a majority of students spent less than five hours per week studying and preparing for class compared to ten hours or more after those same students had been admitted into teacher education.

Student Perspectives: Perspectivism

The study also measured the concept of perspectivism, which refers to students' ability to recognize multiple points of view and incorporate these diverse worldviews into their understanding of their intimate place in this world. This phenomenon was described in various ways by interviewed students at each of the tribal colleges. Some students indicated that their perspective with regard to their place in this world and their duty to their tribe and reservation community had changed drastically since entry into the teacher education program. Turtle Mountain Community College students offered these comments related to perspectivism: "As far as [a] global understanding, I have always tried to be as informed as [possible]. That actually helped me in the cohort because I was actually able to approach it from an understanding of different cultures and inner city conflict…." Other students felt that their perspective had narrowed after entering the program, a viewpoint that was attributed to a feeling of greater responsibility to their home community and reservation, rather than to the global community at large. Survey questions measuring perspectivism also addressed personal feelings associated with culture, such as welcoming divergent viewpoints when discussing cultural issues. SGU students reported that they felt they

needed a broader perspective to be able to relate to diverse students in their future classrooms, "I think … because somehow we have to be the ones to make a difference in class, teaching the kids, teaching them everything that is out there, and the different cultures, and everything." By contrast, one HINU student associated perspectivism with cultural awareness and self discovery, "… before this, when I grew up in school, I knew nothing about it [personal cultural background] … then I came here and through my classes and everything … it's completely changed my perspective on everything." Another student from HINU voiced a greater awareness of the diversity of her community and the possible impact this may have on her professional career:

> I think that really where my view has changed [is like] the kids and the kids of the world…the diversity of public school, and the diversity in different methods of teaching. I think that is where mine [change in perspective] has been.

Student Perspectives: Cooperative Learning

The existence of the idea that the learning community operated as a family in the tribal college was evident in interview responses to questions about cooperative learning. One Salish student from SKC commented, "The good thing about the groups is a lot of the classes are so small that we almost function as a group. We collaborate really well; there is a lot of room for talking about opinions, especially cultural opinions." The idea that the cohorts functioned as a family was expressed by another student from SKC: "It's like we have formed this family and it's all so compact and it's so culturally based…."

Two students indicated a preference not to work in groups because of the lack of experience other cohort members had with this type of academic structure. Overall, however, survey data regarding cooperative learning suggested that respondents were comfortable in

group-oriented problem solving, they enjoyed working on projects together, and they agreed that a group can come up with more creative solutions to cultural problems. Probably one of the most interesting findings was the use of social networking to further strengthen the cooperative learning initiatives by tribal college students. For example, Haskell Indian Nations University students felt that they relied heavily on cooperative learning groups, especially prior to big exams or projects. "When [we] hand something in, we complete it, and post it [on Facebook]; we talk about it, we show each other our work, and then we all turn it in as a whole." The use of social networking as a tool in the academic setting was just beginning at the time of this study. Now social networking and a variety of electronic devices and applications are broadly used by students and faculty alike.

Student Perspectives: Linking Academics to Life Experiences

Whether or not the program linked academics to life experiences was another criterion assessing the existence of an effective learning community (Snider & Venable, 2000). Tribal college students associated this criterion with the concept of family. Many interviewees described their own recognition of classroom learning, comparing it with their experiences at home with their own children or relatives, as well as their paraprofessional workplace, in some cases. An older female member of the Sinte Gleska University cohort recounts, "A lot of what I am learning now I can apply to the time that I spend with my grandchildren …." Sinte Gleska University students supported sentiments of other tribal college students with regard to relating academic issues to real life experiences within their families. Survey data measuring this criterion reported overwhelming support for classroom learning in teacher education that had practical application to cohort members' daily lives.

Student Perspectives: Interdisciplinary Learning

Interdisciplinary learning, the practice of connecting courses together by a common theme, was viewed by student interviewees as a critical and important characteristic of the cohort model learning community in tribal college teacher education programs. Students acknowledged the importance of instructor preparation in developing a curriculum that promoted multidimensional learning. A cohort member from SBC described it in this way:

> I was actually sharing [with another cohort member]… how at least the four different [classes] that we are taking, you [can] go from one class to the next and they were all talking pretty much on the same subject … reinforcing what we were learning, I like that.

A recurring theme within this category was student perception of the quality of education received at the tribal college in which they were enrolled. Students felt the curriculum was culturally relevant, the courses were rigorous, and the instructors had great expertise. Repeated comments noted how instructor preparation strategies made the curriculum tie together in ways that allowed for a deeper understanding of the subject material. A student at SKC recounts it in this way: "The teachers in the department just work so hard to get everything together, and plan their classes." Another common theme voiced by the students suggested that the interdisciplinary nature of the courses helped them look ahead to their professional careers as teachers. In the words of a senior HINU student:

> I have learned how to really incorporate all across [the curriculum] … you have to learn how to put that all together. I am looking for teaching deep; it has more meaning [for me]. Now I see where all of the things that I am learning in school [are] really fitting into the puzzle of why I learned it and what I can do with it. I see now.

Survey findings revealed students felt that material learned in one class facilitated understanding in another; examining complex problems and issues was assisted by the interconnection between classes, and their college education would prepare them to understand how experts in different fields examine similar problems and situations.

Student Perspectives: Knowledge Constructivism.

Both junior and senior teacher education students approached the complex theory of knowledge constructivism with hesitancy at all tribal colleges. In some cases, students expressed that they were seeking a better understanding of knowledge constructivism, or they associated knowledge constructivism with furthering their college educational goals past a bachelor's degree in education. Clearly teacher education students in tribal colleges at the time of this study were confused about the philosophy of knowledge constructivism. Ironically, when students were questioned in the survey on measures associated with knowledge constructivism, they were more definite in their perceptions. For example, students felt that thinking and reasoning helped individuals create important new knowledge; they tried to explore the meaning and interpretations of the facts when introduced to new ideas; and discovering new ways of understanding things inspired and motivated them to learn. Perhaps the differences in student responses were related to the context in which the questions were posed. Within the survey there were distinct choices from which they could formulate a response, as compared to the interview where students needed to frame their responses themselves and speak from their intrinsic knowledge of constructivism. More study in this area may be warranted.

Student Perspectives: Culture

Student connections to and understandings of culture, Native or otherwise, in tribal college professional K-12 teacher education programs was articulated in a wide array of personal accounts ranging from self-enlightenment regarding their own personal heritage, to visions of a strengthened indigenous empowerment with which the next generation of Native people will be charged. A first-year teacher education student from Haskell Indian Nations University describes her experiences in this way:

> The only thing I knew about my Indian heritage … was what my grandma told me; and it wasn't really something we talked about all the time. But I started here [at HINU] and I got to know the people … and now it's like I *know* the people … and now it's like I understand the culture.

Another HINU student added, "Before this [teacher education cohort model learning community], when I grew up in school, I knew nothing about it [Native culture]. Then I came here and through my classes and everything … it's completely changed my perspective." In both of these cases, the HINU students were from urban areas. Tribal college students living in the rural reservation environment differed in the strength of their cultural self-identity, as can be seen in the following comments from students on the Turtle Mountain, Flathead, and Rosebud Sioux Indian Reservations. A fourth-year TMCC teacher education student reflected upon how the tribal college had affected his personal understanding of culture. He described his frustration over the Euro-centric bias in his reservation high school social studies classes:

> When I found out about our history [in courses he had taken while enrolled at TMCC] … if they would have shown me [while in high school] some of the true

> history, some of the actual happenings that had gone on, I think I would have gotten really angry.

SKC students relayed how passing the knowledge of their culture to students in their future classrooms was of great importance: "I want them [Head Start children] to know themselves as Americans … as tribal people; to know who they are in regard to the [reservation] community." In a related comment, a fourth year student at Sinte Gleska University stated, "I really like that they [elementary school curriculum planners] brought culture into the classrooms. I think it's really important for our students to understand their backgrounds." Students (SKC) also regarded the integration of culture in their teacher education training as being vitally important to them as they approach their professional career in education. As one student said, "As far as the philosophies and stuff [*sic*] here, we really kind of focus on culture … and implementing that into the classroom." A TMCC student adds, "I want to be the best teacher I can be for … the children on the reservation, or off the reservation." Survey findings reported that tribal college students shared a strong cultural connection, felt they were more academically successful because their unique cultural heritage was supported in this environment, felt that selecting their education from tribal college programs had been a good choice, and liked being enrolled in a tribal college.

College Adaptation Dimensions

In this study, college adaptation dimensions (academic and personal adjustment) (Snider & Venable, 2000) were examined to assess student perceptions of the value of education, their evaluation of various skills that might enhance college success, and their feelings about the college experience in general. The survey explored these student perceptions of academic and personal adjustment and found that students recognized the importance of increasing their understanding of a variety

of topics while in college so that they would be better prepared for entering the workforce and engaging in active citizenship within their community. With regard to personal adjustment, students acknowledged that they enjoyed their experiences at the tribal college, were appreciative of the fact that they received a high-quality education while remaining in their home community, and, as a result of their time in college, had begun to spend more time planning for the future.

Faculty Perspective on Purposeful Design

The second research question sought to answer whether the learning communities within the tribal institutions that offer baccalaureate degrees in teacher education were purposeful. An institution would be considered to be purposeful in its development of a learning community if it had the following:

> (a) a structured curriculum which links courses together,
> (b) interdisciplinary activities that engage all students collaboratively, and
> (c) planned on and off campus activities in which students participate in order to develop skills in citizenship, multiculturalism, critical thinking and global perspective (Engstrom & Tinto, 2008; Gabelnick, MacGregor, Matthews, & Smith, 1990; Jehangir, Williams & Jeske, 2012; Lenning & Ebbers, 1999).

Data from faculty and staff interviews were used to further understand the method by which tribal college faculty implemented this learning construct. Questions were posed to faculty members from a pedagogical perspective.

Tribal college faculty discussed several methods used to encourage student-student collaboration, including group projects, cooperative learning groups, and service learning within the community.

The impetus by faculty and staff to establish a strong student-student relationship within their cohort stemmed from the philosophical beliefs of the department, as illustrated by this statement from SKC: "It's [student-student collaboration] one of the five beliefs that we have built into our conceptual framework." The faculty at SKC also believe that their students perform at a higher level when they feel that they are part of a group. As one said, "Our students do well when they feel like they are a part of a community, when they feel like they are part of something bigger, not just an individual going through a program."

Student-faculty collaboration was fostered through student advising, accessibility, humor (a cultural characteristic), and listening to students' concerns in a meaningful way. Faculty-student collaboration was investigated for two reasons. First, the researcher wanted to determine the extent to which tribal college teacher education faculty reached out to students within the environment of the classroom and institution; and second, examining such contacts provided a way to evaluate whether faculty utilized out-of-classroom opportunities to develop a faculty-student bond. Sitting Bull College faculty cited student advising as a primary avenue for getting to know the students in a more meaningful way. One SBC faculty added this: "Humor, I have a dry West River humor, it helps the students to relax." This same faculty member referred to various techniques that he had used to develop a relationship with students in his courses during his career as an instructor at SBC:

> I listen; as a counselor I have been trained to do this, as well as [to use] positive reinforcement, and I compliment their ideas. The other thing is that I am accessible and dependable. They can count on me.

Outside of the classroom, faculty engaged students in community-based activities, cultural immersion field trips, teachers' clubs, and community activities that included elders as the main source of cultural information

and support. Oglala Lakota College faculty members looked to their elders' cultural perspectives first when developing a tie to their students, and hence to the community:

> [We hold an] Awareness Walk with elders of the community, where they tell stories … and a family literacy [program] run by the Bear Project. They [the teacher education department] also have a bus that takes the education students out to the Head Start Centers so they can do advocacy projects that are required by the education department.

Academic involvement was viewed by all faculty as a complex issue that has numerous components and outcomes. Students' academic involvement was affected by stipends, national assessment exams, student demographic characteristics, personal family issues, their work load, and the students' often meager prior knowledge and limited academic skills. While all faculty members agreed that students were genuinely motivated to be academically successful, they worried that many of the previously mentioned variables had unfortunate and negative consequences for academic performance. Oglala Lakota College faculty agreed that student academic involvement was a complex phenomenon, but further contributed these comments on changes in student demographics they have witnessed in recent years:

> … we are dealing with adults that have gone through the mind-deadening education system [representative of Indian Country], so we have to inject them with a little liveliness here and there. We are seeing a different group of students than what we have previously had. Where the majority of our students once were paraprofessionals, now we are seeing … a big difference between the teacher candidates who really want to be a teacher, and those who are choosing to take the classes because teaching … is the better option … for a job on … the reservation. For those that are simply looking at it as the best of the options, their

> motivation and involvement in the class is not at the level of those who really truly want to be teachers.

The criterion of perspectivism (recognizing a variety of perspectives in the world as well as incorporating these in an effort to better understand the social environment) was unanimously regarded by faculty surveyed as one of the weakest links in their program. While some members felt that it is probably the most important skill they can develop within pre-service educators, the challenge they faced remained to avoid sacrificing the students' Native identities in the process of developing a global perspective. These data described the efforts of tribal college teacher education faculty and staff to bring forth an awareness of a larger global view to cohort members. A SKC Elementary Education faculty member discussed perspectivism in this way:

> That's probably one of the most important things in preparing pre-service teachers to go into the classroom; to have that ability to understand that there [are] all kinds of things going on in their…classroom. The challenge is to always…examine and validate their [cohort member's] identity, and celebrate that identity. At the same time [you need to] bring them into a world with all of these various mainstream rules and expectations…about writing and behaviors, and interactive styles. I think it's the most rewarding part of what I do here…to bring them [cohort members] into that world successfully without sacrificing their identity. That's what tribal colleges can do, that I don't think the larger mainstream institutions do well.

Cooperative learning was viewed by faculty members and staff as an integral part of their methods classes. Sinte Gleska University faculty reflected with some amusement on how their purposeful implementation of a cooperative learning environment in the classroom was met with a bit of disbelief from those students outside of teacher education who enroll in an education class as an elective: "Occasionally students from other

departments come in and go through the syllabus and it's like, 'Oh my gosh, we have to talk to each other?'" In some cases cooperative learning only occurred within the confines of the classroom due to geographical distances between students on some reservations, or the overburdened daily schedules of students who juggle family, work, and college.

Research has shown that learning communities are more effective if the classroom structure is designed to link academic issues to life experiences (Chesebro, Green, Mino, Snider, & Venable, 1999). During the faculty and staff interview discussion of this criterion, three themes became evident. First, students oftentimes make connections between their family and classroom learning. Second, students make connections between the workplace and classroom, and, third, faculty are aware of their responsibility in assisting their students in making such connections between their real life and their academic life in order to enrich the learning experience. An Oglala Lakota College faculty member contributed the following observations regarding the connection between academics and real life experiences: "A good instructor should always put a student in a situation where they make those interrelationships with personal life and that of academic life… That's how you retain information, by making those bridges between self and content …"

During the interview, tribal college faculty and staff reflected upon the seventh learning community criterion, interdisciplinary learning, describing a number of strategies that demonstrate purposeful efforts to expose the teacher candidates to this type of learning. Examples of these strategies include:

(a) weaving a common theoretical premise throughout numerous courses,
(b) sharing workloads among faculty members,
(c) utilizing templates that allow assignments across the curriculum to be consistent, and
(d) diligent curriculum mapping.

In one case, TMCC faculty said that providing interdisciplinary courses was their goal, but as of yet it had not been fully realized. However, Sinte Gleska University faculty noted that they had spent several years purposefully mapping out the curriculum, working toward an outcome of interdisciplinary learning.

Research suggests that learning communities that promote knowledge constructivism in the classroom create an environment for creating new understandings, or generating and constructing new knowledge. In all cases, faculty interviewees said the philosophy of knowledge constructivism was an integral part of their entire education program and their courses were organized to build upon one another. Admittedly though, faculty members felt unsuccessful with regard to their goal of promoting knowledge constructivism within the school systems in and around the reservation which the tribal college served. The reason most often cited was the heavily-scripted instruction model that is currently prevalent in K-12 school systems across Indian Country. Practicum students, student teachers and early career teacher graduates from tribal colleges who choose positions within the BIE system are mandated to follow the scripted curriculum purchased by the districts.

Tribal college faculty and staff members were asked to describe in their own words what they felt a cohort model learning community was. Among the responses recorded were that learning communities

(a) Involve building meaningful relationships that support each other;
(b) Have a family-like quality, for better or worse;
(c) Involve reciprocal learning, where students and instructors learn from each other;
(d) Promote reflective practice;
(e) Are about student development with respect to shared learning and support for one another.
(f) Are environments where learning can occur, and
(g) Are natural processes created at a tribal college.

Cohorts, by contrast, are groups of students who attend a given program together, simultaneously; they often are created by grant funding that provides finances for a particular program or group of students over a given period of time. Cohorts can exist within learning communities.

Purposeful Implementation and Student Persistence

The third research question asked how the purposeful implementation of a cohort model learning community influenced student persistence. Faculty members stated that the cohort model learning community enhanced their efforts to retain students, and ultimately affected student persistence to degree completion. From the perspective of Oglala Lakota College, the time that students take to complete their degree currently is longer, now that they do not operate a cohort model learning community in teacher education. In some cases, faculty refer to the mandates of the Bureau of Indian Education and No Child Left Behind legislation as having an impact upon teacher and para-professional persistence directly through continued future employment within BIE/Head Start programs. In essence, in order to continue in federally funded education systems, teachers and para-professionals are expected to meet the criterion of "highly qualified." Finally, one institution referred to deep-seated acknowledgement of the Lakota culture's foundational unit, *Tiospaye*, (tee-o-shpa-yea), a small group of individuals who are related to each other, as having the strongest influence on student persistence.

Discussion

From its humble beginnings, the tribal college system, under the guidance of the American Indian Higher Education Consortium, has played a pivotal role in charting the course of higher education for Native Americans. The tribal college serves as the hub of the reservation

community, and is charged with the education of all Native people. Generally speaking, tribal colleges offer two-year associate's degrees; however, there are a few tribal institutions that have met the rigorous accreditation requirements for four-year bachelor's degree programs in teacher education.

Traditionally, Native people have utilized cooperative effort to sustain and protect the communal groups in which they live. This is a natural process. Within tribal college teacher education programs, this natural system of behavior is observable, and manifested in the cohort model learning community. Beck and Kosnick (2001) noted the emerging trend of cohort programs in pre-service teacher education, and argue that these cohorts can intentionally and deliberately be transformed into communities of practice (Poole, 2004). This is because the established characteristics of a learning community are student-student collaboration, student-faculty collaboration, academic involvement, perspectivism, cooperative learning, linking academics to life experiences, interdisciplinary learning, and knowledge constructivism — all of which are features of traditional Native teaching and learning. Evidence of these eight criteria have been reported upon in this study in various ways to elicit a definition of the cohort model learning community as it has been deeply established within the tribal college environment.

What has become strongly evident is that across all tribal colleges, the cohort is treated as a family where time is spent together working toward common goals for the good of all involved. This assumption is further supported by the work of Beachboard, Beachboard, Wenling, and Adkison (2011), which proposes that cohorts work best when the learning environment increases students' feelings of relatedness, which has been shown to directly influence individual student performance. Relatedness can be defined as the need to feel belonging or interconnection with others (Ryan and Deci, 2000). What may be of

greatest significance in understanding the cultural importance of family and the theoretical construct of relatedness is how the incorporation of these qualities in a learning community may be a predictor of student persistence (Beachboard, Beachboard, Wenling, & Adkison, 2011; Hausmann, Schofield, & Woods, 2007). Tribal college students exhibit adaptations in academic involvement that are not commonly witnessed by mainstream college faculty. The typical tribal college student balances a number of pressing responsibilities that may include family, work, and social disadvantage. Yet, in the face of these potential obstacles, students manage to actively pursue their degree. Tribal college faculty members are keenly aware of these issues, and would add student deficits in prior knowledge and basic skills to the list of aforementioned challenges. Consequently, faculty members often simultaneously attend to the teacher education curriculum while reinforcing, and in some cases re-teaching, general education skills.

The reservation is a unique community. Tribal college students have a strong connection to these places that constitute home. Of the students interviewed, none were inclined to leave their community. In many respects, the tribal college represents place-based education in its most genuine form. Tribal college student participants in this study highly anticipated a time when they would have the skills necessary to give back to their reservation and Native people the knowledge acquired while pursuing their degree. Students understood there is a much larger world beyond the reservation, and in fact enjoyed classroom discussions that were more global in perspective. However, the students maintained that their perspective was centered upon their reservation, community, home, and family. Tribal college faculty members recognize this limited viewpoint, and purposefully integrate a larger sense of perspectivism, the integration of multiple viewpoints and understandings into the classroom and the teacher education curriculum at large. Still, the development of

student awareness of perspectivism is an acknowledged weak point within the learning community structure in tribal college teacher education programs.

Co-creating knowledge through cooperative learning and experiential knowing is identified as an important outcome of cohort learning (Lawrence, 2002). The tribal college cohort family comes together to share in mutual cooperative learning that benefits all participants. Students in this study strongly supported the numerous opportunities to work in cooperative groups and they became comfortable with the systematic way in which all members shared, formally or informally, in the effort involved to create a quality piece of work. In cohort learning groups, the knowledge that is co-created is greater than the sum of each individual member's knowledge (Lawrence, 2002). Beachboard, Beachboard, Wenling, & Adkison (2011) associated the high impact of student participation in a learning community with a heightened ability to work with others to solve complex job-related problems. This skill is of great importance in future workforce development. In the tribal college, learning is transformed into a deeply personal experience when connections to life experiences can be realized. This became most evident in the emotional testimony from tribal college students. Repeated references to their family, extended family, and workplace solidified the importance of linking academics to life experiences. Faculty member statements further substantiated these sentiments and were capitalized upon to further strengthen the discussion within the classroom.

In addition, student behavioral characteristics must be more fully explored as factors involved in student departure. Recently, more empirical emphasis on student perceptions of institutional commitment to student welfare, particularly at commuter colleges, has become prevalent (Braxton & Hirschy, 2005). This research focuses not only on student

perceptions of the cohort model learning community, but also the holistic purposeful engagement of this practice by the tribal college teacher education administration, faculty and staff, as evidenced by curriculum design, mapping, and inclusion of extra-curricular/community involvement projects.

Due to the unique demographic characteristics of the tribal college, student, personal, and academic adjustment (affective behavior) to the college environment was deemed relevant in this study. The question, simply put, was, "How do tribal college students internalize their educational experiences?" The resultant data illustrated that cohort members are deeply aware of their role in the future of education in Indian Country. They are concerned about the future, and spend an inordinate amount of time contemplating their career options. At the same time, the stress of meeting the academic expectations of their plan of study, while juggling their overwhelming personal responsibilities, can at times overshadow their efforts in both domains.

Closure to this discussion reflects back upon the faculty and staff group interview. In order to establish whether or not their strategies to implement a grounded cohort model learning community in teacher education was successful, and in turn advanced student persistence, developing an understanding of their perception of what a learning community is was critical. While no two colleges participating in this study operated within the same boundaries in their approach to the learning community, their philosophies were similar in ways that create a common voice among tribal colleges at large. The dedication of tribal college faculty cannot be credited enough. They are motivated by a shared vision of educational equity for all children, but especially those of Native descent. Their career choice speaks to a larger agenda that is driven not by personal gain, but rather by commitment to educational reform. To these individuals, a learning community represents

relationships that are supportive, in which participation by student and faculty is shared equally, where reflective practice leads to deeper understanding, and the overall environment is conducive to learning. The learning community is a transformative arena wherein a group of students who do not know each other very well soon become a family, sharing in the joys and uncertain times that manifest themselves in daily life. This type of participative relationship reflects the strong cultural ties among Native people, and serves as another means by which Native American students in tribal colleges can realize success in teacher education. Students feel they are not alone in this educational endeavor; they have each other and their faculty mentors as a support system. In Native communities, learning traditionally occurred in a supportive environment that involved the entire community; each member had a stake in the overall learning process that sought to benefit the entire group. In this same way, the purposeful implementation of the cohort model learning community by tribal college faculty mimics the deliberate involvement of an entire community in fostering the education of a Native person. With the support of an entire community, students succeed. Cohort model learning communities affect student retention and persistence to degree completion in positive ways. Each student represents a family member, each culture is validated, and everyone is related; in the words of the Lakota people, Tiospaye, one's extended family, guides success.

Recommendations for Further Study

Future study of tribal college cohort model learning communities should incorporate a longitudinal study of students that would include objective data from pre-learning community status through first year professional in K-12 education. A study of this nature would describe tribal college teacher education students in greater detail and

shed insight upon their pedagogical and content studies preparation associated with participation in a cohort model learning community.

Other areas for future study would be in those tribal colleges that have digressed from the cohort model learning community, which in most cases is dependent on the periodicity of grant funding, to that of a learning community that operates in a similar manner, but is more flexible in its student body make-up (first year students and/or students of junior level status). In what ways have these institutions fostered a sense of community? How are these learning communities different, and are there associated changes in student persistence?

Finally, further study of institutions that serve multiple tribal affiliations is deemed important. For example, cohort members at Haskell Indian Nations University responded to 15 of 42 survey questions with high variability. In addition, Haskell faculty described how the intermingling of several tribal groups leads to disharmony within the cohort that can be a challenge to rectify.

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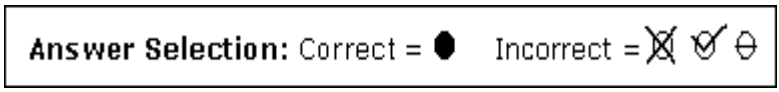
APPENDIX A

Student Survey

Dear Participants:

Please record the best response for each question. There are no right or wrong answers. Many of the statements are similar to other statements, but do not be concerned about this. Work quickly, recording your most honest impression to each statement. Mark **ALL** of your responses on the answer sheet, using scales provided to describe or reflect your personal feelings or experiences:



1. During a typical week in college ***prior*** to entering the teacher education program, how many hours did you spend with other students studying or preparing for class (e.g. homework assignments, projects, and exams)?
   - O Less than 1 hour per week
   - O 1-5 hours per week
   - O 6-10 hours per week
   - O 11-15 hours per week
   - O 16 or more hours per week
2. During a typical week in college ***after*** entering the teacher education program, how many hours did you spend with other students studying or preparing for class (e.g. homework assignments, projects, and exams)?
   - O Less than 1 hour per week
   - O 1-5 hours per week
   - O 6-10 hours per week
   - O 11-15 hours per week
   - O 16 or more hours per week
3. During your last year of college ***prior*** to entering the teacher education program, how much did you learn by interacting in student groups?
   - O an incredible amount
   - O a lot

- O some
- O very little
- O nothing

4. ***After*** your admission into the teacher education program, how much have you learned by interacting in student groups?
   - O An incredible amount
   - O A lot
   - O Some
   - O Very little
   - O Nothing
5. During a typical week in college prior to entering the teacher education program, how many hours did you spend studying or preparing for class on your own (e.g., homework assignments, projects, and exams)?
   - O Less than 1 hour per week
   - O 1-5 hours per week
   - O 6-10 hours per week
   - O 11-15 hours per week
   - O 16 or more hours per week
6. During your last year of college ***prior*** to entering the teacher education program, how much did you enjoy learning in student groups?
   - O I enjoyed it tremendously
   - O A lot
   - O Some
   - O Not much
   - O Never worked in student groups
7. ***After*** your admission into the teacher education program, how much did you enjoy learning in student groups?
   - O I enjoyed it tremendously
   - O A lot
   - O Some
   - O Not much
   - O Never worked in student groups

8. How often did you receive supportive individual attention from your college instructors ***prior*** to entering the teacher education program?
   - O Very often
   - O Often
   - O Sometimes
   - O Not very often
   - O Never

9. How often have you receive supportive individual attention from you college instructors ***after*** being admitted into the teacher education program?
   - O Very often
   - O Often
   - O Sometimes
   - O Not very often
   - O Never

10. ***Prior*** to entering the teacher education program, how much did you learn by talking and working with your college instructors?
   - O An incredible amount
   - O A lot
   - O Some
   - O Very little
   - O Nothing

11. ***After*** being admitted into the teacher education program, how much have you learned by talking and working with your college instructors?
   - O An incredible amount
   - O A lot
   - O Some
   - O Very little
   - O Nothing

12. To what extent do you agree with this statement: "The supportive attention and encouragement I received from my college instructors prior to entering the teacher education program really motivated me in my classes."
   - O Strongly agree
   - O Agree
   - O Disagree
   - O Strongly disagree

13. To what extent do you agree with this statement ***after*** being admitted to the teacher education program: "The supportive attention and encouragement I received from my college instructors really motivates me in my classes."
   - O Strongly agree
   - O Agree
   - O Disagree
   - O Strongly disagree

14. During a typical week in college ***after*** entering the teacher education program, how many hours do you spend studying or preparing for class on your own (e.g., homework assignments, projects, and exams)?

- O Less than 1 hour per week
- O 1-5 hours per week
- O 6-10 hours per week
- O 11-15 hours per week
- O 16 or more hours per week

15. What best describes your attitude toward studying this semester?
    - O I like to study
    - O I don't mind studying
    - O I'd rather not study, but I do
    - O I don't like studying at all, but I do
    - O I should study, but I don't
16. To what extent do you agree or disagree with the following statement: "In the teacher education program, I learn a lot from doing class assignments."
    - O Strongly agree
    - O Agree
    - O Disagree
    - O Strongly disagree

On questions # 17-25, select one response that best indicates how much you **agree** or **disagree** with each statement.

17. I enjoy discussing cultural issues with people who don't agree with me.
    - O Strongly agree
    - O Agree
    - O Disagree
    - O Strongly disagree
    - O I do not discuss cultural issues with other people
18. Given the same set of facts about a cultural issue, people will form the same opinion.
    - O Strongly agree
    - O Agree
    - O Disagree
    - O Strongly disagree
19. Students in this institution share a common cultural connection.
    - O Strongly agree
    - O Agree
    - O Disagree
    - O Strongly disagree
20. Students at this college are more academically successful because their unique cultural heritage is supported in this environment.
    - O Strongly agree

O Agree
O Disagree
O Strongly disagree

21. I usually choose sides quickly when there are competing points of view.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

22. On difficult cultural issues, I am more comfortable participating as a member of a group in problem solving.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

23. I enjoy working with others on group projects or assignments.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

24. A group can almost always come up with more creative solutions to social cultural problems than can an individual.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

25. A lot of what I have learned since entering the teacher education program can be applied to my daily life.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

26. Prior to entering the teacher education program, most of the ideas and information I was exposed to were uninteresting and not worth the time.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

27. In your college classes prior to entering the teacher education program, how often could you use your personal experiences to confirm or verify ideas presented in class?
O Very often
O Often

O Sometimes
O Not very often
O Never

28. During this semester, how often does something you learned in one class help you understand something in another class?
O Very often
O Often
O Sometimes
O Not very often
O Never

29. When examining complex problems and issues, I enjoy the diverse viewpoints that different courses can provide of the same topic.
O Strongly agree
O Agree somewhat
O Neutral or undecided
O Disagree somewhat
O Strongly disagree

30. A college education should prepare me to understand how experts in different fields examine similar problems or situations.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

31. Thinking and reasoning can help individuals create important new knowledge.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

32. I try to explore the meaning and interpretations of the facts when I am introduced to a new idea.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

33. When I discover new ways of understanding things, I feel even more inspired and motivated to learn.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

34. This semester, I only try hard in my favorite classes.
O Strongly agree

O Agree
O Disagree
O Strongly disagree

35. It is important that I increase my understanding of a variety of topics while I'm in college.
O Strongly agree
O Agree somewhat
O Neutral or undecided
O Disagree somewhat
O Strongly disagree

36. During this semester, I am interested in many subjects.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

37. During this semester, how much time do you spend planning for the future?
O An incredible amount
O A lot
O Some
O Very little
O Nothing

38. During this semester, how often do you feel "stressed" or overwhelmed by all of your responsibilities?
O Very often
O Often
O Sometimes
O Not very often
O Never

39. I enjoy participating in the social activities that the tribal college has to offer.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

40. During this semester, I worked to get involved in many aspects of the tribal college experience.
O Strongly agree
O Agree
O Disagree
O Strongly disagree

41. Given my choices, I think deciding to go to a tribal college was a good idea for me.

- O Strongly agree
- O Agree
- O Disagree
- O Strongly disagree

42. I like being enrolled in a tribal college.

- O Strongly agree
- O Agree
- O Disagree
- O Strongly disagree

Third Space for Cultural Relevance and Conceptual Understanding in the Tribal College Science Classroom

Jessie Antonellis, Little Priest Tribal College

Non-Native faculty members at tribal colleges do not typically have access to the cultural capital necessary to create culturally-grounded curricula, particularly in the sciences. However, by opening up their classrooms to student voice, Jessie Antonellis finds they have the opportunity to co-create hybrid dialogues built from the diverse perspectives of all members of the class in the third space*, the dialogue between the content and the personal. Examining her own classroom and reflecting on her practice, Antonellis illustrates how sharing power with students, maintaining a critical perspective of science, and making cultural and personal connections with the curriculum contributed to the development of* third space *in one tribal college science classroom.*

Introduction

Wilma Mankiller, former principal chief of the Cherokee Nation, stated that tribal communities simply do better when they manage their own affairs (2008). Thus, Native communities need their own scientists, who understand not only the underlying mechanisms affecting the tribal landscape but also the cultural considerations of the people. Likewise, community members must be aware of relevant scientific concepts in order to understand how their day-to-day activities interact with larger issues facing the community. Finding culturally-appropriate solutions to the scientific issues that face tribal communities requires local experts and a scientifically literate populace, both of which demand increased access to relevant, high-quality science education for tribal communities (James, 2001).

However, most students, both Native and non-Native, do not seek a strong background in science. For some students, factors discouraging interest in science are the disconnect between classroom

science and students' home culture (Aikenhead, 1996), the lack of perceived relevance to students' lives, and the perception that science is too difficult, too prescribed, or requires memorization of endless facts. Native students face additional challenges; a higher percentage of students in rural, low-income areas results in unequal access to quality math and science education (Babco, 2005), and more damaging still, Native students often face a threat to their cultural beliefs and values in embracing a scientific mindset (Gates, 2006).

Mainstream science education, highlighting the scientific tradition of the dominant Western culture, is not well-suited to the needs of Native students. Students from outside the dominant culture often find it difficult to relate to Western science because it is so dissimilar from their own cultures' means of understanding the world (Cajete, 1999). As with all human communities, Native communities have processes through which they gather and organize knowledge about the world around them (Cajete, 1999; Lambert, 2003). Like Western science, Native science "consists of a set of explanations which seek to make sense of the natural world and which are consistent with a particular worldview" (Baker, 1996, p. 19). As with all forms of science that humanity has constructed, Native science involves a curiosity about the world, deep observation, and the development of theories for how things work. Science for Native communities, unlike Western science, also embodies a philosophy that explores the spiritual connections between humans and all life (Cajete, 2000).

Despite all the obstacles, Native students continue to persist in science (National Science Foundation, 2006), so the issue is certainly not that students are unwilling or unable. The challenge is how to support Native students by providing tools for navigating potential landmines. Science curricula built within critical pedagogy and focused on personal and cultural relevance can encourage Native students to see that scientific

knowledge is a part of their cultural heritage. When students' understanding of science is situated within their culture, it is not only personally relevant to the students but also applicable within the contexts of their local communities.

This research represents an effort to encourage Native students to bring their cultural values and perspectives to bear on their science learning. Should students be inspired to pursue further study in the sciences, having viewed science through a cultural lens early in their post-secondary careers will provide them with a foundation for continuing to make connections between academics and their home culture in mainstream transfer institutions, where such connections likely are not explicitly nurtured. Further, should these students go on to become professional scientists, their knowledge of science, grounded in the worldviews of their communities and inclusive of their traditional knowledge, will afford students perspectives on their field that may be unique within the world of science.

Researcher Positionality

When I started out with this research, I approached it in a fairly standard way: establish the existence of a problem; propose a solution to the problem. I shifted the focus when I became aware that it was not necessary to do everything in the traditional manner. Of course any number of problems would become apparent if you begin with an expectation of finding them, but I did not want my research to start out with such a negative expectation. Rather, I wanted to highlight positive efforts that are being made in Native science education and contribute to those efforts. I chose this topic because I felt that, as a tribal college faculty member, I could contribute something positive for tribal college

students in science education, and because tribal colleges have the specific mission of making their curriculum relevant to their students.

I believe that, among other things, Native students have a right to learn about their scientific heritage, to help them extend their cultural knowledge and pride to their cultures' scientific understandings as well as to help them fend off the damage that can be caused by the effects of mainstream education. I felt that developing a culturally-relevant science curriculum for tribal college students could be a solution. I began this research project thinking I would develop a piece of science curriculum, try it out, and see how it went, but naturally the story took a turn for the more nuanced and less calculated when it was actually in progress. As the semester unfolded, I realized that what I was doing was not *for* my students, but *with* them. I was struck by my students' ingenuity that cropped up in unexpected instances, when they were given the chance to express it.

Background

Cultural Relevance

Efforts by educators to improve the educational experiences available to Native students often focus on enhancing the cultural relevance of the curriculum — for instance, by imbedding the context within models of the culture's worldview (e.g., Fenelon & LeBeau, 2006. Culturally-relevant curricula have been found (by studies such as Matthews & Smith, 1994) to promote Native students' academic success by immersing them in their own language and culture (Lee & Fradd, 1998; Pavel, Inglebret & Banks, 2001).

Cultural relevance does not necessarily entail teaching *about* the students' culture. It is focused instead on enhancing the relevance of the course material and activities for students by acknowledging that, for one,

neither students' identities nor their cultures are fixed, and, two, that students' cultural identities are likely hybrids of traditional culture, modern culture, regional culture, mainstream culture, popular culture, and other influences that they have incorporated over the course of their lives. In this sense, developing culturally-relevant curricula that align with students' goals and values, from whichever cultural reference frame those goals and values emerge, is not the purview of only those educators from the same cultural background as their students, but of all educators.

Ladson-Billings (1995) outlines three criteria for culturally-relevant teaching: that it (1) develop students' academic knowledge and abilities; (2) nurture students' cultural and academic identities; and (3) support students in developing a critical lens toward issues of social injustice. Culturally-relevant pedagogy as defined by Belgarde, Mitchell, and Arquero (2002) emphasizes the students' role in the co-creation of knowledge, through the making of connections between the content and their cultural backgrounds, which leads to student empowerment and collaboration with the instructor (Reyhner, 1992). Thus, if given the opportunity and support to do so, students themselves can help develop and structure the course content so that it both reflects and fosters their cultural identities, as called for within Ladson-Billings' criteria.

The importance of the students' role cannot be underestimated in the tribal college environment, where approximately two-thirds of the faculty nationwide is non-Native (Voorhees, 2003). We non-Native tribal college instructors generally are not as intimately familiar with the language and traditions of the Native cultures in which the colleges are imbedded. Despite tribal colleges' specific missions to offer culturally-relevant education to their students, most of the predominantly-White instructors do not have the same access to cultural capital as faculty members from within the community do. Thus, sharing power and responsibility for the curriculum with students is a pivotal tool for both

integrating cultural relevance with the content and supporting our students' identities and success.

Funds of Knowledge

I imagine that if we could step into the mind of a student, we could watch the construction of a striking web of connection-making as, for instance, the student's mind visualizes the kinetic energy of the molecules in a gas; compares their motion to that of dancers at a *waila*; recalls visiting a dance club called Kinetic when he was in the city; wonders if the temperature of the gas increases when there are more molecules, like a dance floor heats up when there are more dancers; considers whether his analogy reveals something meaningful about the personality of the Universe or is merely a consequence of human pattern-seeking (something he learned about from a magazine article he read); remembers a conversation he had with his grandfather about *I'itoi*'s sense of humor; and sketches a mental picture of the diagram he will make for his young niece to explain kinetic energy to her when he gets home. In the blink of an eye, a student creates a world and a context for new thoughts, grounded in any and all mental models, memories, philosophies, assumptions, and emotions that are triggered by his thinking, as well as any new ones that arise as a consequence.

Students draw upon their funds of knowledge from their communities, peer groups, popular culture and experiences when they interact with and seek to develop new learning. By the time students reach college, their knowledge resources are rich and complex; whether acknowledged by the instructor or not, these funds of knowledge influence what and how the students learn course material. Cajete (1988) advised science instructors to draw content from students' culture and experiences, grounding scientific concepts in what students already know about the world, incorporating cultural artifacts and community members

as resources, and using students' interests and concerns as jumping-off points to motivate students to learn about new topics in order to address salient issues in the community.

Students' funds of knowledge can be fruitful when acknowledged and welcomed into the classroom, despite the possibility for tension to arise when different perspectives come into contact (Gutiérrez, Rymes & Larson, 1995; Lipka, Sharp, Adams, & Sharp, 2007; Moje, Ciechanowski, Kramer, Ellis, Carrillo, & Collazo, 2004; Moje, Collazo, Carrillo, & Marx, 2001). One way to draw out the knowledge resources that students bring to the table is to create an atmosphere in the classroom where students' Discourses[1] — ways of being, thinking, speaking, believing, etc., that comprise a collective identity within a community (Gee, 1996) — are given privileged status alongside the academic Discourse (Moje et al., 2001).

Third Space

By including and valuing students' funds of knowledge in the classroom, a "third space" can be developed, in which the overlapping and intertwining of students' knowledge resources, the instructor's knowledge resources, and the Discourse of the content may result in significant opportunities for the class to create novel and unique understandings of the topic area. Gutiérrez, Baquedano-López, & Tejada (1999) characterize the third space as a zone of development (Vygotsky, 1978) where existing knowledge can be scaffolded to create new hybrid knowledge that takes from all shared perspectives. Constructing a third space involves utilizing different registers of discourse (e.g., formal and

[1] Gee uses lower-case "discourse" to refer to stretches of language — i.e., written and spoken text — and upper-case "Discourse" to refer to an "identity kit" for performing a particular social role, including discourse as well as the rules for how to act, think, interact, etc. Capital-D "Discourse" denotes not only the language but also the culture in which that language is used.

informal), sharing power (e.g., allowing students' questions and interests to drive an investigation and/or shape the curriculum), incorporating student innovations (such as students' connections between content and personal knowledge), and incorporating personal experience and narrative (Gutiérrez, Baquedano-López, & Tejada, 1999).

Diversity in the classroom discourse, including the role of the non-Native instructor, is valuable in the third space (Gutiérrez, Baquedano-López, & Tejada, 1999), as a resource from which the individuals in the class, as well as the class as a collective, can draw. Wrestling to reconcile disparate identities, motivations, perspectives, and values leads to unpredictable new understandings negotiated among the group and grounded in the context of the collective class experience. Thus, while the lack of understanding of tribal perspectives is a definite disadvantage for non-Native instructors who are striving for cultural relevance, the struggle for understanding on the part of each individual in the classroom can be a fertile ground for new co-constructed knowledge in the third space.

The pursuit of a third space constructed from students' funds of knowledge, within a classroom environment established by the instructor to foster an exchange of perspectives, can contribute to enhanced cultural relevance and, in turn, to supporting student learning. This article presents an inquiry into third space as a tool for cultural relevance and conceptual understanding in the tribal college classroom, where the students and instructor are often from different cultural backgrounds. The results of this study may be informative for educators looking for a window into tribal college students' thinking as they learn science, and those seeking to support that learning with culturally-relevant pedagogies.

Methods

This paper describes the analysis of a qualitative case study focused on the development and implementation of a culturally-relevant introductory physics curriculum designed for Tohono O'odham Community College (TOCC), a tribal college chartered by the Tohono O'odham Nation in southwestern Arizona. This action research study, for which I acted as both the researcher and instructor, initially involved documenting the development and enactment of the course, specifically focusing on my own pedagogical decision-making. However, as the course was in progress, the focus shifted to include the students' interactions with the curriculum.

The data for this paper were derived from transcriptions of audio recordings of class sessions. When student voice emerged as a crucial element in the co-construction of the curriculum, my research questions expanded to examine how sharing power with the students contributed to the direction the course took. Students' permission to use their recorded voices as data was then sought and subsequently granted.

The class that served as the research site for this study was very small — five students at the outset of the semester, dwindling to two who completed the class and participated in the study. This small number was likely influenced by a number of factors, including hesitance to engage with the seemingly-advanced content matter of physics, the peculiar timing of the course (all day, once a week on Fridays), and the small number of students at the college overall (approximately four hundred the semester the course was taught). The two participants were both males in their late 20s. One of them, "Drennan," was a local who was raised on the Nation, and the other, "Dylin," had recently come back to the Nation after being raised in a more urban lifestyle. Both were taking the course to fulfill a science requirement, and pursuing a degree in order to be eligible

for better employment opportunities. Drennan expressed a personal interest in science, and both students enjoyed science fiction.

The analysis described below was focused on examining the elements of the course that supported the development of a third space, and how, when successful, the development of a third space contributed to the students' conceptual understanding. The initial lens through which I interpreted the data was Ladson-Billings' (1995) criteria for culturally-relevant teaching that I modified for the science classroom, being that the curriculum would: (1) allow students to experience success with science learning; (2) recognize that students have a valuable scientific heritage associated with their culture; and (3) support students in challenging the status quo within the fields of science and science education. I looked for ways that these principles were manifested in the course dialogues. In discourses that I led, I looked for ways that my communications of pedagogical decisions helped establish an environment that supported student success in the course, welcomed cultural interpretations of science, and challenged traditional power structures. For discourses led by the students, I looked for evidence that students were experiencing success (i.e., developing conceptual understandings), drawing from or relating their learning to cultural concepts, and developing a critical understanding of the relationship between science and society. Using this interpretive lens based on Ladson-Billings' (1995) principles, I developed the following partial list of evidence that I looked for in the data:

- How students used connections from their lives and previous knowledge to inform and give life to what they were learning;
- How students' stories demonstrated the level of conceptual understanding they had developed;
- Examples of the students honoring their cultural heritage;
- Examples of the culture being used to make the content meaningful; and,
- Examples of the content being used to underscore the culture.

Six components that contributed to the development of the third space and conceptual understanding emerged from the analysis. Three of these components arose from pedagogical decisions on the part of the instructor (sharing power among classroom participants, maintaining a critical perspective of Western science, and viewing science as third space), and three were elements contributed collaboratively by the students and the instructor in the course of our dialogues (cultural connections, personal connections, and connections drawn from the shared classroom context). When these components were identified, significant dialogues were reexamined to seek evidence of the components and verify their importance. The six components are described below. In the discussion that follows, I illustrate how the components were manifested in two course dialogues, and how such dialogues contributed to the development of conceptual understanding.

Third Space in a Tribal College Science Classroom

Sharing Power to Promote Third Space

The students were invited to share power in the classroom by co-constructing the course with me. They were included in the decision-making about the class objectives, assessment strategies, and the structure of the course, based on their goals for their education, their goals for their understanding of physics, their learning style preferences, and their personal interests in certain topic areas of the course. This negotiation of the course structure was iterated throughout the semester to adapt the course to students' changing needs and strengths. Allowing the students to set their own criteria for success and then to define how to assess these criteria was how I addressed the first goal of culturally-relevant science: that students experience success in the course.

Sharing power with the students to co-create the course laid the foundation for the development of a third space. Sharing the authorship of the class with the students elevated and promoted student voice, not only with regard to what shape the students wanted the class to take, but also to what they chose to offer in class dialogues.

Critical Perspective of Western Science

Curtis (1998) called for educators to construct culturally-relevant curricula within critical pedagogies that, for one, are student-centered, but that also support the potential of students as change agents, bringing issues of power and privilege to the forefront (Freire, 1970). The sharing of power is a key element of critical pedagogy, which is itself the third criteria for culturally-relevant pedagogy as characterized by Ladson-Billings (1995). In this class, we addressed the fact that although Western science as an enterprise generally strives to be diverse in its membership, it is not equally welcoming of all viewpoints and all kinds of knowledge. Similarly, our discussions about the nature of Western science entailed deconstructing several ideas and assumptions implicit in scientific Discourse, such as the notion of "truth" and the dominant idea that science is "culture-free" and "objective".

The discursive strategies modeled by the instructor play a key role in how students interact with each other and their instructor (Webb, Nemer, & Ing, 2006). If instructors want students to have a critical perspective, to question the authority of texts, and to value their personal and cultural perspectives alongside the mainstream science perspective, they must model these behaviors and attitudes themselves. As one of the most prominent sources of scientific "text" for my students, I had to be mindful of my assumptions and what kinds of knowledge I privileged. In our first class, I communicated my belief that having a perspective that is different from the mainstream is not only valid, but valuable:

> When a [Western] physicist looks at physics, he or she might think of it a certain way, but being from a Native culture, being O'odham, being from this area, you will see it in a different way – because your background is different, because your philosophy is different, because what matters to you is different. And that is a *good* thing. That is a helpful thing to have…In science, there is such a dominant perspective…that it kind of puts blinders on people and they can't see it any other way. So having people come in who can see things differently, who can think about things differently, who can see meaning in it that other people can't see, is extremely useful and beneficial.

Modeling the critical perspective helped the students to develop a critical stance toward the claims of Western science, and to challenge the authority of the text as the voice of Western science. Doing so enabled the students and me to bring our distinct perspectives into the third space, where each was valued equally for its contribution to a collective understanding.

Science as Third Space

Third space is a co-constructed dialogue between or among different Discourses, negotiated by those involved in the dialogue. Thus, science itself is a third space, as it is an active dialogue between the natural world and the individuals and cultures who negotiate an understanding of this world. There is an overlap between the theoretical constructs of third space and culturally-relevant science; every culture will develop its own scientific third space that is unique to its perspectives about the natural world. Science is an integral part of culture; just as science defines and informs the culture, the culture defines and informs science.

The recognition that students have a valuable scientific heritage, the second principle of culturally-relevant science curricula, was built into the course philosophy as an awareness that students' culture, both modern and traditional, is replete with sophisticated understandings about the natural world (Cajete, 1999). For instance, the O'odham have a

sophisticated understanding of weather patterns and the water cycle in the desert that allowed them to shift their communities' locations with changing seasons and to raise crops with infrequent rain.

Our discussions about the nature of science framed science as an endeavor arising within cultural contexts. The students and I discussed that although the natural world may be the same everywhere, as different people and different cultures interact with it, the perspectives that they bring to understanding the Universe will ultimately create a third space of science that is unique to that interaction. Viewing science as third space was a means of mitigating the conflict and tension that arise as different hybrid sciences come together, contributing to a classroom environment that was open to and respectful of different viewpoints.

Cultural Connections in the Third Space

As an outsider relative to the O'odham culture, I knew that the responsibility for incorporating connections to the O'odham culture would fall heavily on the students and other participants in the class. This was certainly the case; the students and class visitors did a beautiful job of incorporating the O'odham culture into discussions. The distinctly O'odham connections that were made in the classroom included using the O'odham language to describe physical concepts, examining the scientific knowledge imbedded in O'odham stories and practices, and viewing physical interpretations through the lens of an O'odham value system. My role was to welcome and value these contributions, and assist in building bridges between them and the course content, a metaphor that evokes third space as described by Moje et al. (2004).

Although as the instructor I made a conscious effort to make space for such connections and to capitalize on the cultural knowledge of the students and the cultural advisor, only the students could bring life to these conversations and make meaning from them. The well of cultural

meaning is a tremendous fund of knowledge with the potential to foster deep understanding in the third space, though in the hands of a non-Native instructor it must be handled with care. Without sharing the power to shape the curriculum with the students and co-creating a classroom environment that valued this input, the cultural connections could have remained hidden and unnurtured; without the cultural connections, the third space would not have been as rich.

Personal Connections in the Third Space

Personal connections were distinct from cultural connections derived from the shared context with the students' community. This body of connections arose from students' personal interests, hobbies, and experiences. Moje et al. (2004) found that popular culture funds of knowledge are especially prominent relative to other funds, and that students incorporate popular culture funds of knowledge as much or more than their own experiences in their science discourse. Because Drennan and Dylin were adults invested with autonomy and a great deal of life experience, their access to different Discourses and funds of knowledge was extensive, and their identities as individuals who drove, watched television, and went to see movies were as salient as their identities as members of the Tohono O'odham Nation.

Naturally, because each student was unique, each also brought his own individual interests. Dylin was, among other things, a fan of *Star Wars* science fiction literature and a former football player. Drennan's interests were supernatural topics such as psychic energy and aliens, and he enjoyed watching History and Science channel specials. There were abundant examples of the students incorporating these interests into the classroom dialogues and using them to contextualize their physics learning.

Third Space Built from Shared Classroom Context

There were times when the construction of a third space involved connecting to elements from the shared context of our classroom, which came not from the textbook nor from any individual's private experiences, but from our own classroom community: references to conversations we had had, features of our physical classroom, and experiences we had had as a class. Because these resources were shared by all of us, the shared classroom context was a valuable resource in the classroom. As we spent more time together as a community, albeit a very small community, this resource continued to grow. Being able to connect to this shared fund of knowledge gave us the sense that we were building something that was unique to our specific collective — a hybrid Discourse that would not be the same anywhere or with anyone else.

Discussion

The two longer conversations below demonstrate how the six components that emerged from the analysis arose within dialogues, and how such dialogues contributed to developing conceptual understandings in physics. Both excerpts came from the same class about two-thirds into the semester, where the topic was Newton's laws of motion. These excerpts were chosen for their illustrative content, and because both students contributed to the direction they took.

In the first conversation, the class was discussing the nature of energy. Because one student described energy as life, we went on to talk about what life is and its importance in the Universe, both topics on which we disagreed.

1	Dylin:	Energy is…it's life.
2	Me:	Is there energy in things that are dead? Is there energy in

3		things that are non-living, like this desk? Like the
4		computer?
5	Dylin:	Everything has energy.
6	Me:	Ok, so it's not just about life, so what is it?
7	Dylin:	But the things that are dead help contribute to life. So,
8		in that theory, even the dead things, even decomposing
9		bodies, even the desk, helps us.
10	Me:	What about things that are nothing to do with life? Like
11		black holes? Do they have energy?
12	Drennan:	They have unimaginable energy. It can't even be measured
13		how much energy they have.
14	Dylin:	But they have to do with life too.
15	Me:	How?
16	Dylin:	Because they have their place in the galaxy. Who's to say
17		if we didn't have black holes…maybe black holes is the
18		garbage disposal of the Universe and it's getting rid of all
19		the crap…Like mosquitoes; no one likes them, but they
20		get eaten by bugs, the bugs get eaten by birds…they
21		serve their purpose. Same thing with a black hole; it's
22		there for a reason.
23	Me:	It's a philosophical question, but to me the Universe is
24		far more vast than has anything to do with life…There's
25		so much more energy in the Universe that has nothing
26		to do with us. But…maybe it all comes down to life.
27	Drennan:	It's hard to think of something that's not connected to
28		life.
29	Me:	Really?
30	Drennan:	Yeah; even things we don't know about would still
31		affect us.

32	Me:	How does another galaxy affect us?
33	Drennan:	Even if we don't feel it, we can see it, so its light can be
34		detected by us, and our brain starts thinking about
35		'what's there? how is that?' and that *itself* forms energy in
36		your mind.
37	Dylin:	I think we're talking like this because of [our] tribal
38		[beliefs]. Tribally, most people think, believe
39		everything's here for a reason, everything has to do with
40		life. It's like [the] butterfly effect…you throw a stone in
41		the ocean, who knows. The ripples could come and
42		cause a tsunami and kill thousands of people, you
43		wouldn't even know. Yes, the rock isn't life, [it] has
44		nothing to do with life theoretically, but the action that
45		it caused will affect life, maybe…however long it takes.
46		Will the galaxy affect us? We don't know. Yes and no.
47		You can say no, you can argue no; you can say yes, you
48		can argue yes, but the fact is, neither one of us are right.
49		'Cause we don't know; we haven't gone there, we don't
50		know if there's life…Everyone's theorizing on exactly
51		what [a black hole] does; it's gotta be there for a
52		reason…There's gotta be a purpose for it.
53	Me:	A purpose for the life of the galaxy?
54	Dylin:	Yeah. It's kinda like in order for a planet to have life, it
55		has to have all these things go right. It has to be a
56		certain distance, you gotta blah blah blah; maybe for the
57		galaxy to have life in it somewhere, there has to be a
58		black hole, it has to be this size, it's gotta be doing a
59		certain amount of things, it's gotta be really complicated.
60		In order to sustain life somewhere in that galaxy, you

61		have to have certain things, and maybe that's one of
62		them.
63	Drennan:	'Cause you never know what life is. I mean, for example,
64		Jupiter has giant storms on it, and they get bigger. We
65		could call it growing, growing by absorbing the other
66		storms [that] you could say they were eating. So you
67		could say they're existing, growing, even eating; I mean
68		isn't that the definition of life? It's just like another form
69		of life, maybe…People would think that that has
70		nothing to do with life, but in actuality that right there
71		could be the creation [on] another planet…But energy
72		itself, I guess you could say it's the source. The source
73		for everything to become what it can.
74	Me:	So everything has energy, energy causes everything,
75		right? That's what we're saying?
76	Drennan:	Yup. I mean, things we don't even see that happen, it took
77		energy to make; even those posters right there, they took
78		energy to make. That water is just waiting to get used,
79		but it's got stored up energy. It's just waiting.
80	Me:	So energy is basically the *thing*, whatever it is, that makes
81		things happen.
82	Dylin:	The source.
83	Me:	It's the source, but it's also the flow; I mean it's not just
84		where things start from, it's what things are.
85	Dylin:	Everything already has energy.
86	Me:	Oh yeah. *Everything* already has energy; there's nothing in
87		the whole Universe that has no energy.

All of the connections made throughout this dialogue were a means of building a context for the different worldviews we were sharing.

Connections to personal experience were included: I introduced black holes from my astronomy background (line 11), and Drennan responded to this example (lines 12-13) as it connected to his personal interest in astronomy, an interest he further incorporated in his reference to Jupiter (starting on line 64). Dylin drew in examples from his personal experience by comparing black holes to garbage disposals (line 17) and to mosquitoes within the food chain (lines 19-20). It could be argued that these connections were chosen to resonate with everyone's experiences and interests, but Drennan truly drew in examples from the **shared classroom context** when he made reference to the energy used to create the posters on our walls and the energy of the water in our water bottles (lines 77-78); likewise I referred to objects in our physical classroom in line 3. Drennan's description of energy as "the source" (line 72) and Dylin's restatement of this metaphor (line 82) tied back to an earlier point in the semester, when Drennan described energy as the "life force"; this metaphor connected as well to the discussion here about the relationship between energy and life.

Both the students and I drew **cultural connections** into the third space for this discussion. The crux of the disagreement between the students and me stemmed from a difference in perspective about the role of life in the Universe. Dylin expressed the students' perspective in lines 7-9 (everything in the Universe contributes to life), and Drennan in lines 27-28, 30-31, and 33-36 (everything is connected to life). The students' perspective was based on a tribal belief in the centrality of life in the Universe, as Dylin described in lines 37-40; the fact that life is important is the keystone of the students' understanding of how the Universe works. Without this co-constructed dialogue, I would not have had access to this fundamentally important worldview that underlay the students' learning about physical science.

My perspective, expressed in lines 6 and 23-26 (*not* everything is about life), was also grounded in culture. Although I have no recollection of my emotions at the time, I surmise that my argumentativeness with the students was due to feeling that my cultural beliefs were being threatened — a situation that likely happens for students in science classes all the time. Because they are not usually in a position of authority or in a space that is open to differing viewpoints, students do not always have the ability to advocate for their ideas as they did here. That the students and I were on equal footing as we argued our points was an outcome of the **sharing of power** with the students, and is also evidence that the students were taking a **critical perspective** on Western science, for which I was the representative in this case. Both students alluded to this: Drennan (line 63) talked about how there are things that science cannot tell us, such as what the boundaries of life are; Dylin (lines 46-52) referred to the fact that none of us is more "right" than the others because there is no way of accounting for every influence from every direction in the Universe — perhaps a gentle reminder to me that the Western science Discourse has no more authority than the students' perspectives. Different people can look at the same Universe and come to different conclusions, which is the origin of the **science as third space** concept.

Each of the components factored into the development of a third space, which contributed to the students' conceptual understanding, and mine as well. By the end of the discussion, we had reached a broad understanding of what energy is, and this broad understanding was rich with complexity as a result of the multifaceted perspectives that were brought into play during the discussion: energy is life (line 1), it is not life (line 6), it is utilized to fuel thought (lines 34-36), it is the source of potential for all objects in the Universe (lines 71-73), it is that which comprises all things (lines 76-79), it is that which makes things happen (lines 80-81), and everything in the Universe possesses it (lines 85-87).

The conversation below also blended our multiple perspectives, resulting in a complex conception of Newton's 3rd law of motion (for every force in one direction, there exists a balancing force in the opposite direction), a fundamental concept in introductory physics. The conversation that arose from this activity, in which students were designing 3rd law-powered vehicles, came about as students spontaneously connected what they were doing with other things they knew about. Dylin's design evoked a particular weapon in his mind, which led to a discussion of recoil, another outcome of Newton's 3rd law. Thinking about weapons and warfare led the class to consider conflict, ruminations about which led us to the following (much abridged) conversation.

1	Drennan:	What we know of life seems to be competitive, as far as we
2		know it. And it makes you wonder, how would life evolve
3		somewhere else; would it stay the same 'cause it didn't
4		have to fight any other [life] off or things like that, or how
5		else would it evolve? There's gotta be other ways to evolve
6		than just conflict.
7	Me:	But that's what you were saying though, the conflict is
8		what creates evolution. We evolve to be better suited to
9		adapt to anything that comes up. Conflict can be beyond
10		inter-species conflict; it can be things like climate change;
11		it can be things like shifts in food supply…
12	Drennan:	Like, we have skin to protect ourselves from the Sun's UV
13		rays; that's a kind of conflict right there.
14	Dylin:	There couldn't be any place that was just, there's no
15		conflict.
16	Me:	I wouldn't think. I mean, nothing is without change.
17		Everything changes.

18	Dylin:	The reason why the natural habitat is working [with] the
19		conflict in there is it's symbiotic. There's still predators,
20		there's still prey, even the trees fighting for soil and water
21		and nutrients, but that's the natural balance, that's how
22		Nature works, that's how Nature intended it. If you take
23		away all the predators, and everything's nice and happy,
24		then the prey get too many and they eat all the trees and
25		then all of a sudden there's no food and then all of a
26		sudden everything dies. So in order to have that type of
27		symbiotic thing you have to have the conflict, you have to
28		have conflict.
29	Me:	It's not even just about conflict; you could look at it just as
30		forces in balance. If there's one thing going one way, there
31		has to be something going the other way.
32	Dylin:	Newton's law.
33	Me:	Yeah, Newton's 3rd law again, only in a different context
34		altogether. But it's much more than two-dimensional; it's
35		multi-dimensional.
36	Dylin:	How would heaven, all these places, all religion, work?
37		…How could you know you're happy if that's all there is?
38		Isn't that just a state of being? There has to be…an
39		alternative.
40	Drennan:	Where are their animals? You know, what would they be
41		doing, would they be feeding off us? Would there still be
42		predators we'd have to worry about there?
43	Me:	Have you ever seen that Calvin and Hobbes that said
44		heaven is supposed to be a place where there's no
45		competition, there's no fighting, there's no killing; [but] if
46		there's no chasing after smaller things, then tigers wouldn't

47		be in heaven, because that's not heaven for tigers. So,
48		yeah. It's a very simplistic picture [heaven as a place
49		without conflict].
50	Drennan:	You don't believe in a place that's just totally positive, and
51		then there's a place that's totally negative? Because
52		wouldn't they even themselves out in the harmony of the
53		Universe?
54	Me:	I don't know, I don't think of it as a place; I don't know
55		that there's a source for that, other than ourselves.
56	Dylin:	[Maybe] death is what we make it…and heaven is different
57		for everyone. My heaven is, [football], sports bar, the
58		people I care about, that's heaven for me; maybe [it]
59		wouldn't be heaven for someone else. And people go to
60		hell because they are violent; that's what they have in their
61		mind all the time is that type of thing, so they go to their
62		place where there's always violence, there's always chaos,
63		because that's what they've created for themselves.
64	Me:	But that to me sounds like life. What you were describing,
65		that's kind of the way that we live it now. I mean if it
66		wasn't, if it didn't have those bad things, you wouldn't
67		have that bar to go to and enjoy yourself later. If there
68		weren't people who loved [the violent people], they
69		wouldn't be in the world in the first place, right?…So I
70		don't know, it seems like the more we think about what
71		perfect would be, the more it sounds like the way it is now.
72	Dylin:	Yeah. I agree. To have something be happy, you have to
73		have the other realms.

The critical stance toward Science was not a big contributor to this conversation, but **sharing power** with the students definitely was; the

students drove this conversation while I followed along. The students had the space to just talk about the things that were on their minds, and I helped to connect their thinking to the physics topics at hand. Talking frankly about very personal beliefs such as what happens when we die, a **cultural connection**, was a result of not allowing the power differential between students and instructor to impede our discussion.

What began as a thought about conflict, particularly Drennan's reflection on the role of conflict in evolution (lines 1-6), ultimately became a tremendous resource for contextualizing the physics content. My reference to the *Calvin & Hobbes* comic strip (lines 43-49) is only one of many **personal connections** that were drawn in over the course of the conversation, though it is the only one that is represented in this abridged version. Other examples were military weaponry, the movie *The Matrix*, and animal intelligence. In this dialogue, the personal and cultural connections *were* the conversation – each connection that was made added to the development of a conceptual understanding of forces in balance, and Newton's 3rd law from the **classroom context** served as the common thread that tied the dialogue together.

Drennan's wondering (lines 3-5) about whether evolution can take place without conflict, and Dylin's wondering (lines 14-15) about the possibility of places without conflict, led to Dylin's realization (lines 18-28) that conflict is necessary for harmony in nature. After I reframed this idea as forces in balance (lines 29-31), Dylin recognized (line 32) that what he had described was a conceptualization of Newton's 3rd law within the context of the ecosystem. He went on to apply this concept to heaven and hell (lines 36-39), which Drennan brought back to the notion of conflict (lines 40-42). In lines 50-53, Drennan expanded the scope of balance in the Universe, suggesting that this balance would not be disrupted if there were a place that was completely positive and a place that was completely negative. In contrast, Dylin wondered (lines 56-63) if heaven is

personalized, an idea that localized the harmony to the individual. My response (lines 65-69) brought us back to the notion of balance and contrast, and Dylin followed up on this notion (lines 72-73) with an application of Newton's 3rd law to the appreciation of good and bad.

One can look at this discussion and the fact that it was repeatedly drawn back along this common thread as pure chance, and I would definitely agree that I did not plan any of it; I never would have thought to make these connections if they had not arisen from students thinking out loud. However, this dialogue is a reflection of the interpretive nature of **science as third space**: as the students considered Newton's 3rd law and its implications, they drew in connections and experimented with applications, building a nuanced co-construction of the concept of forces in balance applied in physical, biological, supernatural, and emotional contexts.

Conclusions

Dialogues with the students in this classroom may have appeared to an outside party to be exercises in group free association. However, allowing students free reign to make connections – with their culture, their interests, and their personal lives – and empowering them to make decisions about their own learning – including what to learn, how to learn, and how to assess that learning – were all means of encouraging students to develop meaningful conceptual understanding. The third space created in the classroom by the students and instructor gave voice to the struggle to build these conceptual understandings, and space to ponder the implications in the group setting.

Each component that contributed to the third space was key for creating an environment that welcomed student voice. Sharing power with the students encouraged them to invest in shaping this environment and

welcomed them each as potential change agents in the classroom. Viewing science as third space put different cultural interpretations of the natural world on equal footing; the critical perspective elucidated why, then, some interpretations have higher status than others, and how to manage this disequilibrium.

Students spontaneously shift identities as they navigate their worlds; they are simultaneously sons and daughters, tribal members, members of the student body, future professionals, parents, academics, athletes, and music-lovers. Whom they choose to be at any given moment depends on the context; likewise, the funds of knowledge they connect with their learning at any given moment also depends on the context. While my students were O'odham, they were also individuals with personal interests and activities, and these were additional influences they brought into the third space. The cultural connections were essential because they drew from an identity the students shared with others, including with each other. The personal connections derived from pop culture and students' particular interests were equally essential, because they derived from the students' identities as individuals. In addition, the connections drawn from the shared classroom context reflected our identities as members of the class.

This research demonstrates that building a third space as an avenue for cultural relevance also enhances the potential for conceptual understanding. With a classroom of at most two students, the opportunity to include and build upon student input and to foster each student's learning was quite a bit greater than it would have been for a larger class. The challenge for the third space approach is to validate it for interactions in larger classes, and to evaluate its effectiveness for supporting student learning as compared to other pedagogical methods. If the model can be shown to have value for other classes and to be applicable by other faculty

members, instructors may find another means of offering not just content to their tribal college students, but also relevance.

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Mission not so Impossible: Standardized Testing in a Tribal College[1]

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Although standardized testing is often in the center of public controversies about education, several factors make such tests an appealing option in tribal colleges that often struggle to meet the needs of underprepared students with limited resources. In this article, Ildiko Melis examines one tribal college's efforts to implement the ACT's Compass assessment for writing and math placement, using both observation and student survey data to analyze the advantages and drawbacks, the data and the politics, and the constraints and opportunities of using standardized testing for placement within a tribal college. Set against the larger educational landscape, Melis finds that tribal community colleges face similar challenges to many other two-year colleges in the U.S. However, by using some unconventional methods for test administration and preparation (extended time, re-take policy, and emphasis on the students' positive mindset and independence), Melis also finds that a tribal college incorporating standardized testing within its mission may reveal benefits for the larger educational community.

Introduction

This article is a data-based reflection on the use of standardized testing for placement purposes in a small tribal community college. As a primarily reflective piece, this writing is an attempt to examine the

[1] This project would not have been accomplished without the generous support of the American Indian College Fund (AICF) and the Mellon Research Fellowship in 2010-2011. I am equally grateful for the exceptional support and care that my research project was given to in my school, BMCC, and especially to the BMCC Communications Department, whose full-time and part-time faculty administered and returned my student surveys: Maria Cantarero, Jana Hutchinson, Sarah Maurer, Kim Miller, Kate Mosher, Kelly Slater, and Brody Waybrant. Stan and Peggy Wilson, in The Pas, Canada, need to be thanked for their exquisite hospitality that included good stories, good food, a steady structure for my days for writing, and insightful feedback on my draft. Shavon McKerchie and Tamie Munz provided me with exceptional research and technical assistantship during my grant year, for which I cannot thank them enough. I also would like to thank the 100 students at BMCC who gave their time and thought to fill out and return my surveys. The strengths of this article come from the work and support of all these people. The flaws are only my own.

complexities of standardized testing in writing instruction as well as the complexities of literacy research in a tribal college setting. In a small way, my work is intended to contribute to the larger national discussions from the unique angle provided by the tribal college setting. One of my intentions is to cast some new light on several general assumptions among the college writing profession: that no single testing instrument is reliable enough to make important decisions about students; that testing should be connected to teaching; and that too much emphasis on passing a test distracts attention from the real goal of education, which is learning (White, 1994, p. 159). While I generally adhere to these basic tenets of my profession as a rhetoric and composition expert, working within the context of a tribal college made me realize that not following these principles may, occasionally, be equally reasonable.

Conducting research on writing and literacy within the confines of a tribal college naturally meant that I had to come up with research questions that addressed more direct and local exigencies. I soon came to realize that my attempt to wiggle my way into the larger discourse on rhetoric and composition from a tribal college does not, by itself, impress my colleagues or the college administration unless it provides helpful information on practical matters relevant to the day-to-day operation of Bay Mills Community College (BMCC).

In 2008, BMCC adopted the American College Testing (ACT) company's Compass test for both math and writing placement. The Compass exam is a multiple-choice test of reading, writing, math, and any additional component that a college may wish to add, including a section designed to collect demographic information about the test takers. When Compass was first adopted by BMCC, faculty and administration had some specific concerns, which became the core of my research: Will the online Compass work well without causing too much disruption with the transition from ASSET (a test used before Compass, also produced by

ACT, but not available online)? Are our students taking these tests seriously enough and knowing what their possible pre-college level placement involves? Is it fair to use Compass as an outcome test at the end of developmental classes? Should a passing post-score be a pre-requisite of moving on to the college-level writing class, or should earning a passing grade in the developmental class be enough, regardless of the post-score? These questions that initially seemed to be only of local, institutional interest, I would like to claim, contribute insight in the meaning and function of standardized testing in the assessment of college-level literacy.

To situate these questions, I relied on available and relevant literature on college-level writing competence both in two-year and in four-year colleges (Sullivan & Tinberg, 2006; Tinberg & Nadeau, 2010). I also utilized the published data of the Compass test creators, who also offered helpful information in personal communication. In addition, as part of a larger research project about matters of college-level literacy in the tribal college setting of BMCC, I distributed a survey among those BMCC students who were, at the time of my research, taking English composition classes (see the full text of the *Standardized Tests Survey,* BMCC, 2010, in Appendix A).

Because of BMCC's small size and the difficulty of randomizing my survey sample, I was advised not to subject my data to statistical analysis. But even the descriptive percentage analysis of data proved to be challenging, which is why I consulted others (our assessment coordinator and other writing instructors) for help with interpretation and worded conclusions with caution. Furthermore, I did not feel comfortable with comparing Native and non-Native responses, although many interested in my research at or outside BMCC wanted comparisons. I hope the lengthy discussion on how many ways Native students can currently be defined

justifies my choice (see "Definition of Native American Students in Tribal Colleges").

As the section situating my study in the institutional background of two-year and tribal colleges claims, tribal community colleges face challenges similar to what other schools, especially two-year colleges, face in the United States. These include a growing division between vocational and academic orientation; large percentage of underprepared students; and less resources available for academic support of faculty (see "Background: BMCC, a Tribally Controlled Two-year College"). Peculiar to the minority situation of the tribal college as a two-year institution of higher education is the dedication to the educational success of Native American students and to the preservation and incorporation of these students' cultural traditions and language in the curriculum. Some of the solutions described in this study as responses to concerns about the introduction of online Compass tests were guided by the special needs of tribal college students and might appear unusual (e.g., the policy on time limits or exam re-takes) while others appear to ignore the professional discourse of college composition experts (e.g., alternative ways of placement supplementing or replacing standardized tests). This article argues that the changes in testing policy adopted by BMCC, as unconventional as they may seem, have the potential, in general, to benefit the whole educational community (e.g., time limits on tests are likely to be reconsidered with the spread of online testing).

A larger issue that tribal colleges should consider in some collaborative form is the role of standardized testing in placement and assessment in general, as opposed to consensus-based and locally-developed forms of placement and assessment, which is well supported and recommended by college composition professionals. While it seems intuitive that such locally-developed, communally-supported, and consensus-based tools of education suit the general goals and needs of

tribal colleges particularly well, the limited availability of resources to develop such tools as well as the general desire to meet "mainstream" standards of accountability push tribal colleges — like everybody else in higher education and two-year colleges especially — to work with standardized tests as best as possible within their institutional confines.

Background: BMCC, a Tribally-Controlled Two-Year College

BMCC, like other two-year colleges, struggles with balancing too many equally important, but sometimes conflicting, functions. These functions include the preparation of underprepared students for college-level work, the provision of career-oriented, marketable skills, and high-quality student services (Gentile, 2006; Tinberg & Nadeau, 2010). Tinberg and Nadeau (2010), for example, came to the conclusion that the conventional college assignment of reading challenging texts with students does not work well in a two-year college where students and faculty find reading Shakespeare or post-modern criticism irrelevant and lacking practical usefulness. Thus, the goal of academic excellence is in conflict with the goal of preparing students for the job market. Another conflict is between the students' personal growth or enrichment and the utilitarian goal of producing employable graduates in two years. More students in two-year colleges compared to four-year colleges in general are in a life situation where graduating in two years, or as soon as possible, is in conflict with their responsibilities of earning an income, raising children, or supporting parents. According to the Two-Year College English Association (TYCA)[2] in 2003, 60% of two-year college students worked more than 20 hours a week and 34% spent 11 or more hours a week caring for dependents (TYCA, 2005). The American Indian Higher Education Consortium (AIHEC) reported that, in 2005-2006, 26% of the

[2] The TYCA report covered 1171 two-year colleges, including 31 tribal colleges, 992 public and 148 private two-year colleges.

first time entering students had dependents. While the AIHEC report does not contain data about the tribal college students' working hours, the average family income of tribal college students was $16,379 in the 2005-06 academic year, compared to the median U.S. household income, which was $47,264 in the same time (AIHEC, 2006, p.12). These numbers strongly suggest tribal college students, like other two-year college students, often work while they are in school.

In addition to balancing academic rigor, preparation for employment and support for personal growth, a tribal community college also addresses the needs of students from a Native American community and the preservation of this community's underrepresented language and cultural heritage. Benham (2003) characterizes tribally-controlled colleges as "a unique combination" between community college and research university with the goal of "strengthening economic empowerment, rebuilding cultural traditions, and healing communities (health and social welfare) through a variety of initiatives" (pp. 10-11).

The tension between these various functions is often articulated as a tension between the academic (professional) goals and the vocational or service goals of two-year colleges, including tribal colleges. In general, four-year universities are considered "knowledge making" institutions that prepare students for more advanced professional careers as well as for research. Two-year colleges, on the other hand, have become gradually more "vocationalized" (Tinberg & Nadeau, 2010) over the past few decades, with more emphasis on employable skills preparing students for a job market than on academic skills or research preparing students for transfer and advanced professionalization. Consequently, two-year colleges are fundamentally teaching-oriented institutions, with an added function of providing a wide range of social services, helping students with raising a family (child care), overcoming substance abuse and life style problems (counseling), or finding employment (job fairs).

Many tribal colleges have similarly been vocationally-oriented, but as land grant institutions, they have the obligation to support research. Most of the research conducted under the control of tribal colleges is related to practical and community service oriented issues, such as environmental biology, renewable resources, or health and social services.

Tribal colleges, like two-year colleges, have long endorsed the policy of open admission, which is based on the principle of allowing every member of the community to participate in higher education, no matter what level they are at, and leave school with marketable skills and personal enrichment. In a tribal college, meaningful reconnection with heritage culture and language are also added to the students' learning outcomes.

However, several factors have recently forced community colleges as well as tribal colleges to place students in classes based on required standardized tests rather than relying on open admission that would technically allow every student to take any class they wish to take. These factors include the pressure from the Higher Learning Commission as well as from the government and the general public to improve accountability of institutions of higher education and produce measurable as well as "marketable" outcomes. High attrition rates and low graduation rates, as well as a rising enrollment in more affordable two-year colleges at the time of economic downturns, are also among the factors that put pressure on schools to rely on standardized tests. Pre-college level placement and developmental classes are exposed to recurrent attacks from various stakeholders in higher education, and using proper placement tools to send students into these classes is one important way to demonstrate that the resources and efforts are not wasted (DiMaria, 2005).

One more detail to add here is that the deliberations preceding decisions of academic nature are not typically based on scholarly or

theoretical evidence in two-year colleges. The way Tinberg and Nadeau (2010) characterize meetings and discussions about writing in a two-year college matches my experiences at BMCC (except that our Learning Center workshops are for students, and we hardly ever have departmental meetings):

> Outside of the writing center, which has hosted various summer workshops and staff meetings on writing and thinking in the disciplines, and departmental efforts at developing learning outcomes, I have rarely witnessed campus discussions on scholarly or theoretical matters. Meetings typically are taken up with procedural or logistical affairs [. . .]. All such meetings are geared toward serving students and institutions efficiently and practically. (p. 8)

Serving students "efficiently and practically" are commendable goals, and no small task to accomplish. The challenge is, however, that in such institutional settings there is no room for talking about Ed White's general principles of locally-controlled writing assessment, or the accumulated experiences of colleges with portfolio assessment, the critical concerns of composition scholars about machine scoring of writing, or the University of Michigan's most recent success with locally developed and validated decision to use directed self-placement (Black, Daiker, Sommers, & Stygal, 1994; Ericsson & Haswell, 2006; Gere, Aull, Escuerdo, Lancaster, & Vander Lei, 2013; White, 1994).

Due to a combination of some or all factors listed above, when testing students for college-level reading and writing, two-year colleges often find developing locally controlled and validated in-house tests unfeasible. As early as 1994, it was reported, to many writing experts' dismay, that over 50% of colleges had used some kind of indirect measurement of writing ability (i.e., a standardized test) for placement (Elliot, 2005, p. 357). Finding qualified faculty to design valid writing assignments for the purpose of placement — including reliability and

validity analysis — and training faculty to administer, score, and analyze the in-house exams are time-consuming and costly. At least at BMCC, time and costs are two factors that strongly govern deliberations in favor of standardized tests. In small colleges like BMCC, faculty and administration are also afraid that a locally-developed and administered placement procedure would not only be time-consuming and less cost-effective, but also less reliable, making grievances and complaints from students more frequent and placement more delayed (Maria Cantarero, BMCC Assessment Co-Ordinator, Personal Communication, June 13, 2011). Time efficiency is a powerful factor: Compass test scores for placement purposes are available right after the test is taken, whereas in-house writing samples would take a while to read, score, and report.

Because of all these factors, BMCC — like many other small tribal colleges, most of the two-year, and some of the four-year colleges — readily took the option of using a standardized test (Compass) for placement (and, after some deliberation, faculty chose the standardized College Assessment of Academic Proficiency (CAAP) test for outcome assessment as well). As a matter of fact, there were no other options on the table, although an impromptu essay exam has always been used as a supplement to the multiple-choice test in case a student contested the score. Nobody suggested that writing, let alone multiple pieces of writing in a portfolio, be used for placement.

This scenario, not unique to tribal colleges or BMCC, almost represents a strikingly different parallel reality to what is going on in rhetoric and composition and college composition expert circles. Scholarly experts of college writing have been ardent critics of standardized testing and claim that standardized tests sacrifice validity (that is, the direct evaluation of real writing) for reliability (multiple-choice test scores). A multiple-choice test is more reliable because everybody who misses the answers on the same questions gets the same score,

whereas the evaluation of actual writing is more complicated. On the other hand, multiple-choice tests only indirectly measure writing because students who take the test do not write; they make choices by filling in bubbles. Writing experts also challenge the idea that someone's readiness for college-level writing can be assessed by using one piece of writing, and more recently a set of writing samples accompanied by reflective self-evaluation pieces have been suggested (Belanoff, 1991; Black, Daiker, Sommers, & Stygal, 1994; Elliot, 2005, Huot, 2002, White, 1994). The inclusion of writing on the SAT was received as a mixed blessing, and the most radical opponents argued that it would be a better option to evaluate writing based on locally-developed standards and consensus among relevant members of the teaching and learning communities rather than assess writing on (objective) criteria standardized for a larger population (Huot, 2002). Another recently emerging trend, DSP (Directed Self-Placement), is commended not only as a method of placing students by giving students the responsibility to evaluate themselves, but also as a testing method that is most teaching and learning friendly (Gere, Aull, Escuerdo, Lancaster, & Vander Lei, 2013). Yet, again, it has been pointed out that directed self-placement requires careful preparation and follow-up that many institutions of higher education cannot provide (Isaacs & Keohane, 2012). Part of these discussions focus on the issue of control: Standardized tests, it is often argued, place control in the hands of assessment agencies (often sponsored by the government) instead of the teachers. It is also mentioned that the washback effects of various forms of assessment are vastly different: Standardized tests encourage high schools to "teach to the tests"; portfolio assessment would require high schools to help students prepare a collection of best papers in a variety of genres (personal narratives, research paper, book report, etc.); directed self-placement would send a message to high schools about the importance of the students' active participation in assessment and

reflection, etc. Finally, it is often argued that standardized tests, or any other one-size-fits-all form of assessment, are more likely to adversely affect students from minority backgrounds (Crouse & Tusheim, 1988; Huot, 2002, Shohamy, 2001; White, 1994).

The paragraph above gives only a rough summary of the main overtones of national debates about standardized testing for college admission and placement. The debate is especially desperate among the community of college composition experts and English teachers in general, while some social science faculty occasionally turn the debate on standardized testing into a political conflict that may escalate into a warlike division. The most recent controversy centers around the emergence of machine-grading of essays (Ericsson & Haswell, 2006). Nevertheless, none of these issues were raised — or, for that matter, routinely discussed — by faculty or administration at BMCC at the time of my research. The small survey I conducted among BMCC students were informed by less conflicting and more practical questions about the new, online version of Compass that BMCC introduced to replace the formerly used Asset test for placement. Both faculty and administration were concerned about the change of test, the introduction of a new, electronic format, the fair use of test scores, especially as an exit test after developmental classes, the possibility of technical difficulties, and the response of students. These concerns, while not unusual for any two-year college introducing a new standardized test, reflected the added concern about the appropriate preparation of our student population, 51% of them being Native American by tribal membership.

Definition of Native American Students in Tribal Colleges

Linda Tuhiwai Smith from New Zealand, writing about researching the Native Mâori, states that, "Indigenous peoples can be defined as the assembly of those who have witnessed, been excluded

from, and have survived modernity and imperialism" (2005, p. 86). This definition largely includes all peoples that populated the world before colonization from modern (industrialized, European-style capitalist) states. The critical element of this definition is the cultural contrast between modernism and tradition, with indigenous peoples constituting a minority that "still remembers other ways of being, of knowing, and of relating to the world" (Smith, 2005, p. 86). Indigenous peoples of the world vary to the degree they hold sovereignty, and maintain their language, culture or belief systems. Thus, Smith stresses, the indigenous or native identity is complicated; it also changes over time, and hopefully, as indigenous people become more involved in research, the definition of their identity will reflect more of these communities' self-naming and self-definition. It is important to stress, following Smith's suggestions, that the definition of indigenous people is complex and requires caution. Popular assumptions that indigenous people are "uncontaminated" by modernism, progress, and change are oversimplified and reflect the dominant cultural groups' expectations rather than the complex reality.

For the practical purposes of describing who is considered Native American among the students of tribal colleges in the United States, the definition is quite straightforward. Native American students are registered members of one of the federally-recognized Native American tribes on U.S. territory, and as such, possess a tribal identification card. This definition works well for administrative (enrollment, scholarship eligibility, etc.) purposes, but in terms of describing the students' profiles and identities, it is useful to bear Smith's broader view in mind.

In Michigan, there are only 13 federally recognized tribes, a number almost doubled from seven in 1997. However, federal recognition is a long and difficult procedure, and there are many more tribes and bands in Michigan that are not federally recognized. Thus, those students

whose families consider themselves to be affiliated with federally unrecognized tribes or bands, or who are related to tribes residing in Canada, are not considered Native American students in the sense of being eligible for the concomitant benefits.

Furthermore, unlike in the southwestern United States where large and more homogenous groups of Native Americans reside, the population on Michigan's Upper Peninsula has been mixed for a few centuries, resulting in diverse identities. Due to the coercive assimilation policy of the United States, in which "education" in boarding schools played a crucial role, many people in the area have an ambiguous relationship with their own Native American identity, irrespective of tribal membership. Language, which many argue is a decisive element of national identity, has been lost in devastating proportions among Native Americans throughout the U.S. (Crawford, 2002); in the Upper Peninsula of Michigan, the Anishinaabe language has become almost invisible. Therefore, language does not play as much role in Native American identity in this region as elsewhere, although thanks to the language instructors' tireless efforts, this situation might slowly change over time, and language is still part of Anishinaabe pride. BMCC, in accordance with its mission, plays an important role in fostering and maintaining the language, the culture, and the beliefs associated with its students' Native American and, perhaps more specifically, Anishinaabe language, Ojibwe identity.

The complexities of indigenous identity pointed out by Smith are well-illustrated by the diversity of the population BMCC serves. The students who on surveys identify themselves as tribal members vary in the degree to which they consider themselves "Native American," "Anishinaabe" or "indigenous," just as they vary in terms of how much of their language, culture, and beliefs they maintain. Conversely, those students who do not own tribal membership cards may be considerably

imbued with Native American culture by their upbringing. Their lack of tribal membership may be due to the fact that they belong to bands that are not federally recognized, that they do not qualify for tribal membership by the blood quantum or other formal requirement, or that they are members of Canadian tribes. These factors warrant utmost caution when the differences in data between tribal and non-tribal students are interpreted. For the *Standardized Tests Survey* (BMCC, 2010), data were not analyzed comparing tribal and non-tribal students' responses.

BMCC: A Tribal College with a Changing Student Profile

The student profile of BMCC has undergone two significant changes over the past five years. First, the student population is becoming younger, with the 19-21 age group dominating the student body (data provided by BMCC Office of Registrar, Fall, 2010). This shift might affect the test scores as well. According to national Compass data, younger students score higher in math, lower in reading, and about the same in writing when compared to older students (American College Testing, 2010).

The second change that somewhat surprised BMCC faculty was that, in a 2010 student orientation survey, 51% of the students who filled out the survey reported transferring to a four-year university as their main goal for attending BMCC. The sudden growth of this group compared to former years somewhat contradicts the assumption about the vocational orientation of tribal community colleges (and two-year colleges in general). In addition, it makes placement testing particularly important as a tool for making sure the students are well-prepared and ready to handle college-level reading and writing throughout their studies and by the time they transfer.

BMCC & Standardized Assessments

The Standardized Tests Survey, BMCC, 2010

Assuming that standardized tests, in spite of voiced reservations from the teaching community, will be relied on to an increasing degree both by accreditation agencies and by college administrators, the current project intended to gain some reassurance that the Compass test serves BMCC's placement purposes reasonably well and without obvious signs of disadvantage. At the time of its adoption, one of the attractions was that the Compass test is available online, and that it does not require a time limit. As part of a larger project, the *Standardized Tests Survey* (BMCC, 2010) was designed to find out how much experience BMCC students have with standardized tests and if they are sufficiently aware of their importance.

In addition, efforts were made to infuse the project with the values and principles of Shawn Wilson's indigenous research paradigm: relationality, reciprocity, and respect (Wilson, 2009). Therefore, this study was intended to be useful for the teaching/learning community of BMCC; it was considered an important step in strengthening the relationship between research and BMCC staff and faculty with the practical goal of addressing our students' needs in becoming better readers and writers. In addition, this study was meant to reflect the respect for students that guides teachers in their work in a tribal college.

BMCC Students' Literacy Profile on Standardized Tests

Standardized tests have long been a concern for advocates of minority students, including those who are concerned about the success of Native American students in U.S. higher education (Berryman & Bailey, 1992; Brescia & Fortune, 1988; Crouse & Tusheim, 1988; Shohamy, 2001). In a summative report, Brescia and Fortune (1988)

stated that Native American students overall lack acculturation to the standardized test culture; they do not understand written instructions well, cultural bias in these tests may adversely affect them, and Native students lack motivation to do well on tests whose practical purpose is not transparent. The analysis of existing Compass test data and the *Standardized Tests Survey, BMCC, 2010* do not confirm the concerns Brescia & Fortune (1988) expressed in their report: BMCC students' Compass scores are similar to national data from two-year colleges, and the surveyed students do have a fairly good grasp of the test's purpose (see analysis below). However, because of the small size of the sample, and the practical orientation and limited scope of the research, it would be unwise to use the findings presented in this paper as evidence invalidating the concerns expressed by Brescia & Fortune (1988). In fact, the critical comments of Brescia & Fortune (1988) on standardized tests, even if they may reflect an earlier time period, along with more general concerns about the fair use of standardized testing on minority population stated in Shohamy (2001), deserve careful consideration in a tribal college. Nevertheless, the survey data presented in this paper come from a research that was not designed to test a formal hypothesis about the cultural bias in standardized tests that may still adversely affect Native American students.

It seems to be the case, however, that the administrative pressure to apply standardized testing has shifted the focus of concerns from the overall validity and bias of standardized tests toward fairness and flexibility in their application. Because the Compass test is prepared by ACT, an Iowa City based non-profit enterprise with more than 50 years of experience in testing, instead of questioning the value and validity of these tests, college administrators focus on the quality of test administration. At least in my experience, BMCC administration and faculty do not seem to be overly concerned about the possible inherent cultural bias in

standardized testing or about the conflict between test validity and reliability voiced by writing experts and educators. There is more concern, however, that the students who place in pre-college level classes benefit from the extra instruction and transition into college level classes successfully; that the students understand the importance of testing and that technical problems or lack of appropriate information do not interfere with test scores.

Currently, BMCC uses Compass for college-level placement purposes in writing and math, and those who place into pre-college classes re-take the test at the end of their course.[3] Compass was introduced in 2008 to replace ASSET because of its easier administration and online availability. The available Compass data at BMCC are not sufficient to draw far-reaching conclusions, but the general impression among faculty is that for all practical purposes, the test works well for placement, and the problems detected can be locally remedied by changing the setting of the testing. National data collected by Compass from 1.6 million students in the U.S. include 200,000 students who took the test in two-year colleges.[4] According to this large national sample, 40% of the tested students placed below college level in writing, and 31% placed below college level in reading. The BMCC data show that between 2006 and 2009, 36% of our students were placed in a pre-college level combined reading and writing class based on their ASSET or Compass scores. The percentage varies: In 2006, 31% were placed in developmental

[3] Compass is not validated for assessing the effectiveness of pre-college level classes. However, many two-year colleges use Compass at the end of pre-college level classes, not to assess the course, but to (re)assess the students' readiness for college level. Compass experts leave this choice up to the colleges.
[4] The Compass data on two-year colleges include the tribal colleges that use Compass as well. A Compass presenter said that they had never separated data from tribal colleges for any kind of comparative or normative analysis, but should there be a request for such analysis, they would be able to do it (Personal Communication, 2010).

writing, and in 2009 a record high of 54%, but, on the average, the percentage is consistent with Compass's national average for two-year colleges.

There are several factors, however, that should be considered before drawing any conclusions from these numbers. First, because of the recent introduction of Compass at BMCC, some of the data are mixed with ASSET scores. Second, at the introduction of the Compass test, the cut-off scores for reading and writing at BMCC were set lower than the national average, but the score was raised after a semester. Compass recommends that institutions of post-secondary education determine the cut-off score according to their needs. BMCC English Department consulted a comparable tribal college, but later the score was adjusted closer to the national average, following complaints from BMCC college composition instructors that some students placed in their classes lack basic skills (such adjustments are also common practice in colleges and are recommended by Compass as well). Finally, as a tribal college, BMCC accommodates its students' anxiety about timed tests within reasonable limits. Therefore, it was one of the main attractions of the Compass test that the online version has no time limit (currently, the no-time-limit policy has been modified to allow double the recommended time on standardized tests at BMCC out of concern that allowing unlimited time does not prepare students for the real world where time limits are often tight and rigorously observed). In addition to the no-time-limit policy, BMCC students are also allowed to retake the Compass if they wish.

BMCC Students' Attitudes toward Compass and Standardized Testing

The *Standardized Tests Survey, BMCC, 2010* was distributed among students who were taking English classes during the 2010 fall semester. Conveniently, 100 surveys were returned from 51 male and 49 female students out of the 142 surveys that were sent out based on the number

of students enrolled in English classes; 64 of the respondents were tribal members. This sample represents close to one-third of the total BMCC student population enrolled in the 2010 fall semester. All students who attended the class on the day I gave the survey to the instructors returned the survey although some of the answers were missing. The survey was distributed and collected by instructors in every writing class (English). The distribution of responses from the four levels of English classes offered at the time at BMCC is shown in Table 1.

Table 1. Distribution of BMCC Students Responding to the *Standardized Tests Survey, BMCC, 2010* by English Classes.

Pre-college reading writing Level 1	Pre-college reading writing Level 2	College Composition I.	College composition II.	Did not say which class
7%	25%	40%	13%	15%

In addition to the 32 students who at the time of the survey were effectively in a pre-college level reading and writing class, 18 students said they had taken pre-college level classes before. This means that 50% of the respondents had direct experience with pre-college level classes. The rest of the students also expressed opinions about pre-college level classes, but some chose not to answer some of the questions.

Experience with Standardized Tests

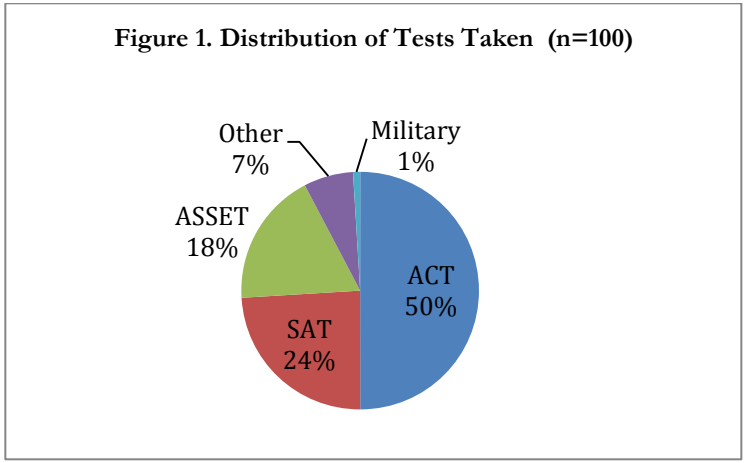
One purpose of this survey was to find out how much experience BMCC students have with taking standardized tests, how much they are aware of the test's importance, and whether there is anything that they would like to change about the Compass test's administration and use at BMCC. The survey questions pertaining to these issues were designed after consulting some of the BMCC faculty and

administration. In the transition period between ASSET and Compass tests, BMCC faculty raised concerns about the technical complications of an online test (Compass), and they also questioned whether the students were aware of the test results' impact on their placement. Faculty had plenty of anecdotal evidence suggesting that the students may not take this test seriously enough (some quit before finishing and said they were bored and walked out, etc). In 2009, an alarmingly large number[5] of BMCC students (54%) placed in pre-college level writing, which again created concern that the test may not place our students accurately although there were no more complaints and requests for review of placement than usual.

The *Standardized Tests Survey, BMCC, 2010* demonstrated that, contrary to expectation, the surveyed BMCC students do have experience with college-level standardized tests, and that on the average, every student has taken 1.94 such tests. One person took a test before joining the military (it was not specified what kind of test), and seven students did not remember what test they took, but the majority had seen at least one standardized test before starting classes at BMCC. The distribution of standardized tests taken is shown in Figure 1.

[5] BMCC's 54% is not unusually high compared to national standards that often report 60% or more taking one or more developmental classes in math, English, or both. The number was alarming because it was higher compared to previous years at BMCC, and because the transition to the new Compass test created some natural anxiety.

Figure 1. BMCC Students' Experience with Standardized Tests.
Source: *Standardized Tests Survey, BMCC, 2010.*



Ninety-one students out of the 100 in the survey took Compass, which was introduced at BMCC in 2008. In the second level of pre-college writing classes, Compass is also taken as an exit test. Ten students in the survey said that they re-took Compass as a required exit test at the end of their pre-college level class. Only two students re-took the test because they were not happy with the score. (One student, who was not in the survey pool, re-took the test with a dramatically increased score after she learned that she placed in a pre-college level class).

Awareness of the Compass Test's Importance, Purpose, and Meaning

Being informed about a standardized test's purpose, importance, and significance is known to be an important factor in the motivation and success of test takers, and it is also an important aspect of the ethical use

of standardized testing (Shohamy, 2001). Faculty and administrators at BMCC often voiced assumptions that BMCC students do not take the Compass test seriously, or may not know how important placement is. A group of questions on the *Standardized Tests Survey, BMCC, 2010* addressed these issues (see Figure 2, Figure 3, and Table 2). It was somewhat reassuring to find that the majority of surveyed BMCC students were informed about the placement test (Compass, or some took the previously used Asset) and were aware of its importance before taking the test (Figure 2). However, the 23% who may not have understood the purpose or may have missed the explanation shows some confusion in this area, especially because students responded to this question after they had responded to a multiple choice question about the possible purposes of the Compass test **(**Table 2**)**. Consistent with responses to other questions, it is reasonable to conclude that the orientation of BMCC students before taking Compass is crucial, and requires probably more detail and emphasis than a perfunctory instruction would provide.

Figure 2. Surveyed BMCC Students' Awareness of the Compass Test's Purpose.
Source: *Standardized Tests Survey, BMCC, 2010.*

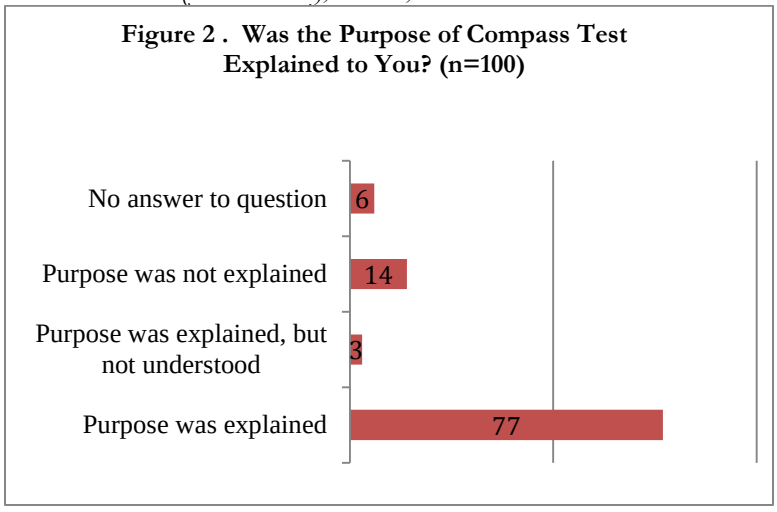
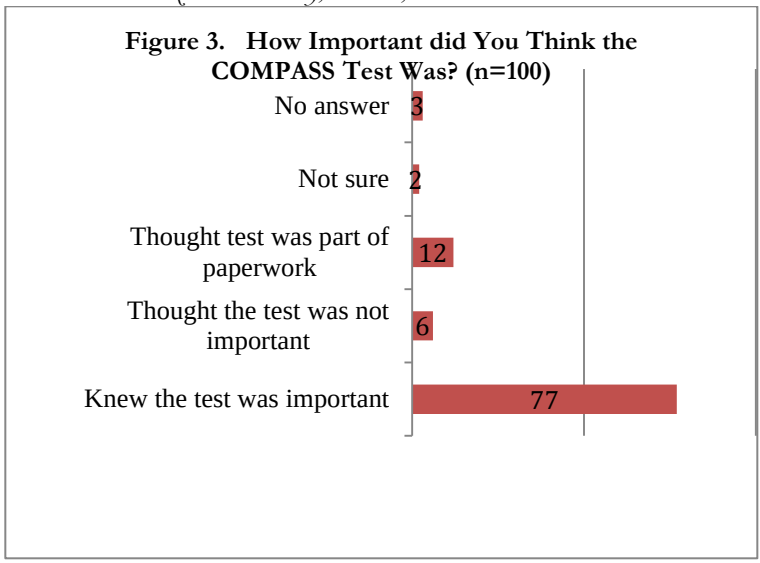


Figure 3. Surveyed BMCC Students' Perception of the Compass Test's Purpose.
Source: *Standardized Tests Survey, BMCC, 2010.*



To check the validity of the students' declared awareness of the Compass test's importance, the survey also contained a question to find out what exactly the students knew about the actual purpose and meaning of taking the Compass test. The majority of responses, after omitting the "Don't know" or no answer responses, clustered around three major areas (see Table 2).

Table 2. Surveyed BMCC Students' Assumption about the Meaning of Compass Test
Source: *Standardized Tests Survey, BMCC, 2010.*

What is the Purpose of Taking the Compass Test? (n=83)	
To make sure students won't struggle in the class they are placed	**52%** **(44)**
To place in college level English (and math) classes	**29%** **(25)**
To find out how smart the student is	**18%** **(15)**

Note: One of the respondents marked two answers.

The numbers in Table 2 show that close to half of the respondents see the meaning of the Compass test in potentially negative terms, as a test that can bar someone from enrolling in a college-level class, or can screen out those who are not smart. Students who believe that standardized tests measure their general intelligence or "smartness" are more likely to be discouraged or depressed by low scores because "not being smart" is perceived as a permanent quality not likely to change; whereas "not being ready" is a temporary condition that can be improved by identifying areas that need improvement and by study and practice. Similarly, the students who do not know what their score means are less likely to take their placement as an opportunity to focus on specific areas in their knowledge that need improvement. As Dweck (2006) pointed out, the students who see low scores as markers of areas for improvement are more likely to succeed compared to students who think about low scores

in generalized terms as a measure of their overall fitness for school or as a fixed personality trait.

One of the major challenges of teaching the pre-college level classes is to negotiate with students the meaning of their situation. Many students who place into these classes already think that they will never be smart enough to succeed, and it takes a lot of effort to help them see their weaknesses and set goals to improve when they do not believe that it is possible. Students who understand that the low test scores only mean that they need some extra work before they are ready to take college-level writing have a better chance of staying and succeeding in the course than the students who take these classes with the thought that they are not smart enough to be in a college class. This interpretation of these data is supported by recent research and theory about the effect of growth-oriented versus fixed mindset (Dweck, 2006). After discussing these numbers in view of Dweck's framework, student services and faculty at BMCC agreed that the 11 students in the survey who said they don't know the purpose of the test, and the 15 who believed that the test shows how smart they are indicate that BMCC advisors, recruiters, and orientation student services need to make a concerted effort to ensure that the students take the Compass test seriously, but with realistic expectations, and without a sense of defeat.

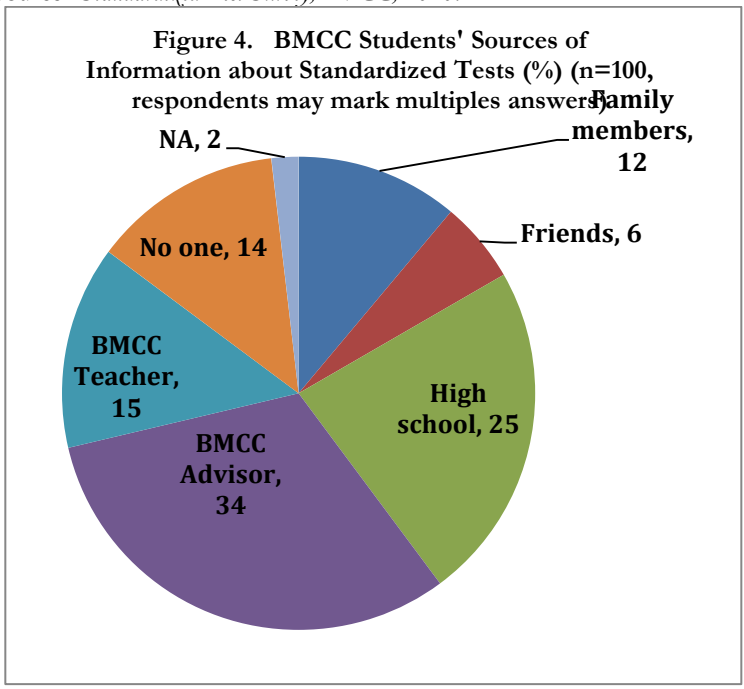
The Effects of the Learning Environment

The majority of BMCC students match the profile of what is termed "non-traditional"[6] or first generation college student in mainstream education; 84% of BMCC students come from families where no parent has a college degree (data provided by BMCC Registrar's

[6] It needs to be mentioned here that in the context of a tribal college, the phrase "non-traditional" has a different connotation. It is often used to describe tribal members who are not or only superficially submerged into their cultural tradition.

Office, 2010). Thus, while these students' family members might be strong supporters of the students' college education, they may not be able to provide equally strong orientation and guidance about how to approach a test, or how to prepare to be ready for college-level work. According to the *Standardized Tests Survey*, *BMCC, 2010*, only 17 of the 100 surveyed had heard about standardized tests from family members, and eight had heard about them from friends. Thirty-four reported that they were informed about these tests in high school. The largest majority, however, rely on BMCC advisors and teachers for information about standardized testing solely (see Figure 4).

Figure 4. BMCC Students' Reported Source of Information about Standardized Tests.
Source: *Standardized Test Survey, BMCC, 2010.*



The data presented in Figures 2, 3, and 4, and Table 2 indicate that BMCC students' attitudes and motivation to take the Compass test

seriously, as well as their understanding of the importance of placement, largely depend on the tribal college staff and faculty. Being placed in pre-college level writing classes adds one and sometimes two (or even more) extra semesters to a student's time in college, and it is crucial for the success of these classes that students consider the time as an opportunity to catch up, not as a punishment. Although the limited scope of this research does not warrant broad generalizations, it is reasonable to assume that colleges serving historically underrepresented populations in college also have more responsibility —compared to four-year college student services — for informing students about placement and fostering a positive mindset.

Placement Testing—High Stakes Testing

The last portion of the *Standardized Tests Survey, BMCC, 2010* contained 13 questions where students could agree, disagree, or choose "don't know" as an answer to questions about BMCC policy on standardized tests like Compass (or ASSET) for placement, as part of the pre-college class grade, and other related issues. For BMCC faculty and administration, it was reassuring to find that 80% of the surveyed students reported that they make their best effort when they take the test. Although some of the faculty expressed doubts about the veracity of these survey responses, we found other evidence that confirmed this high percentage.[7]

Data from the rest of the survey questions in this section, however, demonstrate some struggle between the awareness of Compass

[7] Since 2010, BMCC has been administering CAAP (Collegiate Assessment of Academic Proficiency) tests for outcome assessment purposes. The CAAP test asks test takers to rate the level of their effort after they finished the test. We got consistently high ratings on this question at BMCC, and the rates went up as we spent more time preparing students by explaining the purpose of the test as well as fostering a positive mindset in which low scores are interpreted as challenges for improvement.

placement as a high stakes testing situation and the students' sense of fairness. Somewhat related to these issues, another controversial area is whether BMCC students want BMCC to use COMPASS test in the same way as other colleges use it, or in a way that gives students a better chance, by allowing re-take, extra time, and moving on to the college level class with a passing grade from a pre-college level class even if the Compass test score is not at college level after taking the pre-college class.

Table 3 is a selected sample of BMCC students' responses to this last portion of the survey, presenting their answers in decreasing order of agreement:

Table 3. Summary of BMCC Student Opinions about the Use of Compass Test at BMCC . (n=100)

	Agree	Disagree	Don't know or NA
A. Unlimited time should be allowed to take the Compass test	**71**	**11**	**18**
B. Test instructions are helpful at BMCC	**59**	**2**	**29**
C. Explanation of scores and placement are clear and helpful	**57**	**27**	**16**
D. Students should be able to retake Compass if they wish	**53**	**28**	**19**
E. Students should take Compass only once, like in other schools	**31**	**36**	**33**
F. Passing score on Compass should be required to move on to college level after taking pre-college level classes	**26**	**34**	**40**

G. Compass score should be 10% of pre-college level class grade	**21**	**23**	**56**

The responses show that BMCC students are most satisfied with the BMCC policy of extended time limit on the test (Table 3, Item A). The test instructions seem to work for most of the students, but the number of students who do not find placement instructions clear or did not respond represent a large enough group to support the assumption that BMCC students are not sufficiently aware of the consequences of taking a placement test, or the consequences of not testing into college level classes (Table 3, Items B and C**)**.

The comparison between a tribal college and other colleges is a sensitive issue. BMCC students are attached to their school and appreciate the way the school supports them. At the same time, some of them feel like BMCC is not a real college yet. For example, when I talk to students about transferring to a four-year college, they often say that they are ready for the "real world," implying that BMCC, as a tribal college, is somewhat of a sheltered version of "the real world."

According to the *Standardized Tests Survey*, *BMCC*, *2010*, the majority of students were happy with BMCC, unlike other colleges, allowing students more time and repetition[8] if needed to take the Compass test. However, when the question was phrased differently, asking if BMCC should do what other colleges do and allow students to take Compass only once for placement, the surveyed BMCC students' responses were more divided, and 31 of them thought that BMCC should be like most other colleges (i.e., "the real world"?). Because of the

[8] As a matter of fact, test repetition at the students' request is not an official policy at BMCC, and it is not advertised in our books. The decision to allow a student to retake a Compass test is made on a case-by-case basis, and it is very rare. Nevertheless, in a couple of cases re-taking Compass makes a huge difference.

geographic isolation of BMCC, very few students have extensive experiences with other schools outside BMCC; most of them think about Lake Superior State University, which is the closest 4-year liberal arts college with about 2000-2400 students. There are some similarly small colleges, or two-year colleges in the area that BMCC students consider the "real world" and relevant to their goals. Their knowledge of other tribal colleges is even more limited due to the geographic distance and lack of information.

Another more controversial issue is whether students who placed in pre-college level writing classes should be allowed to move on to the next level if they earn a passing grade in these classes, even if they do not score at college level when they re-take the Compass test at the end of the class. Thirty-four students disagreed with having to score college level on Compass at the end of the pre-college writing class. One student commented, "When you take a class you are placed in by Compass it should only count for part of your grade." Another wrote, "If it [Compass] is a pass or fail then that's not fair to the students who do all the work in class but fail the test." Since BMCC technically is an open-admission college, policy on this matter has been ambivalent over the years, which is reflected in the data from this survey, too. Around the time the decision was made to adopt the Compass test, faculty significantly changed position on this matter. As a first step, instructors incorporated the end-of-semester Compass score in their pre-college level class as 10% of the final grade. Gradually, more and more faculty are convinced that if our students do well in the pre-college level class, which combines both reading and writing instruction and meets four times a week for two hours, they should be able to place at college level when they take Compass after taking the class. Frustratingly enough, however, some of them don't.

Yet, in accordance with BMCC's mission to "provide quality educational opportunities" for its students, BMCC moves consistently in the direction of setting clear standards, especially because almost 50% of its student population consistently reports intention to transfer to a four-year college. The proper placement and preparation of students to start college-level writing (and other college-level) courses with adequate skills play a crucial role in the successful accomplishment of the mission of providing quality education for tribal college students. Inadequate placement and pre-college level preparation put extra burden on the shoulders of writing instructors who teach the first sequence of the college-level class (and other college-level courses), and some students continue the uphill struggle all the way to the second college-level writing class. It takes years of consistent policy and supportive student services to bridge the gap, but with more students considering transition to four-year colleges, it appears to be reasonable to rely on Compass and continue work on more effective test preparation, both in instruction and in student services.

Technical Issues

Some issues that are less complex — although not less important — than placement also came up in the survey. Of the 91 students who took Compass, 52% had no technical problems, but 48% reported technical or other external conditions that interfered with their test taking. Due to the recent introduction of the Compass test at BMCC, these difficulties were not unexpected. The percentage distribution of these disturbing conditions or technical difficulties mentioned in the survey was, in decreasing order, as follows: 38% found the noise disturbing; 30% had trouble reading the screen; 26% found the instructions in the test confusing; 1% said the Compass test was too fast; 0.5% had difficulty logging in with the password; and 4.5% had miscellaneous technical

difficulties, most of which related to the confusion about the use of the calculator in the math portion of Compass. Others mentioned internet connection failure, taking a long time to get the test started (after having to follow and read lengthy instructions and rehearse sessions); or finding the test too short (as an adaptive test, Compass does end the testing once enough information is gathered about the student, especially in the math portion of the test).. These problems, when possible, were remedied while I was still processing my research data: The Compass test administrator provided ear plugs for students, technical assistance was made available for the time of testing, and in 2010 the Compass testing was moved into the Learning Center from the library. Although 31 students in the *Standardized Tests Survey, BMCC, 2010* agreed that BMCC should continue paper-and-pencil testing, the incoming generations of test takers no longer requested this option.[9]

Conclusion: Standardized Tests in a Tribal College and the Indigenous Way

The conflict between open admission and college-level testing is not unusual, but in a small college like BMCC, it is often more visible. While open admission seems to be a reasonable solution to the problem of limited access to higher education, it also allows too many underprepared students to enter college-level classes. Reading and writing are instrumental skills in college-level classes, and with the rapid development of online classes, both reading and writing are becoming

[9] The rapid encroachment of technology would deserve more detailed discussion and research, especially in tribal colleges. In my classroom, I offer students both paper-and-pencil and online options for all tests and experience how students go back and forth between tests and semesters. It looks like we are in a transition era. However, providing the paper-and pencil-version as an option, although it is available, is extremely complicated in Compass and has not been supported at BMCC.

even more crucial elements of a student's success in college. Since the Compass test generally works well for placement purposes, it is reasonable to continue its use as an exit test at the end of pre-college level writing classes, even though some students who do not score at college level at the end of their pre-college level class will be frustrated.

With BMCC staff and faculty being the sole sources of information about the significance of the Compass test and its consequences, student services have an enormous responsibility for clearly communicating the purpose and importance of this test and for making sure that the students take the test seriously enough, but when their score is not high enough for college level, they are not taking it as a personal failure.

One positive outcome of the *Standardized Tests Survey, BMCC, 2010* was that BMCC's flexible policy on timing and retaking the Compass test is appreciated by its students. At the time of this survey, we did not have enough reliable data to tell how much time BMCC students typically spend on their Compass test, yet it appears to be safe to say that the unlimited time allowed to take the test does not significantly increase the time students actually take. All students in our sample who took the test finished in under two hours, and the most typical amount of time spent on the whole test (including reading, writing, and the algebra part as well) within the sample was around 90 minutes. Since the unlimited time does not increase test-taking time as significantly as it decreases anxiety, it is a policy that is considered particularly favorable in a tribal college. With Compass being administered online, the time limit does not make the same sense it used to when tests on paper and with pencils were used. However, the condition, "unlimited time," also has its drawbacks. Many students, so it seems, do not know how much time it would take them realistically to finish the test, and they schedule other programs or transportation arrangements too soon. For example, some students

arrange ride shares waiting for them, or take the test an hour before they need to pick up a child, or show up for work, etc. In other words, they work under their own time limits. Therefore, according to the *Standardized Tests Survey*, *BMCC,* five students (14% of those who mentioned problems taking Compass) found the test "too fast," or complained about feeling "rushed" to finish[10] even though the online version of Compass has no time limit! More research would be needed to find out how special time conditions affect test taking and test takers. So far, as it was stated above, the only effect is lower anxiety among students, but not necessarily longer time taking the test.

Allowing students to re-take the Compass test if they do not like their score is less agreeable as a policy, but at BMCC, we have anecdotal evidence that it may be beneficial in some cases. The main objection against this policy is that Compass testing experts do not recommend it. Their data on test re-takes show inconsistent score patterns that undermine the reliability of assessment. More often than not, students are found to score much lower than the first time they take the test. According to BMCC records, at least some students, who were gravely misinformed about the purpose of the test and took it as some paperwork or part of the registration formalities, dramatically improved their score when retaking the test fully aware of its purpose and consequences. These anecdotal examples suggest that with proper information, such incidents can be avoided, and the number of re-takers can be reduced, ultimately making the re-take policy unnecessary.

[10] "Rushed" is a word that in a tribal college is often used to characterize culturally insensitive ways of pushing students to perform according to the requirements of clock time as opposed to event time. This survey found, however, that the time pressure does not always come from outside, but from students underestimating the time the test-taking requires. Helping students make realistic decisions about test-taking time, thus, still is an important responsibility for the college's student services.

The Indigenous Way and Standardized Tests

Tribal colleges fulfill a dual function of making sure their students succeed in higher education and that they can preserve their traditional ways of learning and knowing. Infusing curricula with traditional values of learning and teaching, however, is easier said than done, especially when such notions as standardized testing, seemingly alien to indigenous forms of learning, are concerned. The college composition teaching community has been promoting assessment and placement that would also perhaps better fit a tribal college's values: portfolio assessment allows students to showcase more than one piece of writing; directed self-placement involves the learner in making a decision about the level he or she should start in college; writing samples force faculty to develop consensus and communicate locally established standards. In addition, unlike standardized multiple choice tests like Compass, all these methods directly assess the student's writing. All these seemingly more suitable forms of writing assessment, however, appear to require more time and resources than a small tribal college like BMCC cannot afford. Therefore, at least at BMCC, the emphasis is not so much on resisting standardized testing as on making sure that the standardized tests are administered and used in a way that is consistent with BMCC's mission as a tribal college, and is agreeable to its student population.

One fundamental principle of indigenous education is that the students learn without coercion or punishment, and are allowed substantial control over their own learning. This principle could be introduced into the realm of standardized testing the following way: Students who place in pre-college level classes should be allowed to express their frustration and how they feel about their situation. They need help to understand that low test scores are not the measure of overall character or intelligence, but indicators of readiness or need for

more preparation for college-level work. After this attitude readjustment, students need to be shown the outcomes at which a pre-college level class is targeted. These outcomes should include the required score on the Compass test, but also samples of writing, or ways of (critical) reading. As a next step, students should work on making a plan for themselves as a class for what course of study to follow and what materials to use to achieve that goal. When students appear to be too helpless, instructors may offer a list of electable activities, but allow students to choose how to approach them, such as taking practice tests, or covering readings from a course book that contains multiple-choice comprehension questions, etc. Students then should also be allowed to set up a way of measuring their own progress as a group (Stanley Wilson, Personal Communication, 2011).[11]

While BMCC does not endorse these alternative approaches yet, its current practice shows a successful way of negotiating between the necessities of standardized testing and the mission of tribal college education. Should tribal colleges, including BMCC, more actively seek methods of writing assessment and preparation for standardized tests that are radically different from what regular two-year and some four-year colleges do? This is one of those good questions that were repeatedly raised during this research project by those who read my work from outside BMCC. Those whom I work with at BMCC were more interested in finding out some of the smaller questions that the body of this article

[11] Stanley and Peg Wilson, both from the Opaskwayak Cree Nation, earned their PhDs in Santa Barbara, California. They live and work in Manitoba, developing a program to support indigenous scholars and to instill what they call "the indigenist way" in education. This final section of this paper is based on my talks with Stan Wilson, who shared with me what he thought would be an indigenist way of preparing students for standardized tests in pre-college level classes. He also suggested, however, that tribal colleges should seek, whenever possible, alternative ways of teaching and assessing students. These alternative ways, Stan suggested, are not only rooted in indigenous traditions and serve Native/indigenous students' needs better, but they are time-tested ways of teaching and learning for everyone.

covered in more detail. And, as Shawn Wilson also pointed out, in research asking the questions that we don't know the answers to are just as important as the ones we do.

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APPENDIX A

Standardized Tests Survey

This survey is part of a larger research project whose purpose is to study how BMCC students make sense of their education at BMCC, especially of their learning of reading and writing (English). We greatly appreciate your contribution to this project, which is funded by the American Indian College Fund and the Andrew W. Mellon Research Fellowship. Be advised that your participation in this survey is voluntary, and your response will be handled without revealing your identity and with respect for the integrity of your information.

I. Student information:

1. Gender: a. Female b. Male

2. Are you a tribal member? a. Yes b. No

3. What is your age?
a. 18-19 b. 20-21 c. 22-24 d. 25-29 e. 30-34 f. 35-39 g. 40-49 h. 50-64 i. 65^{+}

4.Which EN or other writing classes have you **completed** so far at BMCC? Circle all that apply:

a. AE 102, 103, 104 or 106		b. EN 105/106	
c. EN111	d. EN112	e. EN219	f. EN256
g. EN107	h. BU193		

5. Which EN or other writing class/es/ are you taking **now**? Circle all that apply:

a. AE 106	b. EN107	c. EN108	d.EN111
e. EN112	f. EN256	g. none	

6. Mark the statement which best describes your relationship with writing:
a. I am a good writer at the college level.
b. I am a functional writer at the college level.
c. I am not at college level with my writing yet, but I am very close.
d. I still need to work a lot on my writing to feel like I am at the college level.

7. Mark the statement which best describes your relationship with reading:
a. I am a good reader at the college level.
b. I am a functional reader at the college level.
c. I am struggling with college level reading, but I am getting close.

d. I still need to work a lot on my reading to feel like I am at the college level.

8. Last grade I received in a reading or writing class was
a. A b. B c. C d. C- or below e. W

9. Circle all the standardized college placement tests you remember taking:
a. ASSET b. Compass
c. I can't remember which, but I took one. d. SAT
e. ACT f. I never took any of these tests.

10. In your opinion, what is the main purpose of taking these tests?
a. To get into college level English and Math classes.
b. To make sure students don't struggle in their English and Math classes.
c. To test how smart students are in general.
d. I don't know.
e. None of the above. The main purpose is
_____

If you took any of the standardized tests listed in Question 6, try to remember the last time you took a test before you answer these questions. (If you have not taken a test listed in Question 6, skip to SECTION II).
11**.** The last time I took the ASSET/Compass test,
a. someone explained the reason I needed to take the test.
b. someone tried to explain the reason I needed to take the test, but I did not understand.
c. I had no explanation about the test.

12. The following people told me about the importance of standardized tests (like ASSET or Compass). Circle all that apply:
a. my parents or family members
b. my friends
c. my high school teachers
d. my advisors at BMCC
e. my teachers at BMCC
f. no one that I can remember

13. The last time I took the ASSET/Compass test,
a. I knew it was important to do my best.
b. I was not sure about the purpose.
c. I did not think the test was important.
d. I thought the test was just part of the registration paperwork.

14. I took the English portion of the ASSET/Compass test
a. once
b. twice
c. three times or more
d. more than twice, but with a long time between the takes

15. If you took the ASSET or Compass more than once, it was because
a. I was not happy with my placement.
b. a teacher or advisor asked me to take it again.
c. EN105/106 required me to take it again at the end of the course.
d. none of the above. Please explain: _____

16. When I took my Compass test, I experienced many distracting technical problems. Circle all that apply:
a. Working on the screen was confusing.
b. There was too much noise around me.
c. The computer instructions were confusing.
d. The test on the computer was too fast.
e. The computer did not accept my password.
f. I had other problems. Please, explain:
_____
g. I did not have any technical problems.
h. I did not take Compass on the computer.
i. I did not experience technical problems.

17. The ASSET/Compass test we took at the end of my EN 106/105 class counted as
a. 5% of the class grade.
b. 10% of the class grade.
c. I can't remember.
d. It did not count; we just had to take it for measurement purposes.
e. I did not take EN105/106.

SECTION II: Please share your opinion about BMCC policy on standardized tests like Compass (or ASSET):

	I agree	I don't know	I disagree
BMCC should continue using pencil and paper tests (like ASSET) to place students in the EN and MA classes.			
BMCC should use only computer-based tests (like Compass) to place students in the EN and Math classes.			
Students would do better on			

standardized tests if the instructions were clearer.			
BMCC's instructions for students about taking standardized tests are clear and helpful.			
BMCC should allow students to take Compass as many times as they need to feel happy with their score.			
BMCC should allow students to take Compass only once, like most colleges do.			
BMCC's policy to allow students to take as much time on Compass as they need to show what they know helps students do their best.			
BMCC should use the standard time limit on Compass so that students learn to take timed tests and are evaluated the same as they would be at other colleges.			
BMCC should allow students to prove their skill level in other ways than by taking Compass.			
BMCC informs students about their score and what the score means after taking Compass clearly and helpfully.			
BMCC students who do not score at the college level on Compass after their pre-college level classes should not be allowed to move on to college-level classes.			
BMCC instructors should continue to use Compass at the end of EN108 for only 10% of the class grade.			
When I take a Compass test, I always give my best effort.			

III. OPEN ENDED QUESTION FOR SUGGESTIONS

Please, if you have anything else to say about standardized tests like Compass/ASSET and their administration at BMCC, write it down here:

Thank you for your time and effort.

Tribal College Faculty Motivations for Integrating Science & Culture

Stephanie Grater, Chandler-Gilbert Community College
Jessie Antonellis, Little Priest Tribal College

Integrating culture and curriculum is both a cornerstone and a challenge of the work of tribal colleges. When science courses at tribal colleges are integrated with the local culture, they are opportunities for students to connect with their ancestors' knowledge and address contemporary scientific issues in their communities. In this study from Tohono O'odham Community College (TOCC), Stephanie Grater and Jessie Antonellis, student and faculty at TOCC at the time, surveyed science faculty members about their motivations for teaching at TOCC and asked about their motivations for integrating or not integrating culture into their curricula. Grater and Antonellis found that the faculty members sought to show students that science is part of their cultural history; some respondents even directed their teaching toward addressing social injustices present in American Indian education. These challenges of integrating culture and curriculum are challenges faced by the wider educational community as well; Grater and Antonellis provide important lessons for educators everywhere on understanding the culture of students and sharing classroom power to achieve these important educational goals.

Introduction

This article was written as a collaboration between an adjunct faculty member and an undergraduate student at Tohono O'odham Community College. It was intended to help different stakeholders at tribal colleges understand the strategies and challenges of science instructors, in order to support faculty members in offering culturally-relevant courses. In this article, we cite literature addressing the traditional assimilationist approach of science education, and suggest a shift toward showing students how science is part of their cultural heritage.

Bruner (1996) describes culture as that which shapes our minds, which in turn shapes our worlds and our perceptions of ourselves. The O'odham community is defined by its knowledge of the desert — its

plants, animals, water resources, and weather systems — as well as the belief that we descended from the desert earth, so it is a part of us and we must treat it with respect. The land is always a good way to introduce the Tohono O'odham, meaning "Desert People." O'odham traditional lands are vast: stretching through the Sonoran Desert west toward the Colorado River and Gulf of California, north to the Gila River, then to the San Pedro River in the east, and to the Alter and Magdalena river valleys in the south. Our ancestors succeeded in keeping the O'odham community alive through our culture, which is why we are here today.

The behaviors of respecting each other, working together, listening, keeping yourself healthy and active, contributing to the community around you, being industrious and peaceful, and many other beliefs are what maintain a happy O'odham life. This culture is what we have. Some people may have the opinion that O'odham culture today is no more than the negative aspects and stereotypes of reservation life, as many people have strayed far from what once held us together, but to this day the O'odham are proud people who care about each other and work hard to take care of themselves and their families. They want to help people, and they do; there are many people in the O'odham community who contribute to the fight for us to become a thriving, prosperous, successful community.

Tribal colleges are places where fostering and enhancing the tribal culture is actively implemented by way of the college mission statements, which sound the call for integration of curriculum into the culture and place a focus on the end goal of empowering Native American students through education. Our tribally-controlled college, Tohono O'odham Community College (TOCC), is a resource for keeping our culture relevant, as well as for preparing O'odham students for life both in the mainstream society and within our communities. The goal of the college is to prepare students to contribute to the social, political, and

economic life of the Tohono O'odham Nation, and to preserve the O'odham *Himdag* (way of life).

Part of this effort involves integrating O'odham culture into the college. TOCC requires all students to take O'odham language and history, and provides culturally-relevant curricula such as Tohono O'odham Food Systems and diabetes prevention (Tohono O'odham Community College, 2010). The Tohono O'odham Nation has the highest rate of diabetes in the world (Reader, 2010); the work that TOCC does in diabetes prevention and O'odham food systems is an example of how a tribal college can use its scientific resources to help address problems affecting the community.

Education is one way people can empower themselves and the community. The faculty at tribal colleges play a very big role in this movement because they have the opportunity to spark the interest of students and encourage them to take control of their education.

Background

The Integration of Curriculum and Culture

Tribal colleges and universities (TCUs) operate within unique circumstances because they have autonomy over the type of curriculum they offer. When tribal colleges were first conceived as an option for post-secondary education for tribal students, the founders wanted the colleges to also have the purpose of protecting and enhancing their communities' cultures (Stein, Shanley, & Sanchez, 2003). With Native American culture as the center of the curriculum, these post-secondary institutions have the opportunity to be innovators in education. The curricula and pedagogies being developed by TCUs are intended to balance the traditional and the contemporary (Benham & Mann, 2003). When the staff, faculty, administrators and students know and embrace this mission of the college,

the institution itself becomes a way for tribal communities to preserve and propagate the local culture, while educating tribal members for the modern world.

TCUs are setting the example for the integration of culturally-relevant curricula, and for demonstrating how the integration of culturally-relevant curricula help Native American students learn and retain content while strengthening their tribal identities. Culturally-relevant pedagogy has been an important tool used in successful tribal college programs; it "engage[s] students in ways that increase learning in both the cognitive and affective domains and builds commitment to community" (Benham & Mann, 2003, p. 183). The integration of culture, along with support from the faculty and from classmates, helps students learn and retain the information being taught. Students also want and appreciate the integration of culture into the curriculum. Boyer (1997), in his survey of tribal college students, found that for the most part students believe that cultural integration makes their education richer; one student replied, "I feel the greatest strength of the college is the integration of our culture into the classroom…although not all classes do have this, the ones that do are more interesting and enjoyable" (p. 41).

Gregory Cajete, in his book, *Igniting The Sparkle* (1999), wrote that "traditional Native American learning occurred in very high context social situations," where learning had a specific purpose for people's lives within a community. Native American people taught and were taught in this traditional manner for thousands of years, and for many Native American students it is still familiar. Today's Native American student is not very different from their ancestors when it comes to the intense connection to family, the land, and community; showing how students and their education fit into the world around them can be a very powerful motivator. Instructors can make classes more stimulating by showing students how their learning applies to their everyday lives, and how what

they learn can benefit the community. These connections give students a purpose for learning and retaining new content.

Making the effort to integrate both content and culture at TCUs not only provides students with motivation to learn and succeed, it empowers both the student and the community. The presence of the culture at the college gives the community more motivation to support the students, because they can see the positive impact education has on the lives of students and the health of the community.

The Importance of Science for Native Students & Communities

Native American communities have multiple needs that require expertise in science and technology, such as health and sustainable use of resources (James, 2001). Meanwhile, Native American students struggle to succeed in science. They feel alienated from the content, which is generally dominated by Western culture. As James (2001) related, there exists a "history of educational materials that are culturally inappropriate at best and assimilationist at worst" (p. 2). Aikenhead (1998) stated that "if science is generally at odds with the student's everyday world, then science instruction can disrupt the student's view of the world by forcing that student to abandon or marginalize his/her indigenous way of knowing and reconstruct in its place a new (scientific) way of knowing" (p. 2). In sum, these assimilationist practices can overwhelm students' identities and deter them from really embracing and succeeding in science.

It is important to teach Native American students the scientific knowledge that our ancestors once used to survive. The science that Native Americans used was and is important because these knowledge bases are still relevant today: they were specifically designed to be applied to a person's local environment. Reclaiming those knowledge bases is a step toward self-determination and empowerment for Native American students and communities. Therefore, it is important for faculty members

at tribal colleges who work with Native American students to acknowledge that these knowledge bases exist and that they are still relevant, and to make efforts to integrate them as much as possible into the curriculum. Doing so requires that faculty members come to know and understand the scientific knowledge of their students' culture; when instructors are comfortable with and are appreciative of the scientific knowledge bases within their students' culture, classroom dynamics improve and sustain students' interest in science (Bardwell & Kincaid, 2005).

Boyer (1997) wrote that "education is the key to social renewal"; the tribal college movement is a fundamental part of this social renewal. Our tribal college and its curriculum are part of a bigger mission to achieve tribal self-determination and sovereignty, both of which are key political movements in Native American communities. It is important that the tribal college community understands the crucial role that faculty members play in empowering Native American students.

The research described in this article plays a part by helping students, communities, faculty, and administrators get a better understanding of where our tribal college is in this movement, to acknowledge where we are succeeding and find ways to improve and to better support each other. By highlighting the practices and beliefs of science faculty at TOCC with regard to culturally-relevant science curricula, we hope to foster an understanding among the college's students, faculty members, administrators, and the tribal community about what the college is here to achieve. Similarly, by shining a little light on the motivations, strategies, and obstacles of the science faculty at TOCC with regard to integrating culture and science in the curriculum, this research can be used by administrators to better support faculty members. Community members and students will be able to get a glimpse of what faculty members' goals are when they choose to teach at TOCC, and what

they consider when putting a class together. When all these stakeholders are on the same page and understand their part in this movement, we can better achieve the mission of our tribal college.

Methods

This research employed a survey designed to help us understand what TOCC's faculty think about, and how they use, culturally-relevant pedagogies. The survey was intended to determine the characteristics of science faculty at TOCC; in particular, we were interested in their motivations for coming to TOCC, and how and why they integrate culture into their science classes. Because of the focus specifically on TOCC and the small sample of faculty members, these results cannot necessarily be extended to science faculty at other tribal colleges. However, this research is intended to be a small step towards understanding how the science faculty at a tribal college helps to support the college's mission.

All six science instructors at TOCC in Fall 2009 were invited via email to respond to the survey in an online format, which, because of the small population, was chosen to better maintain the respondents' anonymity as much as possible. We received responses from four faculty members. With the permission of one additional instructor, we used interview data collected by the second author several years prior, which covered similar topics to those asked about on the survey.

The trends in the data were used to analyze and characterize faculty members' motivations for coming to TOCC, and their rationale for integrating culture or not. What follows are the results as they pertain to this analytical framework, organized by survey question:

1. Why did you choose to teach at a tribal college such as TOCC?

2. Why do you integrate/not integrate your curriculum into the culture?[1]
3. How do you integrate your curriculum into the culture?

In the following section, the respondents are referred to by O'odham pseudonyms: *Hemako*, *Go:k*, *Waik*, *Gi'ik*, and *Hetasp*.

Results

Why did you choose to teach at a tribal college such as TOCC?

Results of our survey indicate that there were two motivating factors for respondents who came to TOCC: they came specifically to work with Native students (two respondents), or they came to gain teaching experience (two respondents; one respondent did not address this question); the latter did not specify if they meant to gain teaching experience with Native students in particular. It is clear that all respondents came to TOCC to become better teachers. Native American faculty who came specifically to teach Native American students seem to follow the trend found by Voorhees (2003), in which this was identified as a prominent motivating factor for Native American TCU faculty; as respondent Go:k wrote, *"I am Native and enjoy teaching and working with Native students."* Native American faculty members may come to TCUs because of the cultural match, where the philosophies of the instructor and the tribal college are congruent (Tippeconnic & McKinney, 2003). For instance, Respondent Waik did not say she/he is Native, but did say, *"I grew up on a reservation and it's a comfort to be on one."*

Non-Native American faculty members may feel that teaching Native American students is a way to make a difference in the lives of

[1] At the time of the survey, TOCC used the phrase "integrate curriculum into the culture" as a way of describing the interweaving of culture and curriculum. As such, the survey question was written in this way, though throughout this article we refer to the same concept as "integrating culture into the curriculum."

others. However, in contrast with Native American faculty, that interest in making a difference could equally well have been focused on any other group of underserved students. We found that some faculty members felt that by teaching at a TCU, they might help to address broader social justice issues, such as assimilation.

Why do you integrate/not integrate your curriculum into the culture?

Again, the primary reasoning for cultural integration with the curriculum is for the sake of the students, wanting them to feel they have a place in science. Waik said, *"it is important to have the students know how the topic is ubiquitous."* Stressing that science is all around in the students' everyday lives allows more opportunity to spark their interest in science. Go:k said the students *"deserve to see how they fit into science and science fits into their lives."* The students seeing how science affects them, whether in health, agriculture, or astronomy, encourages them to *want* to learn about science and see why they might *need* to learn about science.

There is also a social justice issue at hand for some of the faculty members at TOCC. As described above, they feel that integrating culture is a means of counteracting assimilationist teaching methods in science education, and possibly education as a whole. After this emergent theme of power was identified, we used it as a lens to inform the analysis. Go:k described wanting to teach students not to see science as *"an 'other' that they have to learn against their will."* Respondent Hemako said that by *not* integrating the curriculum, he/she would be *"perpetuating education that holds Western understandings of the world higher than Native traditional understandings, and I feel this has major negative social, emotional, and physical consequences for Native students and communities."* This compelling statement conveys the importance of counteracting assimilation-based education. Respondent Go:k uses culturally-relevant curriculum because *"this allows the students and me to compare and contrast...the culture of the content area and the students' culture,*

so we can explore and address areas where they clash and where they're aligned." This teaching method can be used to empower students by valuing what the students bring to the classroom.

We did not want to assume that every faculty member integrated science curriculum into O'odham culture; it was the case that some faculty members did not. For instance, Gi'ik from our survey related that he/she is *"trying to teach concepts of science…and will integrate later."* Such faculty members are not necessarily against integration, but feel more comfortable with a more content-driven curriculum. Nevertheless, this type of teaching method is in contrast with the other faculty members who tend to "de-authoritize" the content — i.e., challenge the authority of the textbook and mainstream professionals — and themselves to a certain extent. Instructors may have to share authority in order to even out the imbalance present when non-community members teach community-based education. Respondent Gi'ik's method of "integrating later" suggests to us that the challenge of coming from outside the community, yet having to use the culture's beliefs and perspectives as the core of their curriculum, can be overwhelming.

How do you integrate your curriculum into the culture?

Because our interest was the integration of culture and science curriculum and its importance for students, we were happy to see that most of our respondents do try to integrate culture. We asked the respondents about their methods in the hopes of understanding what faculty members are doing in their classrooms, and to gather what faculty considered to be examples of this integration. One method is to use the language and history of the culture as much as possible; wrote respondent Go:k, *"I'm not O'odham, so my strategy has been to learn as much as I can about the culture and language and try to draw them in whenever I can."* Respondent Hemako stated, *"As much as possible I integrate O'odham language into the class*

[and] I integrate my curriculum into O'odham history and knowledge as it pertains to the subject."

The most powerful method mentioned by the respondents was using the students and other community members as sources for this knowledge. Responded Go:k said, *"this means creating significant space in the course structure for dialogue among the students, and for guest speakers from the community, and for reflection."* Similarly, respondent Hetasp talked about asking students for their knowledge and experiences, what they've seen or what they've learned from family members, and using students as cultural resources. This type of teaching is what tribal colleges are all about.

Discussion & Conclusions

Our survey was small, but with open-ended questions that in the end were to our advantage, as this methodology gave us a chance to hear respondents' voices. What the faculty respondents told us was that they are here at Tohono O'odham Community College for the students. They conveyed how the integration of mainstream science and Tohono O'odham scientific knowledge bases was important, because they understand that the ultimate goal of a tribal college is to empower students with education by valuing what they bring into the classroom and acknowledging, appreciating, and integrating Tohono O'odham science knowledge. The science faculty members here at TOCC try to overcome the challenges of cultural integration by using the students and community members' input, "de-authoritizing" themselves as instructors, and "de-authoritizing" the content. If we have faculty members with the mindset of empowering the students and community by using them as sources of knowledge, we are heading in the right direction.

Sharing power in the classroom is of great importance, and it may also be necessary, considering that community-based education at

TOCC is often taught by non-community members. Teaching by sharing the power with the student, letting them know that "I as a faculty member am not as knowledgeable as you; I can learn from you, and we can learn together," is so powerful if you consider the history of Native American education. In the past all that schools, teachers, and administrators wanted to do was take our language, religion, and culture away from us, which in turn took away our power as a people. Now, with TCUs and faculty members who understand this history and want to empower the students by valuing what they have to offer to the class, and what the students' tribe has contributed to mainstream society, there is the potential to help students understand the fact that we are here today because of the immense knowledge our people had and still have of the world around them.

TOCC faculty members don't let challenges, such as teaching at a culturally-oriented college despite being from outside the culture, stand in their way. One way they try to meet such challenges is by actively learning as much as possible about the Tohono O'odham people. TOCC does make O'odham language and history classes mandatory for faculty, but it could also help faculty by offering them access to a cultural advisor, who can also recommend and supervise research projects on and about the Tohono O'odham Nation. In addition, the faculty could go out into the communities and get a better sense of where their students are coming from. TOCC can also foster "home-grown" O'odham faculty members through offering scholarships with the understanding that the student, when done with schooling, would come back and become a faculty member here at TOCC.

It seemed that faculty members who had more of a background in Native American education were more enthusiastic about integration. This could be because they have learned about the history of tribal colleges and understand the role of TCUs in the movement towards self-

determination. A recommendation would be to start offering the faculty coursework that would stress the TOCC mission statement and explain that the role of a tribal college is to empower the student with an education that is bi-cultural, enriched with the student's tribal culture and the mainstream culture.

Lastly, we encourage communication among tribal college faculties that they may learn about and from each other. Because our college is relatively young, the faculty at TOCC could potentially learn a lot from faculty at more established TCUs. They could learn strategies for teaching bi-cultural curricula, and share in the experiences of faculty members who can relate to their efforts and challenges. We also encourage other TCUs to consider extending these results by implementing similar surveys with their faculty members. If we keep trying to work together as a tribal college community, and also within our local communities, there is no obstacle big enough to stop the empowerment of our people and cultures.

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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

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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 life-long 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 (Bowers, 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

[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

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

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 & Curtiss, 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 (Umbreit, 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

[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.[4] 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

[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 *Woksape Oyate* (Wisdom of the People) Project.

their first year on campus), the students often range in educational status from first year to third year students.[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.

[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 horsing 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-

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.

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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.

**Pictures courtesy of Wikipedia

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

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 it's 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.

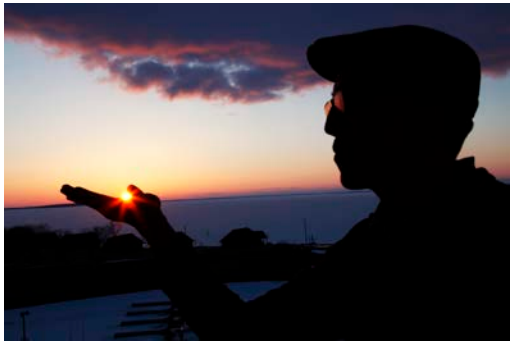
I didn't notice any mammals along the beach that made the shore their home. From my experience, at least along the shores of the Lummi reservation, there aren't any that live on the beaches. There is, of course, the occasional domesticated dog that roams the reservations. There is however an estuary 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.

American Indian College Fund
Mellon Tribal College Research Journal, Volume II
Call for Papers

The American Indian College Fund ("the Fund") believes it is critical to support tribal college faculty in pursuing advanced degrees, conducting research that benefits Native communities, and disseminating research to both Native communities and the wider research community. Since 2003, the Fund has partnered with the Andrew W. Mellon Foundation to offer fellowship programs providing financial support for tribal college faculty. The Mellon Ph.D. Faculty Career Enhancement Fellowship Program provides one year of financial support for tribal college faculty to complete the final stages of a terminal degree program. The Mellon Faculty Research Fellowship Program provides one year of financial support for tribal college faculty to undertake a research project benefiting Native communities with the assistance of a student research collaborator.



In 2011, the Fund expanded their partnership with the Mellon Foundation to create the Tribal College Research Publication Series, an effort to publish and disseminate the research of Mellon Fellows. The purposes of this initiative are: to assist Fellows in creating manuscripts from their research that are publishable in academic journals, to disseminate the important research that emerges from Mellon Fellowships to Native communities that may benefit from the work, and to infuse the wider academic community with the critical research being conducted by Mellon Fellows in Native communities.

ELIGIBILITY: This Call for Papers goes out to current and former Mellon Ph.D. Faculty Career Enhancement Program Fellows, Mellon Faculty Research Fellows, and Mellon Student Research Assistants. We are looking for Fellows who have written or will write an article suitable for an academic journal based on their research.

CONTENT: Manuscripts are not limited in terms of the topic or focus, or the disciplinary field from which the manuscript emerges. Manuscripts can fall into a variety of categories, including research studies (qualitative, quantitative, and/or mixed-methods), theoretical pieces, historical research, policy analysis, literature reviews, and essays on methodology.

SUBMISSION: Submissions must include four documents: (1) Manuscript; (2) Abstract; (3) Author Statement; and (4) Cover Letter. The Author Statement should articulate the reasons why you undertook this research, how you view the importance of your research, and the ways in which you would like to strengthen the manuscript through the editorial process. The Cover Letter should include author name(s), institutional affiliation, and contact information.

FORMAT: All documents must be submitted electronically in Word format. Manuscripts can vary in length, with a maximum of 25 double-spaced pages (including references, graphs/tables, and appendices), using one-inch margins, 12-point font, and 8.5" x 11" paper. Abstracts must be between 75 and 100 words. References and citations must follow the guidelines set forth in the *Publication Manual of the American Psychological Association*. To facilitate blind review of manuscripts, author-identifying information should only be contained in the cover letter; identifying information must be removed from the manuscript, abstract, and author statement. Put the title of the manuscript and the page number in the running head on each page of each document.

TIMELINE: The deadline for electronic submission of manuscripts to be considered for Volume II is Monday, March 17, 2014, at 10:00 PM MDT. Manuscripts will be reviewed by an editorial board consisting of scholars in a variety of fields. Authors with accepted manuscripts will then work with the Mellon Fellowship Program Officer at the American Indian College Fund to prepare the manuscript for publication.

Please direct all questions regarding the Tribal College Research Publication Series and make electronic manuscript submissions to the Editor-in-Chief, Ethan Yazzie-Mintz, at MellonResearchJournal@collegefund.org. You will receive an acknowledgment of receipt of your manuscript within one week of submission.

We look forward to receiving your manuscript!

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