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ABSTRACT

The Umonhon Nation Public School, with federal funding and collaborative support, is revitalizing Umonhon culture and language. Native American pre-service teachers are learning to teach Umonhon children using a standards-based curriculum incorporating Umonhon language and Umonhon culture aligned with the state's local renewal accountability plan. Narrative inquiry methodology was used to produce the final "Sonata-Form" illustrating the worldviews of a Dakota pre-service teacher and a university professor living on the Reservation and learning to teach elementary science in culturally responsive ways. The results indicate "the belief that a firm grounding in the [Umonhon] heritage language and culture indigenous to a particularly place [Umonhon Reservation] is a fundamental prerequisite for the development of culturally-healthy students and communities associated with that place, and thus is an essential ingredient for identifying the appropriate qualities and practices associated with culturally-responsive educators, curriculum, and schools" (Alaska Standards for Culturally Responsive Schools, 1998, p2). This paper focuses on experiences between one Santee pre-service teacher and a university professor. The purpose of this research study was to collect and analyze the stories about learning to teach elementary school science. The stories describe experiences and intentions while learning to teach culturally responsive elementary science in the Reservation school. (Contains 48 references.) (Author/MVL)

VOICES IN A RESERVATION SCHOOL: A SONATA-FORM NARRATIVE FROM A PROFESSOR AND A DAKOTA PRE-SERVICE TEACHER ABOUT THEIR PROFESSIONAL AND PRACTICAL KNOWLEDGE TEACHING SCIENCE IN CULTURALLY RESPONSIVE WAYS.

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The Umo^{n}ho^{n} Nation Public School, with federal funding and collaborative support, is revitalizing Umo^{n}ho^{n} culture and language. Native American pre-service teachers are learning to teach Umo^{n}ho^{n} children using a standards-based curriculum incorporating Umo^{n}ho^{n} language and Umo^{n}ho^{n} culture aligned with the state's local renewal accountability plan. Narrative inquiry methodology was used to produce the final "Sonata-Form" illustrating the worldviews of a Dakota pre-service teacher and a university professor living on the Reservation and learning to teach elementary science in culturally responsive ways. The results indicate "... the belief that a firm grounding in the [Umo^{n}ho^{n}] heritage language and culture indigenous to a particular place [Umo^{n}ho^{n} Reservation] is a fundamental prerequisite for the development of culturally-healthy students and communities associated with that place, and thus is an essential ingredient for identifying the appropriate qualities and practices associated with culturally-responsive educators, curriculum, and schools" (Alaska Standards for Culturally Responsive Schools, 1998, p. 2).

There are too few Native American teachers in reservation schools. Many reservation community members feel that "Indian teachers would be more effective than white teachers [are] in reaching Indian children" (Abbot & Slater, 2000). Hiring Native American teachers to fill this

request remains a problem. Over the past two decades, Native American enrollment in post-secondary institutions has increased 67 percent; however, these 127,000 Native American students are the smallest college enrollment population (Pavel, Skinner, Cahalan, Tippeconnic, & Stein, 1998; Pavel, 1999). These students tend to select business and health programs; therefore, the pool of Native American students who might choose teaching as a career is very small. The pathway to a good job is a good education; that's the "American Dream." But "Indians do not believe they will reap the same rewards, so why should the kids worry about what school will get them?" (Abbot & Slater, 2000). If Native American children had role models that they saw going off to school and getting good jobs, then this might provide motivational possibilities for them. Since the number of Native American students choosing college to seek a dream is small, the potential to increase native teachers in reservation schools may not fill the need for more native American teachers; then, Native American children will not have role models to help them be more concerned about school.

Previous research studies have explored ways to provide engaging and effective learning environments (Allen & Crawley, 1998; Kawagley, Norris-Tull, & Norris-Tull, 1998) that would increase Native American children's learning opportunities and positive attitudes toward education (Matthews & Smith, 1994). But many Native American scholars contend that non-natives should not be the ones conducting the research and writing about Native Americans because of the radically different world-views (Peshkin, 2000; Swisher, 1996). Non-native researchers tend to "interpret Indian life from within the broad theoretical frameworks, or United States or Western historical terms and generally place strong emphasis on expanding European economic or political activities" (Champagne, 1998). Others contend that there is room for both

native and non-native scholars to collaborate, "within American Indian studies," (Champagne, 1998) "one does not have to be a member of a culture to understand what culture means or to interpret culture in a meaningful way." Still others argue for a development of a Native American pedagogy and indigenous identity, separate from critical race pedagogy, (Anglas Grande, 2000) which would be better sited to Native American communities. Native Americans have unique "grounding in the heritage language and culture indigenous to a particular place [that] is a fundamental prerequisite for the development of culturally-healthy students and communities associated with that place" (Alaska Standards for Culturally Responsive Schools, 1998).

Sleeter (2000-2001) contends that emancipatory research "empowers historically marginalized communities" making an insider-outsider distinction—Indigenous insiders, Indigenous outsiders, and External insiders—and membership in a group per se does not necessarily guarantee the one's viewpoint will reflect that of the group" (p. 235). Most non-natives do not think, act, or communicate like Native Americans. Just like most people do not think, act, or communicate about science-like scientists (Matthews, 1994), because Western scientific knowledge is a "product of the social enterprise" exclusive to a particular scientific community (Driver, Leach, Milar, & Scott, 1996). Lederman and Abd-El-Khalick contend that a particular science worldview is affected by the social and cultural context in which it is produced (1998, p. 21). Observations, interpretations, and explanations are filtered through the lens of the particular community's knowledge (1998, pp. 21-22); and the particular community determines: (a) phenomena that are worth researching, (b) acceptable questions to ask of the phenomena, (c) appropriate research methodologies and adequate instrumentation, and finally, (d) relevant and admissible evidence (1998, p. 22). Potentially then, the Native American science worldview

is affected by the social enterprise, heritage language, and culture indigenous to a particular place and context in which it is produced.

Since most people do not think, act, or communicate like Native Americans, then, potentially, the stories from the professor and the pre-service teacher in this paper will present information supporting that claim that "heritage language and culture indigenous to a particular place is a fundamental prerequisite in determining the (a) indigenous ideas that are worth researching; (b) acceptable questions to ask of these indigenous ideas; (c) appropriate research methodologies and adequate instrumentation; and (d) relevant and admissible evidence to produce the indigenous pedagogy of that particular Native American Community" (Anglas Grande, 2000, Alaska Standards for Culturally Responsive Schools, 1998, Lederman & Abd-El-Khalick, 1998).

Background

The Umo^{n}ho^{n} Nation's language and culture are endangered. In the summer of 1999, the United States Department of Education awarded the university a bilingual career-ladder award to help the Umo^{n}ho^{n} Nation's Public School revitalize Umo^{n}ho^{n} culture. This award supports a five-year collaborative effort among the Reservation school, the Indian Community College, the university, and the State's Department of Education (DOE) to certify thirty Native American para-professionals as bilingual (Umo^{n}ho^{n} and English) teachers. Beginning with the Fall 1999 semester, the first cohort of pre-service elementary teachers began the process of learning to teach Umo^{n}ho^{n} children using a standards-based curriculum and incorporating Umo^{n}ho^{n} language and Umo^{n}ho^{n} culture aligned with the State's Local Renewal Accountability Plan. The pre-service teachers are entering the culture of the Reservation school as new professional teachers and re-entering their original culture because they want to make a difference on their Reservation; they

want to increase learning opportunities for Indian children from their newly emerging professional teacher identity. The recent fall 2001 report from the state's DOE summarizing the students' performance identifies the lowest scores in the state are from reservation school students. These scores seem to indicate a tension for the reservation schools attempting to meet the cultural needs of Indian children while attempting to increase learning opportunities for Indian children. The pre-service teachers and the university are ensconced in these dynamic contextual tensions.

Objectives of the Study

This paper focuses on experiences between one Santee pre-service teacher and a university professor. The purpose of this research study was to collect and analyze the stories about learning to teach elementary school science. The stories describe experiences and intentions while learning to teach culturally responsive elementary science in the Reservation school.

The unique contribution from this paper is that it provides stories for Native American and non-native scholars to discuss the conceptions and misconceptions about indigenous Native American science—what does indigenous culture mean to different individuals engaged in educational experiences with Native American students, and how do we teach in a culturally responsive manner indigenous to a particular place? The stories from this study may provide opportunities for Native Americans to believe in possibilities and to reap the rewards of a good education. Cook-Lynn (1998) contends that "how the Indian narrative is told, how it is nourished, who tells it, and the consequences of its telling are among the most fascinating—and, at the same time, chilling—stories of our time."

Analytic Method

The Nature of Stories

The oral tradition of storytelling is perhaps the oldest and most powerful tool for teaching and learning. It is not a written language, but an oral transfer of history and knowledge (Chambers, 1970; Sawyer, 1982; Parker, 1989). The stories told by Native American communities are particularly significant for communication about culture, heritage, language, and ways of knowing and doing. Stories, as defined for this research study, are narratives told orally to recall events and describe experiences about people in a setting doing something for a purpose. All people tell stories; telling stories helps both the teller and listener to think about and understand individual thinking and actions (Bruner, 1986, 1990; Polkinghorne, 1988; Ricoeur, 1991). Elders tell sacred stories about Umo^{n}ho^{n} language, heritage, culture, and values; Umo^{n}ho^{n} families tell personal stories about family life activities; pre-service teachers and the professor tell stories about their experiences learning to teach in culturally responsive science in the Umo^{n}ho^{n} Reservation school.

Stories in Narrative Research

Collecting stories has emerged as a popular form of interpretive or qualitative research (Gudmundsdottir, 1997). It has rapidly gained legitimacy in education and has flourished at research conferences (Louden, 1998; Taylor & Geelan, 1998; Wallace, 1997; Ollerenshaw & Creswell, 2000), in professional development activities in schools (Clandinin & Connelly, 2000) and in educational research journals (Venville & Milne, 1998).

Narrative research has gained increasing popularity in education and the social sciences as evident from numerous publications (e.g., Clandinin & Connelly, 2000; Lieblich, Tuval-

Mashiach, & Zilbert, 1998; McEwan, 1997; McEwan & Egan, 1995; Riessman, 1993). Researchers and educators collaborate to understand school experiences (Connelly & Clandinin, 1990) through narrative inquiry activities. It provides a "voice" for teachers and students (Errante, 2000), and it places emphasis on the value of stories in all aspects of life (McEwan & Egan, 1995). Clandinin and Connelly are attributed to the increasing emphasis on narrative inquiry in educational research; this form of qualitative inquiry has deep roots in the social sciences and in the humanities (Casey, 1995/1996; Marshall and Rossman, 1995; Cortazzi, 1993; Connelly & Clandinin, 1990). Design and procedures for finding storytellers and collecting their stories have emerged from anthropology, oral history, folklore, sociology, cultural studies, psychology and psychotherapy.

Design and Procedures

This research study incorporated a three-dimensional space approach based on Clandinin and Connelly's (2000) description in their text, *Narrative Inquiry*, and the Problem-Solution approach (Ollerenshaw and Creswell, 2000, 2002) for narrative analysis. The basis for the three-dimensional approach is Dewey's philosophy of experience, which is conceptualized as both personal and social interactions. This means that to understand people (e.g., teachers and students), one examines one's own personal, internally driven intentions and past experiences—personal practical knowledge, as well as social interactions, actions and reactions with other people—professional knowledge landscapes—that occur in a place or context, such as a school classroom or on a reservation. Knowledge is constructed from both personal and social interactive experiences; experiences grow out of other experiences and lead to new experiences. The Problem-Solution approach adds another layer to understanding experiences through a process of sequencing an individual's actions to determine a turning point in the events. The basis of this approach is "narrative thought." Yussen & Ozcan (1997) describe "narrative thought" as any

cognitive action—reflecting, imagining, writing, telling ... about people in a setting doing something for a purpose."

Data Sources

Archival materials (e.g., pre- and post-assessments, assignments, teaching plans, teaching observations, and letters) from the regular methods course were collected. The pre-service teachers were provided an opportunity to give their consent to allow their class materials to become part of the professor's inquiry into culturally responsive teaching. Regular methods class discussions and individual interviews were audio taped and transcribed.

The transcripts and archival materials have been read and re-read to get a sense of the data. Major themes and sub-themes that emerged during the coding process were "restoried" to create the final story that combines the personal and social interactions of the pre-service teacher and the professor on the Reservation. The professor discussed and negotiated the meaning of the stories with the pre-service teacher.

The results, which are presented in the Findings, incorporate Sconiers and Rosiek's (2000) sonata-form case study as the reporting structure, and Van Maanen's Confessional Tales (1988) as the reporting style to describe Connelly and Clandinin's (2000) professional knowledge landscapes and personal practical knowledge differences of the professor and the Santee pre-service teacher. Both the sonata-form structure and the confessional-tale style work together illustrating the epiphany, or how things changed from the beginning to the end of the narrative research study.

Sconiers and Rosiek (2000) adapted the musical sonata for their Fresno case studies. The sonata comprises (Boynick, 1996; Sadie, 1994) three main parts—exposition, development, and recapitulation. The "Exposition" expresses first, the main melody; second, a secondary melody; and third, the Coda returns to the main melody again with variations. The musical composition explores the melodic themes in the "Development" and is characterized by multiple musical tensions, and finally, foreshadowing the climax, a double return to the main melody occurs in the "Recapitulation" with emphasis on the secondary melody. The following summary presents

Sconiers and Rosiek's (2000, p. 398) adapted description of the sonata-form narrative structure for their case studies and provides an overview of the findings for this narrative study.

Exposition

I. A classroom episode on the Umo^{n}ho^{n} Reservation characterizes the theme (main melody) of the story from the very first line.

II. A description of classroom activity illustrates the professor's professional knowledge landscape, instructional philosophy, and culturally responsive intentions (main melody).

III. A new description of the situation follows in which instructional intentions of the professor come into conflict with the pre-service teachers' life experiences (secondary melody). This includes a description of the tensions and the professor's affective response to the experience (returning to main melody).

Development

IV. Moving away from the experience, the professor reflects on her understanding of one pre-service teacher's personal practical knowledge and professional knowledge landscapes on the Umo^{n}ho^{n} Reservation.

Recapitulation

V. Returning to the classroom experience, the situation's meaning is now changed from the exploration into the pre-service teacher's experiences.

VI. The climax weaves reflections and new questions from a new understanding about science, teaching, and cultural contexts indigenous to the Umo^{n}ho^{n} Nation.

The Findings

Exposition

I. Cultural Matrix – Identifying an Umo^{n}ho^{n} Worldview

"You're stealing our culture," Sam accused the professor.

"How did we get to this point?" the professor thought, when the accusation came out of the blue, like a tornado rolling across the plains after an intensely hot late summer afternoon, destroying the homesteader's farm. This afternoon, the pre-service teachers worked in small groups consolidating information collected from reading different text materials, and interviewing people and the Elders about Umo^{n}ho^{n} culture and Umo^{n}ho^{n} science. The information had been used in a large group discussion to develop an Umo^{n}ho^{n} information retrieval matrix. The matrix cells contained cited references and cultural ideas. The cells also contained cited references and big ideas that potentially the pre-service teachers could use to develop science units—ideas about, animals and plants, habitats and dwellings, earth and sky, and work tools and musical instruments.

II. Cultural—Intentions, Tensions, Conceptions, and Misconceptions

Professor's Professional Knowledge Landscape

Who could be better suited to live on a reservation teaching Indian pre-service teachers how to teach elementary science than a female professor, who had taught K-6th grade science for twenty years, was adopted by and studied with a Seneca grandmother, and who used real world

field experiences, Seneca traditional activities, and storytelling to teach and assess science inquiry? I am flexible, build relationships and interact with people easily, and respect and embrace Native American traditions. Some Native American ways of knowing and doing were part of the underpinnings of my elementary science teaching rationale and career.

I spent my first year at the university meeting with individuals from the Reservation and those who have worked with the reservations in the state developing the federal grant to support the reservation collaborative work. During the following year, after the grant was awarded, I collected articles and books, read information, and continued to talk to individuals from the Reservation to learn as much about the Umo^{n}ho^{n} culture as possible. I was also engaged with multiple parts of the grant work, prior to living and teaching on the Reservation, e.g., I conducted the selective admission portfolio sessions, and I attended activities that were held on the Reservation, and met with the pre-service teachers when they came to the university for special activities. I communicated with instructors who taught on the Reservation for the first year of the project to gain an understanding of the pre-service teachers' needs and to increase my understanding of the Umo^{n}ho^{n} culture indigenous to the Reservation where I would be living and teaching.

We held classes in the Teacherage across the street from the Reservation school. The university and the Reservation school made an agreement that this apartment would be designated as the university classroom for the pre-service teachers; the university supplied the furniture from the campus's overstock-warehouse. The apartment had a large kitchen that the pre-service teachers would use for making lunch, transitioning between teaching at the school and taking the university classes. The kitchen served as a mailroom and communication center

between the university, the school, pre-service teachers, and instructors. The living room/university classroom contained eight rectangular folding tables, table lamps, and an assortment of folding and stuffed chairs. The three bedrooms were converted into an office, a computer lab, and a resource room, which also contained a futon so I had a place to sleep; the bathroom was across the hall from the resource room.

The week before classes began, I took many of my teaching supplies from my university classroom to the Teacherage and stored them in the resource room. I spent time rearranging the living room in a way to resemble, as much as was possible, an elementary classroom. I developed supply centers, learning centers, and a larger group-gathering place; given the physical environmental constraints, the seating was arranged in a circle to accommodate a motivating science-learning environment. I found Umo^{n}ho^{n} language posters stacked with papers in a closet, and a tribal circle poster, both of which I displayed along with a poster of the state's topography, plants, and water resources creating a learning environment indigenous to the natural environment of the Umo^{n}ho^{n} Reservation.

Instructional Philosophy

'Tell me about an activity and I'll forget, show me an activity and I might remember, but let me do an activity and I will remember' illustrates my philosophy of teaching. Theories and practices that I wanted pre-service teachers to remember I synthesized and embedded in some type of activity for them to do.

What is important for elementary pre-service teachers—to know and to do—to be proficient teachers? Intensive debate and discussion led to the 1992 Interstate New Teacher Assessment and Support Consortium (INTACS) guidelines, developed by the Council of Chief

State Officers; these guidelines have been adopted by many states for new teacher licensure. The following five main categories illustrate my intentions and outcome-goals for pre-service teachers, which align with the INTASC guidelines. 1) They must have knowledge of indigenous culture, human development, content, and planning. 2) They must continually learn about children, and adapt instruction to meet each and every individual child's needs. 3) They must teach and communicate using multiple instructional strategies creating and managing the learning environment in ways to motive children's curiosity for inquiry. 4) They must inquire, continually growing through professional activities, assessment of children, and systematic reflection and revision. And finally, 5) they must collaborate and develop partnerships with peers and the indigenous community.

I model a facilitators role as pre-service teachers do the activity, I hand out clear assessment criteria via templates, and I provide opportunities for pre-service teachers to work together, to construct, and to apply these outcome-goals in ways that work for each individual pre-service teacher, with their cooperating teacher in that particular school-classroom experience.

The first class day, after we spent time building introductory relationships, using storytelling and a new game activity, I modeled a learning cycle and guided inquiry activity. I presented a story, modeling storytelling as an advance organizer to engage pre-service teachers' questions asking about the science concept—which was the theme of the story. An activity bag provided opportunities for the pre-service teachers to explore the objects specifically selected to help them construct a new understanding about the science concept. The pre-service teachers worked in small groups reading specifically selected articles about the science concept. I moved around the room, modeling the use of multiple questioning strategies, listening to their

conversations, and asking questions to encourage reflecting and thinking. Then a consolidation activity provided opportunities for them to reflect on and articulate their thinking about the science concept, while interacting with each other, the articles, and reflecting on their prior experiences and the most recent experience with the objects from the activity bag.

The next day, I presented a storytelling workshop so pre-service teachers could learn how to tell stories that incorporated the previous day's science concept in a way that would be meaningful for children's learning. The annual Pow Wow was scheduled for the next five days; so it was no surprise that many of the pre-service teachers' stories incorporated a Pow Wow setting or context. However, their passion, creativity, and expert ability as novice storytellers to create culturally relevant science stories did surprise me. Throughout the weekend and the next few weeks, many of the pre-service teachers enthusiastically shared their experiences about telling stories to children in the classroom and how the children and the teachers responded positively.

The first day's experience concluded with an assessment, which was the same assessment used directly after the storytelling to pre-assess their thinking; this post-assessment would be used to compare any change in the pre-service teachers' thinking about the science concept as a result of the experience. After the first two consecutive class days, the pre-service teachers had an opportunity to anonymously share their perceptions, concerns, and experiences on a written evaluation form. I systematically collected conceptual assessments and evaluations every two days. I sorted and classified the ideas that emerged so that I could incorporate their ideas into the next class session.

The first two days of class seemed to be a success; the pre-service teachers commented that they liked sitting in a circle. The pre-service teachers saw a lot of possibilities and were

already applying storytelling with Umo^{n}ho^{n} children in the Reservation school. They liked the hands-on-science activities; however, some pre-service teachers explained that since they belonged to a particular tribal clan, there were certain taboos that prevented them from engaging in certain activities, e.g., "... like with anything that crawls." Other pre-service teachers commented that they wanted more culture incorporated into the science class. Still other pre-service teachers commented that they had been seeking the Elders to learn more about language and culture. Some pre-service teachers shared their concerns that the Elders should be the ones to teach the clan information to their children. The information should not be shared in school. There seemed to be a tension amongst the pre-service teachers about what was culturally appropriate and what was right or wrong for them to teach to other people's children in the Reservation school. So I decided that I could possibly incorporate their requests and concerns, while modeling and teaching about the social community of science and the use of multiple and reliable resources and references.

Culturally Responsive Intentions

As the semester progressed, the pre-service teachers had been drawn to the poster of the Umo^{n}ho^{n} Tribal Circle on the classroom wall. During the previous four weeks of class discussions, their concerns about each other's actions, using or not using cultural aspects in their teaching, indicated to me as a teacher, a potential their lack of self-confidence, lack personal understanding, and/or consistency amongst themselves about what could be taught, and if anything should be taught, about Umo^{n}ho^{n} culture to Umo^{n}ho^{n} children in school; I perceived that this tension was far reaching. The tension existed between the pre-service teachers; they perceived that tension emerged from interactions with teachers and administrators in the school,

and from interactions with Reservation community members. I wanted to help them develop a professionally supportive environment amongst themselves so that they could encourage and support one another as they moved through these tensions and attempted to use different culturally responsive practices in the school.

Because the poster caused many students to muse, "I would like a copy of that for my classroom," I reflected that the poster might be an important focus. If the poster was used as a learning context to help them identify what was important about Umo^{n}ho^{n} culture to incorporate into their teaching, and each pre-service teachers developed an Umo^{n}ho^{n} Tribal Circle poster specifically designed with cultural elements they felt were important for the classroom where they were teaching, then they might begin to articulate more clearly for themselves what they felt comfortable teaching and what was important about Umo^{n}ho^{n} culture for them to incorporate into their teaching. As a community, they could work together, collaborating and problem solving as they identified important and relevant cultural ideas for their teaching.

I thought that if they wanted, I could take the pre-service teachers' posters back to the university and have the Design Center enlarge, mount, and laminate their posters so that they could display their personal poster in their classroom. What I didn't take into account was that articulating appropriate Umo^{n}ho^{n} cultural teaching created yet another tension for the pre-service teachers. I perceived that their fear of offending the Umo^{n}ho^{n} community, their insecurity and/or lack of knowledge about Umo^{n}ho^{n} culture when teaching culture in the classroom was a burden that many pre-service teachers were not ready to carry. Some pre-service teachers turned this burden back onto me. This reaction took many forms. For Sam, he accused me of stealing the culture and taking it back to the university. For me, the collaborative informational matrix and

professional supportive community activity took an unexpected turn and caused more tension for the pre-service teachers. Because I was living by myself on the Reservation, I had no personal peer-support community as I developed new possibilities to move the pre-service teachers through this stage of disequilibrium.

I returned to the university over the weekend. I pulled many reference materials and articles that I had been collecting to increase my knowledge of Umo^{n}ho^{n} culture, and I made reading packages for small work groups. An elder told me that in Umo^{n}ho^{n} culture there is only one source of information—from the particular clan leader. Within the Umo^{n}ho^{n} tribal circle, some clans no longer have a living clan elder. Since there are limited numbers of elders, the Umo^{n}ho^{n} Cultural Center encouraged the pre-service teachers to connect with the elders in the community to learn more for their cultural teaching background, then I felt that I needed to provide opportunities for the pre-service teachers to articulate a cultural position so that they might begin to think about "appropriate qualities and practices in their teaching associated with culturally-responsive teachers" (Alaska Standards for Culturally Responsive Schools, 1998, p. 2).

I felt that developing a cultural position for their professional knowledge landscape was a tension for the pre-service teachers. As the semester progressed the pre-service teachers shared stories reflecting their diverse —insider/outsider— personal knowledge landscapes: some married into the Umo^{n}ho^{n} culture from other Nations, some were raised and lived only on the Reservation, while others were raised in large cities and returned to the Reservation only recently. The pre-service teachers, due to missionaries and/or boarding schools, have different religious positions—Mormon, Christian, Native American Church, and Traditional Native. Those pre-

service teachers who are Umo^{n}ho^{n} have different clan positions within the hierarchy of the tribal circle and have different bloodline percentages. Because of these multiple positions and other variables, the pre-service teachers hold different right and wrong beliefs about cultural positions—how to contact the Elders, the cultural center, what and/or if culture should be taught in school, and who should be doing the teaching. Religion and background experiences gave way to the pre-service teachers' personal practical knowledge.

The pre-service teachers' personal practical knowledge about their culture has emerged over generations. The state's Indian Commission has archived the history; since the 17th century the Umo^{n}ho^{n} Nation's history reflects oppression, struggle and distrust from interactions with French fur-traders, the British, and the United States Government. Displacement, disease, conflicts, treaties and broken treaties, resource cessation, and diminishing reservation land by encroaching white settlers all attribute to the complex Umo^{n}ho^{n} culture, customs, economics, and lifestyle of the present. Umo^{n}ho^{n} culture is evident in the annual Pow Wow, and the Reservation school's sporting events as the way to gather, and celebrate Umo^{n}ho^{n} culture. Yet, within this context there are individuals who are trying to revitalize the Umo^{n}ho^{n} culture and language.

"People here don't know how to help themselves," Sam confided to me as we walked through the Pow Wow grounds after the first week of classes.

"I hope that I am able to find a way to help the pre-service teachers help the children help themselves," I responded earnestly.

I had perceived that I was building relationships and identifying the pre-service teachers' needs; yet, here was Sam, after four weeks of classes, accusing me that, "You're stealing our culture!"

Some pre-service teachers felt discomfort after Sam's accusation and individually came up to me after class to share stories about their childhood experiences growing up on the Reservation. I was moved by the intensity of the class and by their personal self-disclosures and personal stories of sacrifice and struggle.

Rose came to me after class and asked me, "What are you doing for dinner?" When I told her I would make something at the Teacherage, she invited me to her home to have dinner with her husband and their three children. She is from the Umo^{n}ho^{n} Reservation and her husband is from another reservation. They are both very traditional. That evening at dinner they shared, and modeled with their own children, their perspectives about culture, children, and teaching. Rose and her husband both agreed, "the pre-service teachers need to come to their own understanding about culture so that they can feel comfortable teaching culture in the school."

After dinner I returned to the Teacherage; it was dark and late, and there was a knock at the front door. Feeling a little uncomfortable from the day's tension, I cautiously peered out the door, and there was Delberta standing on the front step. "Can I come in for a little while and talk?" she asked.

Delberta entered the Teacherage, we sat down at one of the tables in the classroom, and she shared, as often she did, the thoughts that she had been working out in her mind.

> "I went to my grandmothers [husband's mother and grandmother] tonight to talk with them. I didn't want to say anything in class, but I did not agree with those who were upset today."
>
> "Yes, tradition tells us that the responsibility of teaching and passing on culture to our children is the responsibility of the elders," my grandmothers told me, and then they said that, "Anyone who knows anything about Umo^{n}ho^{n} culture is up on the hill [in the cemetery]."

"If we want to make any changes here in the school, we must teach culture and language to our children, because if we don't, no one else will do this teaching." "My grandmothers think that we, the pre-service teachers, are the hope for our people," she said.

Development

III. Professional Knowledge Landscape from Personal Practical Knowledge

Delberta's teaching rationale evolved from her life experiences. She is a Santee woman married to an Umo^{n}ho^{n} man. She has nine children ranging from 1 year to 16 years; one child is autistic. Delberta says she knows about teaching, not directly from education courses but because, "I am a mother." January, 2001, as she began her student teaching, all nine children came down with chicken pox. Yet with numerous personal, family, professional, and cultural experiences that might distract her from her obtaining her Bachelor of Science degree in elementary education with an emphasis in Umo^{n}ho^{n} Language and an elementary teaching certification, August, 2001, she graduated with honors. Delberta now holds a teaching job, and is the cultural director for her reservation school. This sought-after degree has been a quest down a long road for Delberta, since she was nineteen years old. She is passionate in her belief that the lack in emphasis for education is what is "crippling native children." Delberta thinks that the past is the key to educating native children in the present.

Science, for Native Americans in the past, was not something to be studied; science was life. Native Americans lived in balance, because if they took too much of one thing, the entire system would be out of balance. Their lives depended on their observations and knowledge of the natural world. The entire child's

education evolved around knowing the religious and social customs, native plants and remedies, and respect for the elders who taught them about survival. This education ensured the survival of the child and the tribe. Our children need to learn about nature and the environment. They need to learn how to live in harmony and take care of nature in order to survive. Our lives are different, but the theme of education is the same, to ensure the survival of the child and the survival of the tribe.

Delberta's teaching incorporates her understanding of content and cultural indigenous to a particular place, and she conducts assessment of children's understanding prior to teaching a unit that is aligned with the national standards and educational reform.

We [the fourth-grade class] began a unit on the Great Plains. We were reading a book and talking about Laura Ingalls Wilder and the pioneers. The book, it made it sound like Native Americans just kind of popped out of nowhere, and it wasn't teaching that background; so with my knowledge of Native American history, I asked the children, "Where do you think Native Americans came from?" "Who do you think was here before the pioneers?" And they thought, "cavemen," so, I kind of laughed, but I didn't want to, you know, make them feel dumb or whatever. So, I asked them, "Well, where did you come from?" They said, "From my parents." "Well, where did they come from?" So, we went on until they went back several generations. Then they realized that their leaders perpetuated that path of pioneers. And then, I asked them, "Well, where do you think they lived?" And then it hit them; "They lived here." I said, "Yes." They weren't being taught that

in the book. So, I looked up the standards and I thought, well, it's Native, it would be in [the states'] history and I will incorporate their own Umo^{n}ho^{n} history into that.

Delberta continually learns about children and their learning styles as she adapts instruction attempting to meet each and every individual child's needs. She teaches science using nature and the environment for language development.

I could send our different levels of learners outside to observe birds. For one little boy, I would write what he saw because he was unable to write. He wanted to participate and so I had to explain it to the other children, he can't keep up with his writing so I'm going to help him. There were some other ones who could write, so when we went out, they did their own writing, and I helped out the ones who needed help. We were sitting out there observing the birds; I would ask them, "What do you see?" "Well, I saw an American Robin on the Head Start root," or "We saw four birds on the ground looking," or "We saw a bird with something in its beak making a nest." When we got back inside, he would hurry up and go through the book, flipping through the book while everybody was looking, and we found out that it was a house sparrow. Another boy was copying. He got frustrated. I had him copy it and he tried to write. I wanted him to write what he saw, but he was frustrated with it and he walked away, so I tried something else. I said, "Well, I'll write one and then why don't you write one?" and that wasn't working. So I had to try other strategies. One little boy is really good with the math, reading, and writing, but when it came to making the posters, now, he

struggled with it. So, I let one of the other little boys help him do his posters. They all were able to learn something from this, and I learned that from the way that they've learned that I was able to engage all of the learners from all different levels.

Delberta incorporates content knowledge, knowledge of learning theories, knowledge of individual children, integrated curriculum goals, and relevant cultural and community issues in her teaching.

Storytelling has been a traditional way of teaching and entertaining our native children at home. This semester [during science methods] I have had the opportunity to use this part of my culture in the classroom to teach science and math. Initially the [third grade] students tend to be inattentive but when I told them a story that they were able to relate to socially, this captivated their attention. I was then able to incorporate how we could learn about science through our surrounding community. I chose to teach sound because it is a relevant science concept that my people heavily rely on in our culture.

When a person wants to learn the songs and instruments of our culture they cannot go to a book to learn [this information]. They have to listen and memorize the music as it is being played or sung. So goes the same for the ceremonies and traditions, they are passed on orally. All our ceremonies and tradition have songs and music that go along with them and these instruments are made form natural resources that come from the surrounding environment. These areas covered in science can be applied to our traditions and help keep our culture alive and allow it

to thrive in our students. With this the students are able to identify whom they are, keeping their confidence and self-esteem strong. This will contribute to their desire to learn and see the value of education.

Delberta's culturally responsive classroom management techniques illustrate how she motivates Umoⁿhoⁿ children for learning and uses developmentally appropriate strategies, relevant materials, and cultural practices.

> My classroom management technique . . . I've had to talk to them a lot about relatives. I really had a hard time getting them, to stay with their work. I work with them like with my own children. One student was giving me a hard time, I went to his grandmother and we talked. I also go to the other Elders and . . . my grandmother; I talked to her and I told her about the problems I was having. I said, "I know that you believe that you don't discipline other people's children." "And I'm really having a hard time," and she told me, "Make that relationship with them. Let them know where you're at because they're not going to disrespect their own relatives, and you have to make that relationship with them." And so, I've been really trying to use that in the classroom . . . See, and it's so ingrained in my mind, you know, that you don't discipline other people's children. But that was really hard, because that's something that . . . in Native American culture . . . parents are really protective of their own, … you don't discipline other people's children because it can lead to a family feud, and so . . . that was hard for me. Among my people respect and dignity are very valuable. Even if a person has nothing (materially), they will have respect and dignity. Everyone is deserving of

them. If you are related to someone you will always show respect for that relationship. My people have a ceremony just for making relationships. It is very important in our culture.

In teaching, I am a firm believer of having respect for one another. I teach this to students by making a relationship with them. When I speak to children or before I teach, I always make sure the students are aware of our relationship. If I do not know the child, I will ask them their name and make a relationship with them. When I am at school, children always call me auntie or they will try to find out if we are related somehow. This is very important and special to a child, to be related to someone.

Delberta's "firm grounding in the heritage language and culture indigenous to the Umo^{n}ho^{n} Reservation" is how she demonstrates use of Native American cultural values, language, song, and stories as a teaching strategy for managing the classroom and the 'development of culturally-healthy students.'

When I talk to them [the children] in their language, it seems to stop their behavior that they're doing. I sang them . . . I tell stories, and now they know that I'm going to tell them stories. "Tell us a story," they say, and it seems like that works to get them into what we're going to talk about. The other [half of the] class had band and [those who were left] were arguing about something and I told them, "You don't speak to each other that way." I said, "You know..." and I told them a story about the little girl and I sang them a song. Well, now, it's, "Ms. Lyons, sing us another song." And it seems to change their attitude in a way, if they're

misbehaving or if they're not following along ... I can't explain it, ... because when I was singing, one little boy laid on the floor. It was like he was sleeping, like a little baby and the other children, they're smiling. It kind of embarrasses them, but they enjoy it, too.

Delberta systematically reflects and revises her teaching practices so that she can provide opportunities for children to learn about themselves, their heritage, their culture, and their language so that they may learn to survive and be successful.

Well, the first time I was in the classroom last semester, I did not do anything. I just sat there, and I just kind of ignored the behavior because I was afraid of it. I can't let these children do that. I did observations, daily observations and I recorded how I spoke to the children. I could see it within a month, I was starting finally to talk to them about their behavior and appropriate behavior and ... and [I am] always trying to connect it [behavior] to their history. Always trying to connect it to their culture, so, that's going to, make them learn in a classroom different because there's a standard that they're going to have to meet and that standard I'm going to teach to them the standard of their elders. I reflect on that and I try to improve on it all the time, trying to get them, to where they need to be, where they're going to be able to be successful learners in the classroom.

Delberta continually inquires through professional and personal activities to increase her professional knowledge landscapes and personal practical knowledge.

Last year I volunteered to go on the buffalo hunt because I thought it would be a good experience for me to learn. I kept a daily journal of where we went and the different things that happened, and I was able to develop a relationship with the

other teachers, with the children and the people of the community that attended and participated in that trip down to Kansas.

We also went to Sioux Falls, South Dakota, and I shared my science unit and storytelling at the National Indian Education Association Conference. I felt such a power there that is indescribable. All I can say is it choked me up to see my people so beautiful and intelligent. I kept thinking about how we were so poor and pitiful being driven onto reservations not knowing our future. It made me feel safe and secure just seeing how far our people have come. I think I was feeling the power of the human spirit in us and how resilient it is. All the things that I experienced there helped strengthen me in my journey to change the way I do things and think about things. I know I am not alone in that journey and there are resources out there to help me.

Delberta describes the tension for her professional knowledge landscape and personal practical knowledge—professionalism vs. sacrifice.

But, Yes, it is hard for me to feel professional because when I see the word professional, I see that I have to make myself into a white person. That has been very, very hard for me, like, to overstep the bounds to discipline other people's children, to sacrifice my own children, to get to the school, leave my baby at home when he's sick or, whatever has popped up. Those sacrifices that I've made . . . I would have never done that if I wanted to be a professional. It's just not this semester; it's the whole time I've been getting my education. I started when I was 19 years old; I had two children. I had to make those sacrifices all along the way to

get an education and if I didn't want to become professional, I would never have made the sacrifice. It's been very hard because I had to live on state aid to make up the difference of not having a job. And now, my husband is staying home, and in the Umo^{n}ho^{n} culture, men don't take care of their babies ... their children. He has made the biggest sacrifice of all, which people here don't see the sacrifice that he has made for me, so that I can become a professional. It's very difficult because when I see professionalism, I see myself become . . . and living by those standards because otherwise, I will not . . . it's been very hard. So, I am learning how to do that still. And I still struggle with having to put things aside where if I were in a traditional setting, that I wouldn't have to do this.

Recapitulation

V. Identifying another Worldview?

Delberta's science bird and sound units emphasized knowledge about the natural world, social customs, language, heritage, and religion support the children's educational success. She identified that storytelling, song, and Umo^{n}ho^{n} language were successful strategies. I believe that I attempted to create the same with the pre-service teachers in the science methods course. Using storytelling was an essential strategy to support the pre-service teachers emerging professional knowledge landscape. After Delberta and the three other pre-service teachers' presentation at NIEA, in South Dakota, many Native American educators shared with them that, "storytelling to teach, what a good idea."

Delberta and I differed in how we developed relationships. I've watched Delberta build relationships with children in her classes and with elders as she explained the importance of

relatives and those relationships. Building relationships comes from giving Native American children opportunities to identify: (a) Who are you? (b) Who are your relatives? (c) What is your heritage? Delberta has a solid grounding and understanding of the children, their relatives, and their heritage; she was able to "make that relationship with them." She can do this as an insider; as an outsider, I have limited knowledge.

For me, relationship building means to provide opportunities for each of us to be honest and to be vulnerable in proximity as we struggle together to construct new understandings about teaching. I make myself available to each student when they need help. I move into their space. I encourage them. I give empathetic eye contact. I help them to be successful. This is how I build relationships.

Delberta and I think, act, and communicate differently about making relationships. When thinking about teaching science in a culturally responsive way, this knowledge about relationship building might prove to be helpful.

VI. Rebuilding After the White Tornado—Sacredness of the Teacherage

Since the Native American teachers' insider-outsider worldview is different from the non-native teachers' because of their personal practical knowledge, then reservation schools need Native American teachers to develop indigenous pedagogy specifically designed from local indigenous professional knowledge landscapes. A non-native may live on a reservation and gain a "grounding in the heritage language and culture to a particular place"; however, from my observations of the non-native teachers and non-native administrators living on the Reservation, they are still "trying to make the Indians give up their life and live like white men—go to farming, work hard, and do as they did; and if the Indians had tried to make the whites live like them, the

whites would have resisted, and it was the same way with many Indians," Big Eagle–Wamditanka.

Good intentions are not enough. Sleeter's (2000-2001) insider–outsider assumption, provides an even greater complexity given "the belief that a firm grounding in the [Umo^{n}ho^{n}] heritage language and culture indigenous to a particular place [Umo^{n}ho^{n} Reservation] is a fundamental prerequisite for the development of culturally-healthy students and communities associated with that place, and thus is an essential ingredient for identifying the appropriate qualities and practices associated with culturally-responsive educators, curriculum, and schools" (Alaska Standards for Culturally Responsive Schools, 1998, p. 2).

I spent a lot of time creating the Teacherage into a mock elementary classroom so that I could provide opportunities for each and every pre-service teacher to experience, apply, and understand how teaching strategies create successful learning experiences for the children. I slept in the resource room, but I tried to keep my personal materials to a minimum, because I had organized the room into a resource library for supplies, materials, references, and individual file systems for the pre-service teachers. I did this because I believe that creating and engaging and motivating a learning environment is how a teacher motivates each child's curiosity for inquiry. I wanted to model this strategy so pre-service teachers could experience what learning is like in an engaging environment where they can socially and individually build and add to their understanding.

However, the Teacherage was the place for the pre-service teachers to learn how to create a new identity. The Teacherage is a safe haven for the pre-service teachers to try on new different identities and transform themselves into professional teachers. The Teacherage became the

transformational place where the pre-service teachers re-entered their culture as professional teachers with a new professional knowledge landscape and entered the culture of the Reservation school with their personal practical knowledge about Umo^{n}ho^{n} culture. These new identities emerge only through great struggle, sacrifice, and courage. Delberta needed to redefine her understanding of professional in terms of the university, the Reservation school, her family, and her husband to create a new identity.

My redesign of the Teacherage to create a motivating learning environment was successful for some like Delberta and did the exact opposite for others. For one pre-service teacher in particular; she was never able to drop the walls she put up against me because I was just another encroaching, white settler moving into the Reservation. I didn't understand the sacredness of the Teacherage. I assumed that the Teacherage was a university classroom, where I would also sleep, while I was teaching the methods courses and supervising the practicum and student teachers. I offended some pre-service teachers even before they entered my classroom, because they heard about this white woman who was moving things in the Teacherage, e.g., like a chair that a student sat in the corner of the room. This may seem trivial to some; however, for the Umo^{n}ho^{n}, after generations of displacement, disease, attacks, broken-treaties, Reservation land, and resource cessation by encroaching white settlers this was no trivial action.

Conclusion

Many funded projects, administrators, and teachers have come to the Reservation school, with good intentions to tell Umo^{n}ho^{n} people what and how to teach Umo^{n}ho^{n} children. Now, another well-intentioned, white teacher has come to the Reservation to make changes and has changed the Teacherage, a transformational place. Yet, do any of these well-meaning, white

educators have enough of the external-insider " ... firm grounding in the Umo^{n}ho^{n} heritage language and culture indigenous to the Umo^{n}ho^{n} Reservation that is a fundamental prerequisite for the development of culturally-healthy students and communities associated with that place, and thus is an essential ingredient for identifying the appropriate qualities and practices associated with culturally-responsive educators, curriculum, and schools" (Alaska Standards for Culturally Responsive Schools, 1998, p. 2)?

This is a very heavy burden for me; I am preparing to return this summer to teach science methods again to a new cohort of pre-service teachers on the Umo^{n}ho^{n} Reservation. I believe that the purpose of teacher education programs is about providing children opportunities to learn strategies to thrive and survive successfully in their future lives. Delberta's story emphasizes that, "in order to survive, Native Americans throughout history learned to live in harmony and to take care of the natural world; today, survival for the Native American child and the survival of the tribe is the key for educational success." "One of our elders and most recognized speakers once said, 'the prophecies say that the time will come when the grandchildren will speak to the whole world. The reason for the Freedom School is so the grandchildren have something to say'" (Sakokenionkwas, Porter, T.).

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