Strengthening Teaching in "Rural," Indigenous-Serving Schools: Lessons From the Diné Institute for Navajo Nation Educators

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This article reports on the first three years of a teacher-led professional development program on the Navajo Nation. We draw on both quantitative and qualitative data from our end-of-year surveys to highlight some of the early lessons we have gathered from the Diné Institute for Navajo Nation Educators (DINÉ). We highlight two guiding principles that have developed through this work, cultural responsiveness and teacher leadership, and we suggest that these guiding principles could be useful for other professional development efforts in Indigenous-serving contexts, many of which would be characterized as "rural." We connect these guiding principles to the broad concept of Native nation building, which situates teachers as frontline workers in Indigenous communities' efforts to engage self-determination through self-education. A key lesson from the DINÉ is that professional development for teachers in "rural" schools serving Indigenous students must aim to build capacity among teachers so they determine the ways in which local knowledge is integrated into curriculum and everyday practice.

Teacher quality is one of the most important school-based factors impacting K–12 students' learning and engagement in schools (Marzano, 2003; Opper, 2019; Yoon et al., 2007), and Indigenous students experience persistent inequitable outcomes in schools across the United States (Brayboy & Maaka, 2015). But the published research with and about teachers in Native-serving schools is surprisingly sparse. Even more limited is research that examines professional development among teachers in "rural," Indigenous-serving schools.[1] This is not to say, of course, that research has not been published that investigates the constructs and conditions unique to the "rural" places where schools serving Indigenous students are located. Indeed, among Indigenous education scholars especially, literature examining the complexities of current contexts for rural education in relation to histories, languages, place, and ceremony continues to grow, and this work highlights necessary conversations among rural education scholars and Indigenous education scholars (Holm et al., 2003; John & Ford, 2017; Joseph & Windchief, 2015; RedCorn et al., 2021; McCarty, 2002). Our work begins to fill the void related to teacher professional development in Indigenous contexts, and simultaneously builds on the growing conversations surrounding rurality and Indigenous

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[1] We put the term rural in quotes here to signify a troubling of this term vis-à-vis Indigenous education and the work we describe in this article. We expand on this troubling in the final section of the article.

education by reporting on a relatively new effort to strengthen teaching in Indigenous-serving schools on and bordering the Navajo Nation. We provide an overview of our efforts in the Diné Institute for Navajo Nation Educators (DINÉ), but perhaps more importantly, we situate this work within the context of Native nation building. We advance the ideas that teachers are frontline workers in nation building and that more attention ought to be directed to their professional growth. We are beginning to do this in the DINÉ, and although tentative, we report here on the findings of our first three years.

We begin this article by providing an overview of the relevant literatures with which we are in conversation. We then describe the methodological approach we use to learn about the DINÉ's impact on teachers and teachers' curriculum development. We briefly describe our professional development partnership, and we pay particular attention to the guiding principles that inform our work. We suggest that these principles may be useful for those engaged in professional development work in other rural communities as well. We assume readers are familiar with the rich diversity that exists across rural communities in the United States, and also that readers understand the well documented educational contexts that characterize rural America (Showalter et al. 2019), so our discussion of the DINÉ is intentionally specific and not intended to be read as a model that could be copied and pasted elsewhere—this is particularly true given that there are over 600 state- and federally-recognized tribes, each with unique histories, languages, cultures, and relations to place. We highlight both quantitative and qualitative data from our end-of-year surveys to note some of the early lessons we have gathered from the DINÉ. We close by connecting these lessons and the guiding principles to the broad concept of Native nation building, which situates teachers as frontline workers in Indigenous communities' efforts to engage self-determination through self-education (Anthony-Stevens et al., 2020; Anthony-Stevens et al., 2022; Brayboy & Castagno, 2009; Castagno, 2021; RedCorn, 2020). A key lesson from the DINÉ is that professional development for teachers in schools serving Indigenous students must aim to build capacity among teachers so they determine the ways in which local knowledge is integrated into curriculum and everyday practice.

Situating Our Work Conceptually

Our work is situated explicitly within the literatures on Indigenous education, Native nation building, and culturally responsive schooling, but we also draw broadly on the extant research on rural education and teacher professional development. We weave much of this work throughout the pages of this article rather than fore fronting it here as a way to more intentionally put it in conversation with our discussion. Because we are centrally focused on teacher professional development in Indigenous communities, we begin by situating our discussion in this body of research.

Though limited, we know from the published research that professional development with teachers in rural, resource-constrained environments must account for the unique contexts in which they work (Castagno et al., 2021; Coladarci, 2007; McHenry-Sorber, 2019). This may mean, for example, understanding the technology availability and experience of teachers, understanding teachers' prior content knowledge in a particular area, and understanding the scheduling demands on teachers' time within specific schools. Failing to account for these sorts of factors is likely to result in less-than-ideal outcomes from professional development (PD) attempts (see, for example, Kilde, 2018, and Kern et al., 2017). Indeed, Emmons (2020) reports on the disappointment among leaders of a tribally controlled school regarding PD offerings and notes,

> it is not a complete lack of professional development programming that provides some level of angst for these two [leaders], but rather the building of a high-quality professional development program that more distinctively meets the needs of the teachers at their schools. (p. 33)

Three important themes emerged from Emmons's research with teachers in professional development workshops in three distinct rural, tribally controlled schools: subject and pedagogical relevance, community building, and desire for improvement.

Also relevant to our discussion, Kern and associates (2017) report on a three-year climate science professional development experience with teachers in Native-serving schools and note that teachers in their study struggled to bring Indigenous knowledge into their science classrooms because they were not confident in this area, did not have knowledge of the Indigenous community, and did not have relationships with people who could share Indigenous frameworks and knowledges with them. They also found that although the teachers in their program felt supported by the program leaders and staff, they did not feel supported within their schools and districts to deliver the content and employ various instructional approaches they learned in the professional development. We circle back to each of these points later in this article as they are deeply relevant for the professional development work in which we have engaged.

Situating Our Work Methodologically

The discussion in this article is partially based on the experiences of the first two authors in the DINÉ and partially based on formal research conducted by the first and third authors. It is important to situate each author within the story shared in this article, so we begin by introducing ourselves. We have taken a somewhat unconventional approach in italicizing the second author's words throughout this article in order to center her knowledge, perspective, and experience as a teacher leader in her home community and in the DINÉ. All other text throughout the article is the collective voice of the three authors.

Angelina Castagno is a White woman whose grandparents immigrated to the United States from Italy and Austria in the early years of the 20th century. She is married and has two sons, and her family lives at the base of the San Francisco Peaks in Flagstaff, Arizona—an area held sacred by 14 different Native nations. She has been engaged in collaborative work with Indigenous educators and scholars for over two decades, and most recently worked with Navajo teachers and leaders to develop the DINÉ. She has served as the director of the DINÉ since its inception six years ago.

Ya'at'eeh, my name is Marnita Chischilly from the Bitter Water clan (Tódich'ii'nii) born into the Mexican clan (Naakai dine'e), my maternal grandfather's clan is Zuni people (Naasht'ezhi dine'e), and my paternal grandfather's clan is Towering House (Kinyaa'aanii). I am a Navajo woman from the community of Church Rock, New Mexico, which is about 15 miles east of Gallup, New Mexico. I am a proud mother of four children: three girls and a boy. It has been over 30 years since I started my career at Wingate Elementary School, where I am an eighth-grade math teacher. I grew up surrounded by the Diné language and culture, and I am grateful for the cultural knowledge passed down to me by my parents and grandparents. As I listen to stories of our past, I appreciate where I come from as a Diné woman and the sacrifices that my elders and my ancestors made for me to be here today as an educator. I believe these sacrifices were made in order to preserve and pass on our Diné stories of creation, our languages, songs, prayers, and ceremonies, which are still part of our Diné way of life, so that we can continue to live a long life with harmony and holistic well-being. Chischilly participated in the DINÉ for three years and served on the DINÉ Teacher Leadership Team during that time.

Sölö (Breathing in the Snow) is Hopi from the village of Moenkopi. Matrilineally, he is Paa'Iswungwa (Water-Coyote Clan) and paternally born for the Nuvawungwa (Snow Clan). His English name is Darold Joseph. Sölö now lives in Flagstaff, Arizona, with his family, but he grew up on Hopi engaging in farming, ranching, and ceremony. He previously served as a special education teacher and administrator in schools primarily serving Indigenous students and is now teaching university students who want to work in education. Joseph serves as a research specialist with the DINÉ and collaborates with program staff and teacher participants to collect and analyze data from the program. As with all of our work in the DINÉ, this article is the result of collaborative knowledge production, grounded in relationships with many Diné, Indigenous, and non-Indigenous educators, leaders, and scholars over the past seven years.

Our methodology is broadly characterized as mixed methods (Creswell & Plano Clark, 2011; Greene 2007), with a privileging of narrative methods (Clandinin & Connelly, 2004). We ask all DINÉ participants to complete a survey at the end of each program year; the survey includes both Likert-scale questions and open-ended questions. We report on the 45 responses (100% response rate) from 2019 and 2020 here. The Likert questions were analyzed with simple descriptive statistics to obtain means and standards deviations. The open-ended questions were analyzed by seeking in vivo codes across both program years. The guiding principles discussed in this article emerged from that coding process and were confirmed by the quantitative data. Finally, we asked Chischilly to reflect on and write about her own experience as a participant in the program. Her narratives are intentionally centered throughout this article, woven through the discussion of the guiding principles and lessons learned.

We are cognizant that some readers may find our methodological approach and our writing style "messy" or otherwise unconventional as it does not fit neatly within traditional paradigms for research. We would like to suggest that this approach, and particularly the privileging of Chischilly's authorial voice throughout this article, is consistent with fundamental principles of Indigenous research methodologies and allows us to convey the richness of our work more accurately (Brayboy et al., 2011; Richardson, 2015; Smith, 1999).

The Context, and the Need

The Navajo Nation spans 27,000 square miles in the states of Arizona, New Mexico, and Utah. Approximately 333,000 people are enrolled tribal members, and roughly half of them reside within the current borders of the Navajo Nation. Within and surrounding the Navajo Nation are a number of neighboring tribes, including the Hopi Nation, centered and surrounded by the Navajo Nation within Arizona, and the Jicarilla Apache and the Pueblos of New Mexico. This means that schools on the Navajo Nation often enroll a diverse population of Indigenous students from other federally recognized tribes. On the Navajo Nation, roughly 40% of families do not have running water, and roughly

30% do not have electricity in their homes (US Water Alliance, n.d.). There are six grocery stores, and children have to ride the bus up to three hours one way—often on bumpy dirt roads that are impassable during the monsoon rains—to get to school, exemplifying the rural conditions associated with the geographical locations of place for the Diné. But the Diné people have a reputation for being proud, deeply connected to Diné Bikéyah (Navajo lands situated within the Four Sacred Mountains), and resilient—qualities that highlight an alternative understanding of connection to place. Most Diné people have a strong association with Chief Manuelito's messages about pursuing an education and maintaining Navajo language and traditions.

Indigenous youth deserve access to the best educational opportunities available. Whether it is math or reading scores, high school graduation rates, access to advanced coursework, enrollment in postsecondary schools, or postbaccalaureate degree attainment, multiple persistent educational gaps exist between Indigenous youth and their peers in the United States. Factors contributing to these student outcomes include high mobility rates of teachers in schools serving Native youth, minimal access to curricular and professional development resources, and lower levels of advanced training than their teacher colleagues elsewhere. Although educational attainment is impacted by a complex set of factors, teacher quality is one of the most impactful school-based factors that influences student learning and attainment (Opper, 2019). Thus, improving teacher quality is necessary for increasing the educational attainment of those most adversely impacted by the persistent achievement gaps in our nation's schools. Furthermore, our nation's K–12 teacher shortage is even more acute in rural and Indigenous communities. An important strategy for addressing these crises is to improve teacher quality and retention, and the DINÉ aims to do just that by engaging teachers in robust, long-term professional development opportunities that honor teachers' expertise and challenge them to improve their craft. By gaining access to university faculty who are content experts, teachers in our program have the opportunity to develop as classroom leaders and as effective pedagogues.

What Is the DINÉ?

The Diné Institute for Navajo Nation Educators (DINÉ) is a partnership between Northern Arizona University (NAU) and Navajo schools which aims at strengthening teaching in schools serving Diné and other Indigenous students. The DINÉ developed as an affiliated program of the Yale National Initiative© (YNI) in 2018. The YNI began 40 years ago as a partnership between Yale University and the New Haven Public Schools (located in the same city at Yale University, in Connecticut) to strengthen teaching in that community. The YNI includes local Teachers Institutes in multiple urban, high-need communities across the United States, including Philadelphia and New Castle County, Delaware. Navajo teachers—from what would be called rural communities in most conventional discourses—began participating in the Yale National Initiative in 2011, and in early 2016 *at the invitation of these teachers*, NAU entered into a formal partnership with Navajo educators to establish a local institute in northern Arizona. The DINÉ is the first Teachers Institute through the YNI to partner with a tribal nation and the first to serve rural communities.

The initial development and ongoing work of the DINÉ was and is a complex endeavor. Seventeen public school districts (local education agencies, or LEAs) operate on or bordering the Navajo Nation along with over 50 distinct Bureau of Indian Education (BIE) and tribally controlled/638 grant schools across the Navajo Nation. The Department of Diné Education (DoDE) is a tribal education department and operates somewhat like a state education agency (SEA) under the Navajo Nation's Office of the President, but DoDE has far fewer financial resources than a typical SEA, and it has differing, and in some cases ambiguous, authority in relation to the various school types serving Navajo youth. The DINÉ has intentionally sought to cultivate relationships across all these school systems and leadership contexts, and it is open to teachers working in any public, BIE, grant/tribally controlled, or charter school on or bordering the Navajo Nation. Over the five years the DINÉ has existed, almost 100 teachers have completed the program, and over 85% of them are citizens of the Navajo Nation. We have memorandums of understanding with a small number of the LEAs and with the DoDE, but these agreements are subject to change as leadership transitions occur fairly regularly. What has sustained the momentum of the DINÉ is the core of teacher leaders, which we discuss more fully later in this article. NAU provides a home for the DINÉ, including a director and program coordinator, and most of the funding comes from grants and philanthropic support secured by the director and NAU development staff.

The professional development offered through DINÉ is content specific and theme based. In any given year, we offer between two and four seminar foci from which each teacher selects one. For example, in 2021, each of the 24 teachers spent eight months in one of these seminars: (1) Patterns, Relations, and Functions, Oh My!; (2) Forests and Climate Change; and (3) Storytelling for Social Justice Through the English Language Arts. A seminar group is composed of 8 to 14 teachers and is led by an NAU faculty member who brings expertise in the particular subject matter and theme. The faculty seminar leaders often integrate guest speakers, most of whom are tribal citizens and/or traditional knowledge holders. When a teacher applies to the DINÉ, they select a single seminar group, and they focus their

learning on that one area and theme for the duration of the program year. Teachers read shared texts assigned by the faculty seminar leader, and each teacher also develops an independent reading list based on the specific topic they select to develop into a curriculum unit. The curriculum unit is a 10- to 20-page paper each teacher writes that includes lengthy information about their research topic (written similarly to a research paper), student learning objectives related to the topic and aligned to standards, and classroom activities and student assessment strategies (similar to a traditional lesson plan). Upon completion of the program, a teacher receives a stipend and a certificate of completion.

The goal throughout the eight-month program is twofold: first, to build background knowledge and deep understanding by the teacher, and second, to support the teacher in creating a plan for engaging their students in learning about the topic. The seminar groups meet on four Saturdays in person on the Navajo Nation, eight weekday evenings via Zoom, and for a 10-day residency on NAU's campus during the summer. The in-person meetings often include visits to relevant cultural and educational sites, as well as learning from Navajo community members and elders. In addition to the required meetings, the DINÉ also offers additional optional writing workshops throughout the year to support the teachers' successful completion of their curriculum unit. At the end of the eight months (in December of each calendar year), the DINÉ hosts a day-long conference where the teachers share their work and celebrate their accomplishments. This event is typically attended by well over 100 educators and leaders from across the Navajo Nation. Each teacher's self-authored curriculum unit is published on the DINÉ website, freely accessible to other educators.

Overall, the DINÉ professional development model emphasizes (a) multi-grade and cross-content-area collaboration among teachers, (b) teacher-developed instructional units, and (c) culturally responsive approaches to teaching and learning. These innovations are particularly critical for teacher professional development efforts in Native-serving schools. Because of the rural context and large geographic distances between schools and communities on the Navajo Nation, teachers rarely have access to professional development, and what they do receive is generally district led, short term, and not content specific. Teachers need and crave professional learning spaces that are collaborative, intellectually stimulating,[2] and relevant. The DINÉ model does just that, and it takes collaboration even further by structuring seminar groups with teachers from diverse grade levels, content areas, and schools. Furthermore, most teachers in reservation-based schools are constrained by either lack of curricular resources or mandates to use one-size-fits-all, scripted curriculum provided by their districts. In either case, it can be challenging for teachers to fully engage in culturally responsive instructional practices (Castagno, 2012; Castagno & Brayboy, 2008; McCarty & Lee, 2014; Paris & Alim, 2017). The DINÉ model addresses this challenge by supporting teachers in the development of self-authored instructional units that are aligned to state content standards and Diné cultural standards.[3] Depending on the school system in which they teach (i.e., public LEA, BIE, tribally controlled), teachers in the DINÉ have differing expectations about alignment to standards from their school leadership, so the DINÉ requires all participating teachers to align their curriculum unit to at least one state content grade-level standard and at least one Diné standard. Many teachers go above and beyond this minimum requirement because they conceptualize their curriculum units holistically and in ways that connect across content areas and cultural knowledge.

We turn to the words of Chischilly to illustrate what the DINÉ aims to accomplish with teachers in the program. Chischilly participated in an eight-month seminar focused on contemporary Native American art. Although she was a math teacher at the time, this topic was of interest to her, and she knew that there were many connections she could make between Indigenous art and mathematical concepts. She describes her thinking and rationale for the curriculum unit focus below.

Geometry has been a part of Native American art for centuries. The techniques of Native American art have been passed down from generation to generation. Rug weaving is part of this realm of Native American art. This curriculum unit will take the students into investigating and rediscovering the ancient artwork of rug weaving and in the process, students will understand the connection between this concept and our modern mathematics standards of geometry in our common core. I plan to have students make this connection between the mathematical reasoning of geometry and the cultural aspects of Native American artistry. Rug weaving is a complex and ancient craft, which is still part of our Diné society. To most people, rug weaving appears to be a simple form of artistry, but it requires visual thinking and a sophisticated understanding of geometry. By

[2] Although it is beyond the scope of this article, it is worth noting that intellectual stimulation is identified as a key leadership responsibility among educational leaders (Waters & Cameron, 2007).

[3] The Department of Diné Education has developed an extensive set of standards related to Navajo history, culture, language, government, and character development. The standards are online at https://oscad.navajo-nsn.gov/Resources/Dine-Content-Standards.

having my students rediscover the abilities of our people in the past, they might be enticed into learning their own abilities for the future.

The design of this curriculum unit is to enhance or present an in-depth understanding of the geometric concept of transformations. Specifically, this curriculum unit is aligned to the eighth-grade geometry standard: Understand congruence and similarity using physical models, transparencies, or geometry software. It is also aligned to the Diné standard of concept 3: Iina—Bits aadoo bee da iinaanii baa akonisin dooleel (I will implement and recognize the Diné lifestyle). I have two student learning objectives:

Two-dimensional geometry concepts relating to transformations: To develop a strong foundational understanding that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilation. Using activities that involve concrete models (designs on rugs), discussions, hands-on activities (designing and rug weaving), usage of math vocabulary and illustrations (videos and other visual aids).

Develop an understanding of the relationship between the math concept of geometric transformations and Native American art using cultural relevancy to deepen the understanding of the math concepts and in the process bridge the knowledge of cultural heritage.

I taught this unit during the second nine weeks of my eighth-grade math class. The class began with the history of rug weaving and the importance of this artistry to our Diné people. Then the students learned about the stages and the process of what rug weaving entails from start to finish. The teachings were through storytelling, pictures, videos, books, hands-on activities, and the internet. Next, we began our math standard by first dedicating a couple of days to reviewing one-dimensional geometry, which includes important basic foundational concepts. The next several days, students reviewed two-dimensional polygons, and then we finally delved into our primary focus of two-dimensional transformations, with the connection of this concept to the designs on the weaving.

As a traditional Diné woman and a veteran math teacher with over 20 years in the classroom, Chischilly was able to leverage her experience in the DINÉ to find important synergies between two sets of knowledges (Indigenous art, and mathematics) that western paradigms generally position as distinct. Early in the seminar, the faculty seminar leader and teachers develop ideas, read extensively, and learn collaboratively about the seminar theme. Teachers submit various writing every six to eight weeks and receive feedback from both the faculty seminar leader and their teacher peers. By the end of the eight-month program, each teacher has a robust curriculum unit which they wrote, which they use in their own classroom, and which we publish on the DINÉ website. It is through this iterative and deeply collaborative process that the DINÉ supports the creation, utilization, and institutionalization of curriculum that is uniquely teacher-developed, culturally responsive, and academically rigorous. Shifting standard practices around professional development and curriculum delivery is critical for honoring the funds of knowledge (González et al., 2005) and building and sustaining resilience (McCalman & Bainbridge, 2021; Hansen & Antsanen, 2016) among both teachers and students on the Diné Nation.

Guiding Principles of the DINÉ

Our work has been guided from the beginning by two central principles: cultural responsiveness and teacher leadership. While these principles are consistent with the published literatures on Indigenous education (Grande, 2015; Lomawaima & McCarty, 2006; Sabzalian, 2019) and teacher professional development (Cosenza, 2015; Lieberman, 1987; York-Barr & Duke, 2004), for the DINÉ, they were articulated initially by the founding Teacher Leadership Team, of which Chischilly was a member. They grew organically out of many hours and days of conversation, storytelling, and collaborative planning.

The first central principle in our work is cultural responsiveness. We define cultural responsiveness as the centering and leveraging of the cultural knowledge, prior experiences, frames of reference, and performance styles of diverse stakeholders to make an experience more relevant and effective. This idea informs every aspect of the DINÉ, from the way we organize ourselves, to the way we communicate with each other, to the actual content we center in the seminar meetings. Elsewhere Castagno (2021) has described how cultural responsiveness is embedded in the organizational structure and protocols of the DINÉ, so our focus here is on the centering of cultural responsiveness in the professional development content and the curriculum units written by teachers in DINÉ. In other words, culturally responsive schooling happens when schools center and leverage the cultural knowledge, prior experiences, frames of reference, and performance styles of diverse students to make teaching and learning more relevant and effective. As a teacher professional development program, the DINÉ is laser focused on building teachers' capacities to engage culturally responsive principles and to develop and deliver culturally responsive curriculum (Castagno, 2021; Castagno et al., 2021). From an Indigenous lens, this means integrating the "ways of life" or the epistemologies of the local community knowledge systems into the school curriculum. Of course, this is not what schooling with and in Indigenous communities has historically looked like, and still today, it is not widely practiced. Even though there is a

vast published literature on culturally responsive schooling (Castagno & Brayboy, 2008; McCarty & Lee, 2014), it is not widely understood or embraced in the majority of schools on the Navajo Nation. Interestingly, there is a growing majority of educators who are Indigenous and who have implicit knowledge of community epistemologies, but transferring this knowledge to become more obvious, clear, and sustained in curriculum is challenging. What is most common in the schools where we work is that educators reference the importance of "language and culture," but it is approached through individual classes as separate and discreet from the core content. In other words, language and culture is often taught only by a designated teacher during a particular window of the day. But the DINÉ encourages all teachers to consider how language and culture can instead be fully present and centered throughout their work and relationships with students. Chischilly localizes this concept and describes aspects of cultural responsiveness in her own Diné context.

The Diné people have a philosophy that values beauty and harmony, which one can observe in their artwork such as weaving. Understanding the geometry of the weavings requires learning about the culture, history, and values of the Diné people. The Diné people believe that the first loom originates from sky and earth cords. The weaving itself originates from the sunlight, lightning, crystals, and white shells. Many of the Diné stories involve the natural surroundings because the Diné believe in living in harmony with mother earth. One such story is about the infamous Spider Woman, who we believe possesses exceptional capabilities in weaving. She is a deity that is very special to the Diné people, and she is the one that taught the women how to weave intricate designs. The full versions of these stories are only told during traditional ceremonies and are very sacred to the Diné people. Some condensed versions of certain stories are allowed as teaching tools because Diné people support the growth of holistic well-being as well as academic achievement.

I began this curriculum unit with the history of rug weaving, which students were not enthusiastic about, especially the boys, but as we continued into the stages and processes to produce a finished product, the students began to take interest. They began to understand the hard work that brings the family together to produce each piece of weaving. They did not realize the wool wasn't just purchased at the nearest store, but comes from a family flock [of sheep], and that it undergoes many processes from shearing, to cording, to spindling, and dyeing. When the students watched how the women start their weaving without drafting it on paper but using their mental math, the students were astounded. They asked me how they are able to do this, and I told them, "Our ancestors were very good mathematicians and problem solvers, just like all of you." I believe the culturally responsive instruction made a positive impact on my students and helped them realize the importance of our Diné heritage. By designing this particular curriculum unit with culturally responsive principles, I supported students in increasing their assessment score in the math geometry strand according to the midyear NWEA results.

When we finished the unit, I wanted to know what the students thought about the culturally responsive instruction. I had them complete a survey, and to my delight, a majority of the students agreed that the unit was engaging and motivating because of the cultural connections. According to the survey, many of the students want to learn their language and culture. I believe most Native students want to learn their Native culture and language in an educational setting, which is an indication they yearn for culturally responsive teaching.

The second guiding principle is teacher leadership. Castagno vividly remembers her introduction to the DINÉ. A meeting had been organized at NAU where two veteran teachers from Kayenta Unified School District (centrally located on the Navajo Nation) came to talk about their experience with the Yale National Initiative and their desire to build a "local institute" for teachers in Navajo schools. These two Diné women were clear in what they wanted, passionate about the impact it could have on their communities, and committed to finding a path forward. Castagno recalls that she was all in at that moment. What was most unique about their call to action was that it was explicitly and solely about teachers. Not school administrators. Not school boards. Teachers. It was about strengthening classroom teaching and growing teacher leaders who stay in the classroom. So the second central principle is this: professional growth opportunities should be teacher driven. The development of teacher leadership is widely recognized as an important contributor to school improvement, higher levels of student achievement, and teacher retention (Cosenza, 2015; Lieberman & Miller, 2004). There are multiple reasons why our teacher-driven approach in the DINÉ is critical. Perhaps most importantly, across the United States, we are in a sociopolitical context that devalues and deprofessionalizes teachers (Anyon, 2005; Apple, 1986; Ayers, 2016). As an explicit act of resistance to this pervasive trend, the DINÉ intentionally lifts up teachers, honors their expertise, and creates space for their continued growth and development. This action is needed in every community across the United States, but it is especially needed in rural, Indigenous-serving communities (Anthony-Stevens et al., 2022; Castagno, 2021).

The history of American Indian schooling is characterized by persistent efforts to assimilate and colonize. From the earliest settler-colonist encounters in what would become the United States, through the 1819 Civilization Act, the residential boarding schools operated

by various Christian churches in the 1800s and 1900s, the Indian Relocation Act of 1956, and even through the 2001 No Child Left Behind Act, the efforts of the U.S. federal government and multiple religious organizations to "kill the Indian and save the man" are well documented (e.g., Adams, 1995; Lomawaima & McCarty, 2006). Despite consistent calls for culturally responsive models of schooling, the vast majority of teachers in schools now are themselves products of schooling that was first and foremost about assimilation. One's own school experiences inform deeply embedded values, norms, and assumptions about what happens in schools, how teaching and learning happen, and who has decision-making authority and can produce knowledge. In rural, Indigenous-serving schools, the administrators are typically individuals who did not grow up in the local community and who are not tribal members. So layered on top of teachers' own schooling experiences is a set of relationships with their supervisors who are often guided by pressures to close the proverbial achievement gap (Coomer et al., 2021; Ladson-Billings, 2006; McCardle & Berninger, 2015) and who rely on scripted curriculum, irrelevant textbooks, and other sets of outside expertise. But most of the teachers in DINÉ are in-group members, meaning they are Diné and they were raised on the Navajo Nation. They know deeply that their students and their communities need something different. They have what seems to be an intuitive sense that classrooms can look different and that language and culture are rich assets, so when given the space in DINÉ to see, hear, feel, and try something different, they thrive. Indigenous-serving schools need to center teachers as leaders and follow their innate understanding of what teaching and learning *should* be. We turn to the words of Chischilly to highlight this belief.

Participating in the DINÉ enhanced my understanding of how culturally responsive schooling for our Navajo youth provides a more equitable education within the current context of standardization and accountability. There are several good written pieces on culturally responsive schooling that are insightful, but it has had little impact on how teachers instruct because it is not mandated, or it is generalized as anecdotal. As I reflect on our group discussions and literature readings, I have come to the idea that the students need more than just academic support; they also need cultural support. There is a need for our young Diné students to balance their Diné culture and academic achievement to support their academic and holistic growth. Therefore, it is imperative that there be a more explicit focus on sovereignty, self-determination, and Indigenous epistemologies in the establishment of culturally responsive schooling for our children across our Diné Nation.

After participating in this program, my purpose as an educator has changed to focus on the overall education of a child and to bring together a balance of culturally responsive instruction with the westernized approach to education. Establishing the connection between Navajo cultural knowledge and values and academic content will put the needed support on instructional coherence in Navajo-serving schools. Instructing in ways that connect with students requires understanding of differences that may arise from culture, family experiences, assessment data, and academic skills. Teachers must be able to inquire sensitively, listen carefully, and look thoughtfully at student work and assessments to determine their next step in culturally responsive instruction. As teachers, we have the opportunity to start focusing on student needs. We need to support their holistic growth as Diné students using Diné values, culture, and language as a foundation. By incorporating culturally responsive curriculum as an instructional strategy, teachers will also be able keep the traditions of our people from fading. Presently, we are at a point where our youth are losing their cultural knowledge, language, clan system, and identity. As educators, we can embrace this method of culturally responsive instruction to support the preservation of our cultural ways.

We suspect that these two principles—cultural responsiveness and teacher leadership—are important for teacher professional development in most rural communities. Although our work is intentionally situated in rural, Indigenous communities, it is not a stretch to imagine how these lessons and guiding principles could be applied to create and sustain more relevant and effective professional development programs in rural communities across the United States. Anderson (2008), for example, has written about the role of teacher leaders in rural school transformation, and Eargle (2013) has described teacher leadership in a rural school-university collaboration. Perhaps most relevant, RedCorn (2020) offers a model of capacity building within Native nations that leverages systems thinking and centers Indigenous cultural and governance systems. Within this model, RedCorn (2020) notes that educational leaders are anyone "with the power to influence systems of education where Native students are present" (p. 497). Indeed, the literatures on effective teaching and learning, and on teacher professional development, support the principles of cultural responsiveness and teacher leadership, but additional research is needed in diverse rural communities to better understand the nuances of how these principles may or may not be transferable across contexts.

Early Signs of Success and Areas for Growth

To situate Chischilly's experience within the larger program, we turn now to survey data from the first three years of the DINÉ. We initiated the DINÉ with a group of 10 teachers in 2018, our 2019 cohort included 23 teachers, and the 2020 cohort included 22 teachers. Of these 55 total

teacher participants from 2018–2020, 48 self-identified as Native American, six self-identified as White, and one self-identified as multiracial. The vast majority—50 of the 55—were female. The teachers represent all grade levels from kindergarten through 12th grade, and they teach all subjects, including some who are specialized Navajo language and culture teachers. As we wrote this article, we were wrapping up our fourth cohort of 24 teachers and beginning to recruit teachers for the 2022 program.

As a newly developing partnership, we collected a limited set of data during these early years, and all of it was primarily focused on providing feedback to program leaders about how we were doing and what changes we needed to consider moving forward.[4] We conducted an anonymous survey with all participating teachers half way through the program and again at the conclusion of the program each year. These surveys were distributed via Qualtrics, and we had a 100% response rate since completion of the surveys was a requirement for successful completion of the program (which resulted in a monetary stipend for each teacher). The surveys included Likert-scale questions and a few open-ended questions. Table 1 summarizes the responses to the Likert questions from 2019 and 2020.[5] Respondents were asked to note their agreement with each statement on a scale of 1 to 5, where 1 meant strongly disagree and 5 meant strongly agree. With all responses averaging above 4.1, and most averaging above 4.5, the program as a whole appears to be achieving its goals and meeting teachers' needs for teacher-led, culturally responsive professional development.

The responses to the open-ended questions confirm teachers' positive perceptions of the program and strong beliefs that the program is facilitating their own cultural responsiveness and leadership capacity. Their narrative responses were coded through in vivo processes by two independent researchers, and two prominent themes emerged: Teachers noted (a) the rigor of the DINÉ and the ways the program challenged them and (b) their desire to participate again and their commitment to recruiting other teacher participants in future years. One teacher wrote, "I enjoyed the sharing and collaboration with other teachers from across the Diné Nation, seeing them writing their curriculum, progressing, and learning the rigor of research and writing. This was the most rewarding aspect of the program for me." Another teacher wrote, "The program is very challenging, but in the end, rewarding and beneficial to me and to my Navajo students." These teachers' sentiments were echoed by most of the other teachers who responded to the open-ended questions on the 2019 and 2020 end-of-year surveys. While the focus in this article is on centering the richness and detail of Chischilly's narrative, the survey results from all DINÉ participants offer many points of resonance and confirmation of the points made throughout this article.

Overall, then, the DINÉ model embodies many best practices of teacher professional development: It focuses on content knowledge, is long-term, engages active learning strategies, and is aligned to local and state standards (Archibald et al., 2011; Benilower et al., 2007; Darling-Hammond et al., 2017; Kisker, 2015; Penuel, 2015; Penuel et al., 2007, 2009). High teacher turnover is a barrier to maximizing the impacts of PD (Shear & Penuel, 2010), and teacher turnover is an especially significant problem across Indian Country. But we also know that collaborative approaches are particularly well suited for Indigenous contexts (Cronin & Ostergren, 2007; McCarty et al., 1997; Parker, 2015), and that culturally responsive curriculum produces more engagement and learning (Castagno & Brayboy, 2008).

Growing Teacher Capacity to Advance Native Nation Building in "Rural" Indigenous Communities

The DINÉ is fundamentally about growing the capacity of teachers, but this work holds unique significance within Indigenous communities typically identified as "rural." We trouble this characterization of rurality because, as John and Ford (2017) have noted, "through the creation of reservations and forced relocation, settler colonialism works to impose an urban/rural binary on Native peoples and spaces" (p. 4). Indeed, teachers and tribal leaders have never characterized our work in the DINÉ as happening in rural communities or with teachers in rural schools. Instead, they/we have always named our work as being located—both physically and epistemologically—on the Navajo Nation and in schools serving Diné youth. This languaging is important because Native nations have a government-to-government relationship with the United States federal government; this relationship between two sovereign entities is codified in treaties, executive orders, and legislation. The Diné Nation, like hundreds of other Native nations across the United States, is committed to strengthening its own capacity for effective and culturally responsive self-government and community development (Native Nations Institute, n.d.). Educators play a critically important role in this process of nation building. Indigenous scholars and community leaders have written extensively about Native nation building (see,

[4] We secured a four-year National Science Foundation grant at the end of 2019, which supports a more robust research plan on the impact of the program in the coming years.

[5] The 2018 survey did not include these same Likert questions, so we only include data from the two years when the questions were consistent.

Table 1
Likert Results for DINÉ Teacher Perceptions of the Program, 2019–2020

Likert question	All 2019 and 2020 DINÉ teacher participants (n = 45)	
	Mean	SD
Teachers have an important role in student learning.	4.7	0.9
I feel comfortable developing curriculum for my students.	4.4	1.0
I am a culturally responsive teacher.	4.5	1.0
I develop curriculum for my students that is aligned to state standards.	4.5	1.0
I develop curriculum for my students that is culturally responsive.	4.6	1.0
I develop curriculum for my students that is aligned to the Diné cultural standards.	4.3	1.0
I integrate Navajo culture, history, and/or authors in my teaching.	4.4	0.9
Teachers can help students learn Navajo culture and history.	4.5	1.1
It is important for teachers to have high expectations for all of their students.	4.7	1.0
I know what culturally responsive teaching is.	4.6	1.0
I have high expectations for my students.	4.7	1.0
I know about the history of American Indian education in the U.S.	4.2	1.0
Teachers in schools serving Native American students should understand the concepts of assimilation and colonization.	4.4	1.1
I would be comfortable explaining the concepts of assimilation and colonization to another person.	4.3	1.1
Teachers in schools serving Native American students should know how to teach in culturally responsive ways.	4.6	1.1
I want to participate in the DINÉ again.	4.5	0.9
I will encourage other teachers to apply for the DINÉ next year.	4.8	0.6
I think more teachers should participate in the DINÉ next year.	4.9	0.6
I will teach my curriculum unit to my students this year.	4.8	0.7
As a DINÉ Fellow, I gained content knowledge that will help me be a better teacher.	4.9	0.6
As a DINÉ Fellow, I gained confidence in my leadership ability.	4.7	0.6
As a DINÉ Fellow, I gained knowledge and/or skills to create more culturally responsive learning experiences for my students.	4.8	0.6
The Curriculum Unit I wrote is culturally responsive.	4.7	0.8
The Curriculum Unit I wrote is aligned to the standards I am supposed to be teaching.	4.8	0.7
The Curriculum Unit I wrote is academically rigorous.	4.7	0.8
I felt respected as a professional educator in the DINÉ.	4.8	0.7
I felt that my knowledge and/or perspective was honored in the DINÉ.	4.8	0.7

for example, Coffey & Tsosie, 2001; Cornell & Kalt, 1998; Deloria & Lytle, 1984; Native Nations Institute, n.d.; Smith, 1999), but for the purposes of this discussion, we share this summative explanation:

> Tribal nation building refers to the political, legal, spiritual, educational, and economic processes through which Indigenous peoples engage in order to build local capacity to address their educational, health, legal, economic, nutritional, relational, and spatial needs…. [I]t is an intentional, purposeful application of human and social capital to address the needs of tribal nations and communities. (Brayboy et al., 2014, p. 578)

In other words, Native nation building is fundamentally about capacity building across multiple sectors of a community, and it requires a systems framework that centers a Native nation's cultural and governance frameworks (RedCorn, 2020).

Teachers are frontline workers for nation building given the many roles they hold. While they clearly have a professional role to educate the young people in their classrooms, they also have distinct responsibilities as mothers, aunties, uncles, grandfathers, grandmothers, brothers, daughters, and community members. Teachers are growing the next generation—and indeed, the next seven generations[6]—of Diné. Strengthening teachers is, alone, a critical component of Native nation building. But it is not enough. Growing the capacity of teachers also must include teacher leadership and cultural responsiveness. Said differently, growing the capacity of teachers through professional development is most effective when it is teacher driven so that teachers themselves provide input that is used in decision making. By engaging Navajo teachers as leaders in PD programs, we are also providing space for teachers to become more practiced as leaders, which then carries into their leadership within their classrooms, schools, and communities. Further, PD that centers culturally responsive principles not only increases teachers' knowledge of this approach, but also models how various domains of work, relationships, and leadership can and should be culturally centered and meaningful.

Chischilly speaks to the imperative of culturally responsive schooling, its connection to Native nation building, and the role of teachers: *Schools that promote well-being in their school by integrating culture, values, and language in their curriculum have a better school environment and better student achievement. Pursuing culturally responsive practices is important for the sake of our schools and the Diné Nation. The challenge is for all stakeholders to come together to accomplish this goal of developing indigenized ways of teaching in our Diné schools. It is our role, as teachers, to establish change in our westernized pedagogy to a more relevant indigenized method of instruction for our students to attain academic and holistic growth.*

Through the lens of Native nation building, academic and holistic growth of Indigenous students necessitates the development of practices in which the implicit epistemologies and value systems of Indigenous contexts are considered as primary components in planning and designing curriculum and in teaching students. This culturally responsive approach further contributes to leveraging local knowledge, culture, and language as essential and primary assets to inform education. Indigenous students benefit because they see themselves in the curriculum *and* they develop capacity to transfer and apply their knowledge into spaces that transcend the K–12 classroom to address needs of their local community. For instance, students in rural communities are often required to leave "H"ome and enter other "h"ome spaces, including postsecondary educational settings (Joseph & Windchief, 2015), to pursue the training and education required to address community needs. The more equipped a student is to see themselves in their own learning, the more empowered they are to practice self-determination in home spaces to build capacity and, therefore, contribute to nation building. This strategy is related to the robust literature on outmigration and social reproduction among students from rural communities (e.g., Corbett & Forsey, 2017), but it implies additional responsibilities within Indigenous communities because of tribes' nation building orientation and desire to "liberate [their] sovereign potential" (RedCorn, 2020, p. 493).

The lessons learned thus far through the DINÉ build on the growing conversations happening at the intersections of the fields of Indigenous education and rural education. RedCorn et al., (2021) note that "land, sovereignty, and survivance are good starting points" in these conversations (p. 238), and we concur since culturally responsive schooling, teacher leadership, and Native nation building are deeply intertwined with land, sovereignty, and survivance. While we encourage deep engagement across these fields of study, we would be remiss not to point out that Indigenous-serving schools are not solely located in "rural" communities. Indeed, the U.S. policies of relocation, termination, and assimilation have meant that Indigenous peoples have created strong communities in urban centers across the nation. But our work in the DINÉ highlights important lessons for those leading professional development efforts in Indigenous communities geographically removed from non-Indigenous population centers specifically. These communities—often

[6] This idea of planning for and making decisions that will be good for the next seven generations dates back to the Great Law of the Haudenosaunee Confederacy.

reservation lands, though not always—"serve as *epicenters* [emphasis added] for Indigenous resistance and collective being" (John & Ford, 2017, p.12). In these "rural" spaces, schools are critical and impactful community organizations, teachers wear multiple hats, and there exists a distinct and special connection and responsibility to place. This creates unique opportunities for teacher professional development, and we are honored to be learning alongside our teacher colleagues how best to do this important work.

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