



Developing and piloting a tool to assess culturally responsive principles in schools serving Indigenous students

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ABSTRACT

This article presents a tool and discusses the rationale for the authors' development of a tool designed to assess the alignment of culturally responsive schooling principles within schools serving predominantly U.S. Indigenous students. Schools that serve a majority of Indigenous students are generally located on or bordering Native Nations that are federally recognized as being sovereign Nations with a government-to-government relationship to the federal government, so the more generic diversity, equity, and inclusion tools that currently exist are insufficient for the unique contexts of schools in Indian Country. Thus, we offer a tool that can be used to identify and strengthen the integration of culturally responsive principles specifically for, with, and in Indigenous-serving schools.

Generations-long assimilative schooling has deeply impacted Indigenous communities, but for as long as there have been efforts to colonize and assimilate students via formal schooling, there have also been community-based and educator-led efforts to engage culturally responsive schooling. One such current effort in the southwestern United States is the Diné Institute for Navajo Nation Educators (DINÉ), which is a partnership between Northern Arizona University (NAU) and K12 schools on and bordering the Diné Nation¹ that provides long-term professional development to teachers across all grade levels and content areas. The impetus of this partnership is that strong teachers, who are supported in growing their capacity to develop culturally responsive curriculum, will positively impact student outcomes and, by extension, broader community goals related to Native Nation building. Indigenous² scholars and community leaders in the United States have written extensively about Native Nation building (see, for example, Coffey & Tsosie, 2001; Cornell & Kalt, 1998; Deloria & Lytle, 1984; Native Nations Institute, 2012; 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, Castagno, Solyom 2014, 578)

While the DINÉ is itself a Nation building initiative, we also want to suggest that the tool we've developed is an effort in Native Nation building because it centers and honors the rich knowledge

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¹Diné is the term used by many Navajo people to describe themselves, and it translates to “the people” in the Navajo language. In this essay, we use Diné and Navajo interchangeably, and we privilege Diné in most cases because it is the term preferred by most of the teacher leaders with whom we've worked.

²We honor and acknowledge that the term Indigenous is global in scope. We also want to be clear that our work in this paper is situated in the U.S., and more specifically in the Southwestern U.S.

situated within Indigenous communities and provides a resource that Indigenous leaders can use to support and advance their ongoing efforts to grow capacity in educational spaces.

The DINÉ³ was inspired by the Yale National Initiative[©], which began 40 years ago and has grown to include the establishment of regional Teachers Institutes in urban areas identified by the Initiative as having persistent inequitable educational outcomes. Navajo teachers began participating in the national seminars at Yale in 2011. In early 2017, at the invitation of these teachers, NAU entered into a formal partnership with Navajo educators to establish a regional institute in northern Arizona. The DINÉ is the first institute through the Yale National Initiative to partner with a tribal nation and the first to serve rural communities. The DINÉ partners with K12 schools across the Navajo Nation, including public schools, tribally controlled schools, and Bureau of Indian Education (BIE) schools. The majority of the teachers in our program are Navajo themselves (54 out of the 64 so far served in the program), and they teach in schools that are almost 100% Native-serving. They teach all grade levels and content areas. All of the teachers (and by extension, students) live and teach in rural schools in northern Arizona and represent all genders. Our work in the DINÉ is guided by the following core principles:

- Diné and other Indigenous youth, teachers, elders, and communities are rich sources and sites of knowledge.
- Culturally responsive schooling is a best practice, and the DINÉ integrates Navajo traditional knowledge throughout all aspects of our teaching, learning, and leading.
- Initiatives that strengthen teaching through culturally responsive professional development will in turn improve the educational attainment of Diné and other Indigenous youth, which is a necessary component for tribal nation (re)building goals of sovereign Native Nations in the U.S.

These principles have helped us establish a sustainable partnership between Navajo schools and NAU that empowers teacher growth and fosters mutually beneficial exchange of cultural and content knowledge between the partners. This partnership is building capacity for culturally responsive, academically rigorous curriculum development and instructional practice among teachers in Navajo schools, which should ultimately improve student achievement within Navajo schools.

The first two years of developing the DINÉ were focused on building and implementing the program, but as we moved into the third year, we were fortunate to secure external funding that would support targeted research and evaluation of the impact we were having on teacher practice and curriculum development. Given our commitment to cultural responsiveness, we knew we needed a tool that would allow us to assess the degree to which curriculum and pedagogy were aligned to the key principles of culturally responsive schooling. There has been much written about culturally responsive, relevant, sustaining, and revitalizing education with and in minoritized communities (e.g., Castagno, 2009; Gay, 2010; Ladson-Billings, 2009; Paris & Alim, 2017). There is a large body of conceptual work that takes up this issue specifically with and in Indigenous communities (e.g., Barnhardt, 2014; Castagno & Brayboy, 2008; Lomawaima & McCarty, 2006; McCarty & Lee, 2014; Trumbull & Nelson-Barber, 2019). But we are unaware of a tool designed for practitioners and researchers wanting to assess the use of culturally responsive principles and practices in Indigenous-serving schools specifically. Thus, we decided to leverage our collective expertise and experience to develop such an instrument. As we explain below, this tool is intended to be used to assess various aspects of schooling. We have thus far used it specifically to assess curriculum units, but we will soon use it to assess pedagogy and we can envision its use more wholistically to determine the extent to which cultural responsiveness is evident across the various levels and domains of schooling.

³Although a full exploration of the DINÉ is not within the confines of this paper, we direct readers to other publications such as Castagno (2020, 2021).

Our goal in this paper is to describe our development of this tool, articulate why it is important to have a tool that is specific to Indigenous-serving schools, explain our initial findings from applying this tool to assess DINÉ curriculum units and our plans for evolving the tool, and open up conversation about future uses of the tool. We share the tool in the Appendix, in the spirit of collaborative knowledge production and with the understanding that it will likely evolve over the next few years of our work.

The authors of this paper bring a diverse range of expertise to this work. They are all also affiliated with the DINÉ, but their affiliation varies by type and degree. Castagno is the Director of the DINÉ, helped develop the partnership initially, and serves as the PI on the primary funding for the program. She is White and has been working with Indigenous scholars and teachers on various projects for two decades. Joseph is Native American from a tribal community in the southwestern U.S. and a Research Specialist on the project team. He has served as a Special Education Teacher and Administrator in Indigenous-serving schools, and he continues to engage in work to serve Indigenous students. At the time of this writing, Kretzmann is a Hopi graduate student and is employed as a Graduate Student Researcher who supports the DINÉ broadly. Dass is the Walkup Distinguished Professor of Science Education and Director of the NAU Center for Science Teaching and Learning; he was a high school teacher for many years and serves as the co-PI on the grant that funds this project.

Why develop a tool to assess culturally responsive principles in Indigenous-serving schools?

We opened this paper by saying that the impetus behind our work lies within the concept of Native Nation building. Native Nations are sovereign entities with a government-to-government relationship to the federal government, so the more generic diversity, equity, and inclusion tools that currently exist are insufficient for the unique contexts of schools in Indian Country. Thus, we offer a tool that can be used to identify and strengthen the integration of culturally responsive principles specifically for, with, and in Indigenous-serving schools. Castagno has written elsewhere about the connections between Native Nation building and the DINÉ (2020, 2021), so here we want to simply point out that a key aspect of Native Nation building is to engage self-determination through self-education (B. M. J. Brayboy & Castagno, 2009) and that our work in the DINÉ is fundamentally about supporting K12 teachers in developing their own culturally responsive curriculum.

The research on culturally responsive schooling asserts that all students learn better and achieve at higher rates when teachers engage them with curricula that is connected to their everyday lives, employ pedagogical techniques that correspond to their own cultural norms, and integrate an ethic of care and social justice into their classrooms (Banks & Banks, 2001; Gay, 2000; Ladson-Billings, 1995; Nieto, 2004; Sleeter & Grant, 2003). Furthermore, there is a plethora of research that affirms that teachers who know and care about Indigenous youth, speak their language, know their culture, and participate in the local community provide a more effective education (B. Brayboy & Maughan, 2009; Castagno & Brayboy, 2008; Deloria & Wildcat, 2001; Deyhle & Swisher, 1997; Lomawaima & McCarty, 2006; McCarty & Lee, 2014; McCarty et al., 1997; Reyhner, 1992; Yazzie, 1999). This scholarship on Indigenous education, when combined with the work of Indigenous scholars from disciplines outside of education, provides an important perspective and focus on issues of tribal sovereignty, self-determination, colonization, assimilation, and the unique government-to-government relationship between tribal nations and the United States (B. Brayboy, 2005; Deloria & Wildcat, 2001; Grande, 2000; Lomawaima & McCarty, 2002; Robbins, 1992). In addition to this published work, tribal education leaders, teachers in reservation schools, and local community members know what it takes to ensure their youth are experiencing success in schools without losing their cultural sense of self. Examples of community-based efforts to ensure culturally responsive schooling within Native-serving schools include the Navajo Nation's cultural standards, the Alaska Native Knowledge Network, New Zealand's Kōhanga Reo (Maori language nests), the 'Aha Punana Leo Hawaiian immersion schools, and Montana State's initiatives around Indian Education for All. Although

there is a growing body of, published work on the importance and integration of culturally responsive approaches (Benally, 2019; Abrams et al., 2013, 2014; Eglash et al., 2013; Laughter & Adams, 2012; Stevens et al., 2016; Villegas & Lucas, 2002), we still lack adequate understanding of the particular ways cultural responsiveness is engaged by teachers in Native-serving schools.

As part of a larger NSF-funded project (cite grant #, but blinded now for peer review), we are exploring the impact of a particular professional development approach on teachers' engagement with culturally responsive schooling on and bordering the Navajo Nation. The specific research question of most relevance to this paper is: *To what extent and in what ways are culturally responsive approaches to (STEM) curriculum development and instructional practice engaged by teachers in the DINÉ?*⁴ Our research team quickly realized that this research question required a tool that we could use across researchers to more accurately and consistently assess if and how teachers are drawing on culturally responsive principles in their work. We searched for a previously developed and published tool that would meet our needs, but we were unsuccessful in that search.

What was our process for developing this tool?

We collected and reviewed multiple tools designed for conducting classroom observations and reviewing lesson plans or curricular materials through a culturally responsive and/or equity-centered lens. The tools we reviewed in greatest detail included (1) the Scoop Notebook (Martinez et al., 2012), (2) the Reformed Teaching Observation Protocol (RTOP) (Arizona Board of Regents, 2000), (3) the Equity Tool: Assessing Bias in Standards and Curricular Materials (Skelton et al., 2017), (4) the Culturally Responsive Curriculum Scorecard (Bryan-Gooden et al., 2019), and (5) the Culturally Responsive Instruction Observation Protocol (Powell et al., 2017). Given the racial diversity of many schools across the U.S., we recognize the value in these tools – all of which capture key principles of equity-oriented and culturally responsive schooling. Tools such as these have broad applicability across contexts and, therefore, provide some consistency for both researchers and practitioners regardless of the demographic, sociocultural, and historical nuances within communities.

But Native Nations are sovereign entities with a government-to-government relationship with the United States, schools and other public services that are administered through the trust responsibility of the federal government, and unique histories of colonization and assimilation efforts aimed at cultural and physical genocide. Furthermore, Indigenous students living on or near reservations attend schools that serve almost entirely Indigenous students, and often times students solely from their own tribe. These schools have complicated histories⁵ in relation to the tribes on whose land they sit. For all of these reasons, our team needed a tool that was more specific and relevant to Indigenous-serving school contexts.

Our team began by identifying and then reviewing tools and resources for dimensions of culturally responsive schooling (CRS) practices that *both* support educational equity *and* were representative of and/or applicable to Indigenous Knowledge Systems (Barnhardt & Kawagley, 2005; B. Brayboy & Maughan, 2009; Villegas et al., 2008). For example, when the concept of “water” is used to create STEM units, the local Indigenous Knowledge Systems about water may be recognized and situated as the theoretical foundation of the unit (B. Brayboy, 2005), leveraging the funds of knowledge or worldviews of the student learners in a fundamental manner so students connect aspects of their homes and communities to academic content. This may happen through referencing various words used to describe water in their Indigenous language, investigating the uses

⁴As a research project funded by the National Science Foundation, the research questions focused on science, technology, engineering, and mathematics (STEM) education. However, the DINÉ is not limited to STEM content and our team has, and will continue to, leverage the tool with non-STEM curriculum units and classroom observations.

⁵The complicated nature of the relationship between schools and Native Nations is related, in part, to initial treaty agreements that included the provision of education by the federal government, the long-standing efforts of schools to assimilate Indigenous youth, the inconsistent ownership and funding of schools, and distributed efforts to leverage schools to advance Native Nation's goals related to language and culture.

and sources of water in their community, and/or exploring the significance of water within their local cultural practices. We sought criteria that built on the funds of knowledge (González et al., 2005) of Indigenous communities, named common misunderstandings in history and current knowledge of Indigenous peoples, included the assets of community heritage language and traditions, and referenced central sociopolitical concepts such as tribal sovereignty and self-determination (Joseph & Windchief, 2015).

Our review of the tools noted above led us to adopt and adapt six criteria in the development of our tool. The table below highlights specific elements that we used and/or adopted directly from other sources.

Statement in our CRS tool	Original statement from elsewhere	Source of original statement
Actively works to counter stereotypes of Indigenous people and/or communities (1).	The curriculum and planned learning experiences incorporate opportunities to confront negative stereotypes and biases (p. 12)	Powell et al. (2017)
Students are encouraged to exercise self-determination and agency (7).	Empower students to make decisions toward self-determination (p. 6)	Skelton et al. (2017)
Traditional and/or cultural knowledge is included (4).	Standards reflect content that includes and embeds the actual histories and narratives of people from diverse backgrounds (p. 13).	Skelton et al. (2017)
Diverse narratives and perspectives are integrated (11).	The curriculum and planned learning experiences integrate and provide opportunities for the expression of diverse perspectives (p. 13)	Powell et al. (2017)
Relationships within and among local/regional Indigenous community are understood and/or reflected (15).	Represent those most familiar and used by students in their age group, home, and communities (p. 5).	Skelton et al. (2017)
Academic language is built, but not at the expense of local Indigenous language(s) (23).	The teacher provides opportunities for students to develop linguistic competence (p. 11).	Powell et al. (2017)

In addition to drawing on the tools noted, our team drew heavily from the literature and research on Indigenous education, which will be evident in our discussion of the five clusters below.

A few caveats are necessary before we explain the details of the tool. The first is that the authors have particular expertise primarily in the U.S. context of Indigenous education. We drew heavily on the bodies of literature on American Indian and Alaska Native educational policy and practice, culturally responsive and sustaining schooling, multicultural and anti-racist education, Tribal Critical Race Theory, and Indigenous Knowledge Systems. While many of these bodies of research and the ideas contained in them have been used in and hold relevance for global Indigenous contexts, we certainly acknowledge that our tool may be more U.S.-centric given some of the terminology (i.e., “federal Indian law”). At the same time, the general principles are certainly consistent with much of the published work with and in Māori (New Zealand), Aboriginal and Torres Strait Islander Peoples (Australian), and First Nations (Canadian) communities. We look forward to learning from and with colleagues about the ways our work might be extended and refined to be of most use in international contexts. The second caveat is that this paper has a very specific purpose and, as a result, does not take the time to establish or unpack a number of foundational ideas and assumptions. To be more specific, we do not discuss the literature on curriculum or teaching assessment tools in general, nor do we offer detailed background information on the theoretical frameworks of Indigenous Knowledge Systems or Tribal Critical Race Theory (both of which inform our work). The final caveat is that we intentionally use the language of culturally responsive *schooling*, as opposed to more specific reference to teaching or pedagogy. We do this because the principles in the tool, and indeed from cultural responsiveness more generally, are applicable to schooling as a wholistic and multi-leveled system. Ideally, we would find resonance between the statements in the tool and all aspects of schooling, including the curricular materials, the various policies, the instructional practices of teachers, the family engagement initiatives, the approaches to behavior and discipline, etc. In our particular project described here, we use the tool specifically to examine a set of written curriculum units, but we want to suggest that this tool

could be useful in assessing the extent to which culturally responsive principles are evident throughout a school system.

What are the key features of the tool?

The tool is reproduced in the Appendix, and we explain some of its key features below. Sireci (2009) notes that validity of a test/tool ought to be evaluated “with respect to the purpose of the test and how the test is used” (p. 20). As we’ve suggested, the intended use of this tool is to assess the degree to which culturally responsive principles are or are not present in schools serving Indigenous youth. The idea is that anyone with some familiarity of culturally responsive schooling could leverage this tool to assess either particular curricular materials, pedagogy, or policies within a school. A high overall score on the tool indicates that the unit of analysis does align to culturally responsive principles, whereas a low overall score on the tool indicates that the unit of analysis exhibits characteristics that are antithetical, or contradictory, to culturally responsive principles.

The tool opens with a section for the user to note what is being observed and/or analyzed. Our team intends to use the tool for analysis of both written curricular units and observations of classroom teaching, so this section allows for identification of the specific unit of analysis and context. The tool includes 23 distinct culturally responsive principles that are thematically grouped under five categories. The clusters are identified below, with their corresponding statements on the tool:

- Relationality, relationships, and communities (n = 4)

14. Encourages students to understand themselves within broader communities

15. Relationships within and among local/regional Indigenous community are understood and/or reflected

16. Encourages students to build and sustain relationships

17. Relationships within the classroom are strong

- Indigenous knowledge systems and language (n = 6)

4. Traditional and/or cultural knowledge is included

13. Norms, values, traditions, interests of local/regional Indigenous community are leveraged for learning opportunities

19. Local/regional context is leveraged for learning opportunities

21. Local Indigenous language(s) is valued

22. Local Indigenous language(s) is integrated

23. Academic language is built, but not at the expense of local Indigenous language(s)

- Sociopolitical context and concepts, and specifically sovereignty, self-determination, and nationhood (n = 4)

5. Recognition of Native Nations as governmental agencies

6. Recognition of treaty rights and/or federal Indian law

7. Students are encouraged to exercise self-determination and agency

8. Communities are encouraged to exercise self-determination and agency

- Representation of Indigenous peoples (n = 5)

2. Indigenous people are represented as contemporary (not only historical)

3. Indigenous people are represented as diverse (not a monolithic “they”)

12. Local/regional Indigenous community is reflected

- 18. Clear reference and/or integration of local/regional Indigenous context
- 20. Recognition that local/regional Indigenous context is specific and unique, as are other contexts

- Critical understandings of diversity, and specifically race (n = 4)

1. Actively works to counter stereotypes of Indigenous people and/or communities

9. Models critical thinking about historical narratives and contemporary status quo

10. Encourages asking critically-oriented questions about historical narratives and contemporary status quo

11. Diverse narratives and perspectives are integrated

The tool itself does not cluster the statements under these categories, but the categories are important for the purposes of analysis and making broad meaning of the ways culturally responsive principles are evidenced. These five clusters align to the broad body of theory and research on cultural responsiveness with and in Indigenous communities.

Within the tool itself, there is an option for the observer to check “not applicable” for any of the 23 CRS principles, along with a “Notes” section for the observer to enter narrative explanations related to their numeric selection for each principle. The rating system in the tool deviates from typical practice in that it includes both positive and negative numeric values. Our team was intentional in creating a rating system in which culturally responsive principles that leverage local community knowledge systems be rated positively on a three-point rating system of Low (+1), Medium (+2), and High (+3), indicating the level of inclusion of the principle in the review of the lesson plan or teacher observation. Additionally, because of the nature of cultural discontinuity that exists between schooling (very often aligned with Western standards) and localized Indigenous communities, the project team intentionally included negative numeric values to indicate when the opposite of the principles was evident. Thus, the scale includes a low degree of opposite (−1), a medium degree of opposite (−2), and a high degree of opposite (−3) to capture when the unit of analysis (i.e., the curriculum unit, the teaching practice, etc.) is actually doing the opposite of what culturally responsive principles suggest is best practice. The zero (0) on the scale is for indicating when the principle is neither present nor opposed; instead, it is neutrally absent.

How did we pilot the tool with the Diné Institute for Navajo nation educators?

The initial draft of the tool was developed by authors A and B. The full team reviewed the draft, recommended revisions, discussed various possible revisions, and agreed on a set of revisions. We then piloted the tool on 19 curriculum units that were developed during the 2019 DINÉ program year. The teachers collectively represented elementary, middle (junior high), and high school grades, and a variety of subject areas including science, mathematics, social studies, English, art, etc. The 2019 units were written by teachers in one of three seminars for the year: (1) The Human Body (6 units), (2) Clean Air and Water (7 units), and (3) Contemporary Native North American Art (6 units). These topics were selected by the DINÉ Teacher Leadership Team based on input from participating teachers from the previous year; this is a process the DINÉ follows each year that results in new and diverse seminar themes each year. Though the subject area focus of their professional development was different, each teacher was expected to develop a curriculum unit that incorporated culturally responsive principles⁶ within the context of their chosen subject area. Given this expectation, we analyzed each curriculum unit using the tool, regardless of the subject area of the curriculum unit. We anticipated variation in the nature and degree of culturally responsive principles, depending on the

⁶It is beyond the scope of this paper to fully describe the various ways we support teachers to integrate culturally responsive principles, but this includes lectures and discussions on these principles, learning experiences with traditional knowledge holders/elders, and exposure to the standards developed by the Department of Diné Education. Importantly, these standards provide one example of the exercise of tribal sovereignty and, therefore, of Native Nation building in context.

focus and subject area of each curriculum unit. For example, when developing a curriculum unit around contemporary Native American art, cultural relevance is likely to look different than when developing a curriculum unit related to the human body. Thus, our analysis provides some valuable insights into the practical usability of our tool across different subject areas, as well as grade levels.

During this first year of the research, we used the tool to assess the written curriculum units only. At the time of this writing, twenty-five teachers were completing their curriculum units for the 2020 program year. Our plan is to use this tool with the 2020 curriculum units, and then to also use the tool during classroom observations with a subset of those teachers.⁷ Ideally for us, we will use the tool first on each teacher's curriculum unit, and then later we will use it during classroom observations when teachers are teaching these self-authored units.

The curriculum unit required for the DINÉ is not a typical lesson plan or the type of curriculum unit most familiar to K12 teachers. Instead, it is a combination of a research paper and lesson planning text. The DINÉ curriculum unit is between 6,000–10,000 words, and it must include the following sections:

- (1) Context and Rationale – This is the “who” and “why” for the unit. This includes a brief description of the grade level, content area, and any other pertinent characteristics of the class(es) for which the curriculum unit is developed. This also includes a brief description of how the curriculum unit fits in within the teacher's general teaching schedule and/or the time of year for which the curriculum unit is best suited (being mindful of both school-based scheduling and cultural protocols and related seasonal calendars).
- (2) Content Objectives – This is the “what” for the unit and provides a clear statement of the subject matter the unit covers, including essential background ideas and/or concepts.
- (3) Teaching Strategies – This is the “how” for the unit and offers a unified, coherent teaching plan for the content objectives.
- (4) Classroom Activities – This is also the “how” for the unit and includes three or more detailed examples of actual teaching methods or lesson plans.
- (5) Student Assessment Plan – This is a specific description of how the teacher will assess student learning of the curriculum unit's content. This should include the method(s) the teacher will use, along with any pertinent documents (i.e., test questions, activity instructions, etc.).
- (6) Alignment with Standards – This is a clear statement of the particular state standards and Diné standards the unit addresses. The curriculum unit must align to *both* state standards *and* Diné standards.
- (7) Resources – This is a list of the resources the teacher used to develop the unit, and each resource should include a short statement about how the resource can be used by teachers.

The development of this curriculum unit happens over the entire 8-month program, and it is scaffolded so that teachers work on smaller sections at a time, receive multiple rounds of feedback from both the university faculty member leading the seminar and their teacher peers, and eventually build up to the full document.⁸

What have we learned thus far?

Each curriculum unit was analyzed by two reviewers from our project team using the tool. The results of this pilot effort resulted in a few important observations regarding our tool. The first observation is that some of the terms in the tool would benefit from clear definitions or explanations. For example,

⁷The COVID-19 pandemic may prevent us from conducting classroom observations with the 2020 cohort of teachers, but that is yet to be determined.

⁸Completed curriculum units are published on the DINÉ website and can be accessed at <https://in.nau.edu/dine/dine-fellows-curriculum-units/>.

among our team, the term “community” was interpreted in different ways (i.e., community of students vs. broader community outside the school), so we modified the language to clarify this and other potentially ambiguous terms. We realize that the inter-rater reliability of the tool depends on the reviewers’ understanding or interpretation of the terms and statements in the tool, and recognition of the extent to which it is present within a given unit. We learned that consensus regarding interpretation of the tool items can be built by discussing the items prior to using the tool on the curriculum units. However, consensus regarding the extent of its presence in the unit comes after the units have been analyzed and the scores of different reviewers compared. A discussion around these scores helped us realize why there may have been discrepancies in our scores. It turned out to be a function of both differences in understandings of the culturally responsive statements and differences in recognizing or identifying the extent to which that element was present within the unit. As described above, the DINÉ curriculum units are composed of distinct sections, some of which are more heavily focused on subject area content, and others of which are more focused on teaching strategies and/or specific lesson ideas. Our team used the tool on the entire unit, but some members of the team initially prioritized one or another section over others. Thus, the second important observation our team made is that the reviewers’ scores on tool items varied based on which sections of the unit they gave more or less significance in terms of the culturally responsive elements. The significance of sections was not discussed prior to analyzing the units and emerged as an issue to be addressed only after comparing the scores of different reviewers, post analysis. This was especially relevant in our project because of the nature and format of the curriculum unit, and it may or may not be relevant for other research teams, depending on the unit of analysis to which they are applying the tool.

Our team also learned some things based on the patterns of ratings during our pilot analysis. Although this was an initial pilot using the tool on just 19 units, we averaged our scores across each tool item and then rank ordered the items from highest to lowest in order to better understand which culturally responsive items were more and less prominent across these units. The table below illustrates the rank ordered list; each item was scored on a scale that ranged from –3 through +3.

Average across all units	Tool Item
2.39	Traditional and/or cultural knowledge is included.
2.32	Local and/or regional community is reflected.
2.26	Encourages students to understand themselves within broader communities.
2.21	Indigenous people are represented as contemporary (not only historical).
2.21	Relationships within the classroom are strong.
2.18	Models critical thinking about historical narratives and contemporary status quo.
2.16	Norms, values, traditions, interests of community are leveraged.
2.11	Local context is leveraged for learning opportunities.
2.08	Students are encouraged to exercise self-determination and agency.
1.95	Clear reference and/or integration of local context.
1.92	Diverse narratives and perspectives are integrated.
1.92	Recognition that local context is specific and unique, as are other local contexts.
1.89	Encourages asking critically-oriented questions about historical narratives and contemporary status quo.
1.84	Encourages students to build and sustain relationships.
1.82	Indigenous people are represented as diverse (not a monolithic “they”).
1.66	Relationships within and among local community are understood and/or reflected.
1.39	Local language is integrated.
1.39	Academic language is built, but not at the expense of home language.
1.34	Local language is valued.
1.32	Recognition of Native Nations as governmental agencies.
1.24	The pedagogy/curriculum actively works to counter stereotypes.
1.11	Recognition of treaty rights and federal Indian law.
1.08	Communities are encouraged to exercise self-determination and agency.

Overall, our team noted that all of the items' averages were above zero. Considering that the teachers participated in an 8-month, relatively intensive professional development experience focused on cultural responsiveness, this is a positive finding. At the same time, the team has some concern that over half of the items averaged less than two. Items that ask about the local knowledge, community contexts, and building critical awareness about relationships to local and broader contexts seemed to score the highest. The next set of higher-averaging items relate to concepts such as diverse narratives, building and sustaining relationships, and representations of Indigenous people. And the lowest grouping among the items include the integration and application of language, as well as items relating to the socio-political constructs of self-determination and sovereignty. Future data collection will include methods to help us understand these patterns (i.e., interviews with teachers, observations of the professional development sessions, etc.), but we currently hypothesize that they can be explained by (1) the minimal content explicitly addressing socio-political constructs like sovereignty and federal Indian law, (2) the perceived minimal opportunities in standard curricular frameworks to incorporate these constructs, and/or (3) lower degrees of familiarity with and knowledge of these constructs on the part of teachers. These three possible explanations are, of course, related. And the implication for our program is that we need to consider how we can more fully and explicitly engage teachers in learning about the elements of culturally responsive schooling that are less prevalent.

What next steps are we considering?

Our team's immediate next step for use of the tool is to use it to analyze the 2020 DINÉ curriculum units, and then also with a subgroup of 2020 teachers when they teach their curriculum units in 2021. This will be our first use of the tool for classroom observations. In addition, we will continue to use the tool with future groups of teachers in the DINÉ, as well as teachers in new initiatives through the Institute for Native-serving Educators.⁹ Our goal is to continue to compile sources of evidence that either confirms or disputes the validity of using this tool according to the purposes we've described in this paper. We will draw on the validation framework offered in the *Standards for Educational and Psychological Testing* (American Educational Research Association, American Psychological Association & National Council on Measurement in Education, 1999; see also Sireci, 2009) to conduct, for example, factor analyses to identify if our tool items demonstrate an internal structure that aligns with our theoretical framework, analyses of interrater reliability, and interviews with tool users to better understand their interpretations and use of the tool.¹⁰

The facets of Indigenous Knowledge Systems connected to concepts of language, land, history, and ceremony (Holm et al., 2003) inform the worldviews of many Indigenous students who enter contemporary K-12 schools. For this reason, our team proposes using this tool to facilitate the assessment of lesson plans, teaching practices, and general school culture when the shared intent is to strengthen cultural responsiveness in Indigenous-serving schools. Although we have thus far only used it to assess written curricular units, it was designed with this broader purpose in mind. Researchers, administrators, and teachers using this tool should be familiar with the dimensions of culturally responsive schooling since this will contribute to shared understanding of what is needed, as well as deeper reflexivity throughout the process of using the tool.

As explained above, our team designed this tool because of our concern about the absence of published tools that recognize and leverage Indigenous students' specific cultural contexts and community-based knowledge systems to bridge learning. We are sharing this tool now with the hope that it can be of use to other researchers, school leaders, and teachers who are concerned that our current schooling contexts and practices possess limited opportunities to maximize and create equitable learning opportunities for Indigenous students. We believe this tool also lends itself to

⁹The Institute for Native-serving Educators is a broader initiative to grow the capacity of educators in Indian Country through professional development partnerships. This builds on the work of the DINÉ and expands the efforts to other Native Nations.

¹⁰The authors are grateful to an anonymous reviewer for these recommendations to continue to strengthen our work.

recognizing and dismantling issues of stereotyping, systemic racism, and implicit bias – all of which have perpetuated systemic inequities impacting Indigenous students both past and present. Furthermore, we believe this tool grows the capacity of researchers and practitioners in explicitly naming and integrating key concepts like sovereignty, self-determination, community, land, and relationships – all of which are fundamental to Indigenous Knowledge Systems and, thus, are necessary components of culturally responsive best practices in Indigenous-serving schools. We welcome continued dialogue about how to strengthen this tool, as well as what others learn through the future use of this tool.

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Appendix: Tool for Assessing Culturally Responsive Schooling in Indigenous-serving Schools

Please use this form to analyze and document evidence of culturally responsive principles in a particular unit of analysis. Be sure to note the date, who is completing the form, and the type of data that is being assessed. Provide qualitative descriptions to substantiate your numeric assessment when possible.

Date: _____ Location: _____ Researcher's Name: _____

Note what is being observed and/or analyzed (i.e., teaching, a particular text, a specific curriculum unit, etc.):

	-3 High degree of opposite	-2 Medium degree of opposite	-1 Low degree of opposite	0 Zero	1 Low	2 Medium	3 High	N/ A	Notes
Actively works to counter stereotypes of Indigenous people and/or communities									
Indigenous people are represented as contemporary (not only historical)									
Indigenous people are represented as diverse (not a monolithic "they")									
Traditional and/or cultural knowledge is included									
Recognition of Native Nations as governmental agencies									
Recognition of treaty rights and/or federal Indian law									
Students are encouraged to exercise self-determination and agency									
Communities are encouraged to exercise self-determination and agency									
Models critical thinking about historical narratives and contemporary status quo									
Encourages asking critically-oriented questions about historical narratives and contemporary status quo									
Diverse narratives and perspectives are integrated									
Local/regional Indigenous community is reflected									
Norms, values, traditions, interests of local/regional Indigenous community are leveraged for learning opportunities									
Encourages students to understand themselves within broader communities									
Relationships within and among local/regional Indigenous community are understood and/or reflected									
Encourages students to build and sustain relationships									
Relationships within the classroom are strong									
Clear reference and/or integration of local/regional Indigenous context									
Local/regional context is leveraged for learning opportunities									

(Continued)

