

## **Walking Between Two Worlds: Creating a Framework for Conducting Culturally-Responsive Research with University Indigenous Communities**

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Dr. Homero Murzi (he/él/his) is an Associate Professor in the Department of Engineering Education at Virginia Tech with honorary appointments at the University of Queensland (Australia) and the University of Los Andes (Venezuela). Homero is the leader of the Engineering Competencies, Learning, and Inclusive Practices for Success (ECLIPS) Lab, where he leads a team focused on doing research on contemporary, culturally relevant, and inclusive pedagogical practices, emotions in engineering, competency development, and understanding the experiences of traditionally marginalized engineering students (e.g., Latinx, international students, Indigenous students) from an asset-based perspective. Homero's goal is to develop engineering education practices that value the capital that traditionally marginalized students bring into the field and to train graduate students and faculty members with the tools to promote effective and inclusive learning environments and mentorship practices. Homero aspires to change discourses around broadening participation in engineering and promoting action to change. Homero has been recognized as a Diggs Teaching Scholar, a Graduate Academy for Teaching Excellence Fellow, a Global Perspectives Fellow, a Diversity Scholar, a Fulbright Scholar, a recipient of the NSF CAREER award, and was inducted into the Bouchet Honor Society. Homero serves as the American Society for Engineering Education (ASEE) Chair for the Commission on Diversity, Equity, and Inclusion (CDEI), the Program Chair for the ASEE Faculty Development Division, and the Vice Chair for the Research in Engineering Education Network (REEN). He holds degrees in Industrial Engineering (BS, MS) from the National Experimental University of Táchira, Master of Business Administration (MBA) from Temple University, and Engineering Education (PhD) from Virginia Tech.

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### **Donna Westfall-Rudd**

PRESENTATION  
BY QUALLA JO KETCHUM

# *WALKING BETWEEN TWO WORLDS*

*Creating a Framework for Conducting  
Research with University Indigenous  
Communities*

FEBRUARY 2023



## LAND ACKNOWLEDGEMENT



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I want to acknowledge and thank the Tutelo/Monacan people, who are the traditional custodians of the land on which I work and live, and recognize their continuing connection to the land, water, and air that I, my family, & Virginia Tech consumes.

I also want to remember that this acknowledgement is simply an important first step in the decolonizing & reconciliation process - for both as individuals and as a collective. We must continue to engage, learn, and reframe along the relationship building & healing journey.

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Before we begin, I want to first acknowledge the Tutelo and Monacan people, who are the traditional custodians of the land on which I work and live, and recognize their continuing connection to the land, water, and air that I, my family, & Virginia Tech consumes.


I also want to remember that this acknowledgement is simply an important first step in the decolonizing & reconciliation process - for both each of us as individuals and as a collective society and field. We must continue to engage, learn, and reframe along the relationship building & healing journey together.

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Indigenous thought progresses in a spiral or circle that adds a little with each repetition rather than building an Aristotelian argument step-by-step. New meaning is found in each turn of the spiral

”

ADAPTED FROM "INDIGENOUS STORYWORK" PG 1



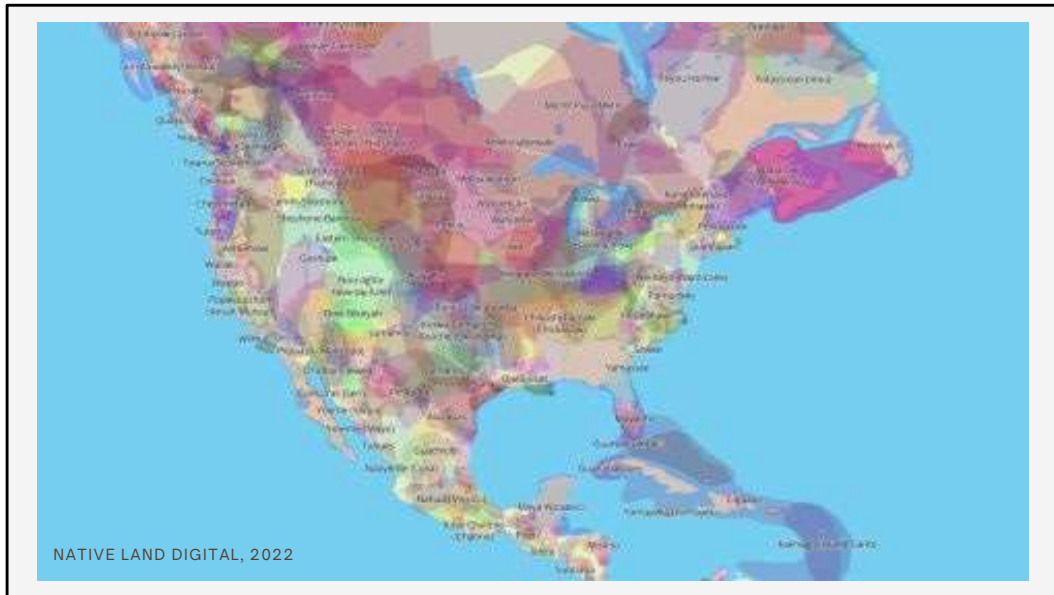
WALKING BETWEEN TWO WORLDS PAGE 3

I want to start with this quote from Archibald's book "Indigenous Storywork". You will notice as I continue this presentation that at times it may not fit the usual linear progress of academic talk. However, this is because of the nature of Indigenous thought moves in a spiral or circle rather than a linear, step-by-step process. Instead everything is connected and meaning is added with each turn of the spiral. You'll see this motif throughout my presentation as it is a traditional Cherokee symbolism showing these spirals as well as five of our cardinal directions.



The fifth cardinal direction in this symbol is within or the center. Here the center is signified with the depiction of our sacred fire that grounds everything we do as Cherokees. Indigeneity is at the center of this work and methodology. This story of Indigeneity has several different layers

- it's being Indigenous in the world and in the U.S. with the unique cultural, political, and racial aspects of our identity
- it's the history of our people and the U.S. education history with it's purpose being the assimilation and genocide of Indigenous children and culture.
- it's the erasure of our successes and contributions to the field of engineering
- And it's my personal story as an Indigenous engineer, student, & researcher



Indigeneity in the Americas is both a racial and political identity. We are not just racial demographic, although we are often regulated to an asterisk or percentage of “American Indian and Alaskan Natives”. There are over 573 federally-recognized sovereign nations within what is now the United States. This means over 573 different cultures, languages, histories, and sets of issues. We are citizens of two nations. These nations have tribal sovereignty and autonomy. They interact with the U.S. government on a nation-to-nation basis. This is one aspect that makes our experience and identity unique to other demographics.



## In U.S. Education

Teaching and learning have always been important values in Indigenous cultures. Historically, this value was most commonly enacted in informal ways such as our family systems but grew into formal systems as well. For example, the Cherokee Nation built the first institutions of higher education west of Mississippi for both Cherokee men and women as a way of reclaiming our ways of being after our forced removal to Indian Territory in the mid-1800s (Conley 2007). Early treaties with the U.S. government often emphasized that education “appropriate” for Indigenous students would be provided as part of the terms (Klug & Whitfield, 2003). However, education was then turned into a weapon used against Indigenous Nations by the U.S. government as a means to force their assimilation (Brayboy, 2005).

The Federal Indian Boarding School Initiative ran from 1819 to 1969 and consisted of 408 schools across 37 states including 21 schools in Alaska and 7 schools in Hawaii (Newland, 2022). These schools had a common goal of assimilating Indigenous children through education and they pursued that goal using many identity-alteration methods including (1) renaming children to English names; (2) cutting their hair (3) preventing the use of Indigenous language, religions, and cultural practices by students; and (4) forced participation in military drills (Newland, 2022). This “intentional targeting and removal” of Indigenous children was found by the Department of the Interior to be both “traumatic and violent” (Newland, 2022, p 93).

As investigation into these schools continue, the DOI approximates the number of children deaths to be in the thousands or tens of thousands. These children were not returned home and were instead buried in unmarked or unmaintained burial sites. For those who did make it home, the legacy of this trauma is still being discovered. Recent studies have connected boarding school attendance and physical health status. Now-adult boarding school attendees were found to be more than three times more likely to have cancer, more than twice as likely to have tuberculosis, 95% more likely to have high cholesterol, and 81% more likely to have diabetes than their non-attendeer counterparts (Running Bear et al., 2019).



To “educate the Indian is to prepare him for the abolishment of tribal relations, to take his land in severalty, and in the sweat of his brow and by the toil of his hands to carve out, as his white brother has done, a home for himself and family”

COMMISSIONER OF INDIAN AFFAIRS, 1902



NEWLAND, 2022

In addition to the physical and emotional trauma, the Federal Indian Boarding system also fostered the deficit orientation that continues to pervade most Indigenous education research. Boarding schools focused on manual labor, citing that “practical education is what [the Indian] most requires” and that to “educate the Indian is to prepare him for the abolishment of tribal relations, to take his land in severalty, and in the sweat of his brow and by the toil of his hands to carve out, as his white brother has done, a home for himself and family” (BIA, 1902). This framing of Indigenous children as intellectually and academically deficient has continued to endure today (Lomawaima & McCarty, 2006).





Although the National Academy of Engineering has recognized the need for the perspectives of Indigenous people in the engineering profession (NAE, 2006), Indigenous students in the United States continue to be one of the most underrepresented and minoritized groups in engineering. According to the 2021 ASEE Engineering by the Numbers fact sheet, 397 or 0.3% of engineering bachelor's degrees were awarded to Native Americans in 2020. That same year only 1,587 Native Americans were even enrolled in engineering undergraduate programs out of over 600,000 total students (ASEE, 2021). Outside of undergraduate programs, Native Americans make up 1.2% of the country's population, but only 0.3% of the engineering workforce and 0.1% of all engineering faculty (Begay-Campbell, 2015). Because of these small numbers, Indigenous students are often left out of educational research, broadening participation efforts, and inclusive pedagogical practice discussions and denoted only as an asterisk and/or noted as a statistically insignificant population in research studies (Shotton et al., 2013).

Because of these numbers, the limited research exploring Indigenous people in engineering mostly focuses on the recruitment and retention of Indigenous engineering students but mostly focuses on individual-level experiences instead of systemic issues.



The five directions of my personal journey & story of Indigeneity as an Indigenous engineer, student, & researcher

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“Let me tell you about my work”



di-ga-wi-sda-ne-di  
nu-sdv  
di-ka-no-di  
di-gv-no-ne-li-quo

## PURPOSE & GOALS

Create a methodology that bridges this gap by connecting the individual student story to the systemic structures that impact their experience

- Amplify & center Indigenous ways of knowing & doing, particularly Indigenous storytelling
- Explore how colonialism & structures of engineering programs & institutions impact the stories of Indigenous engineering students

The purpose of this work was to create a methodology to explore how colonialism and the structures of higher education institutions and engineering programs impact the lived experiences of Indigenous engineering students. I wanted to do this in a way that both centers Indigenous ways of knowing & doing and works to connect the individual student stories to the systemic structures that impact those individual stories.

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Research itself is a sacred ceremony within an Indigenous research paradigm, as it is all about building relationships and bridging this sacred space

WILSON, 2008 PG 87

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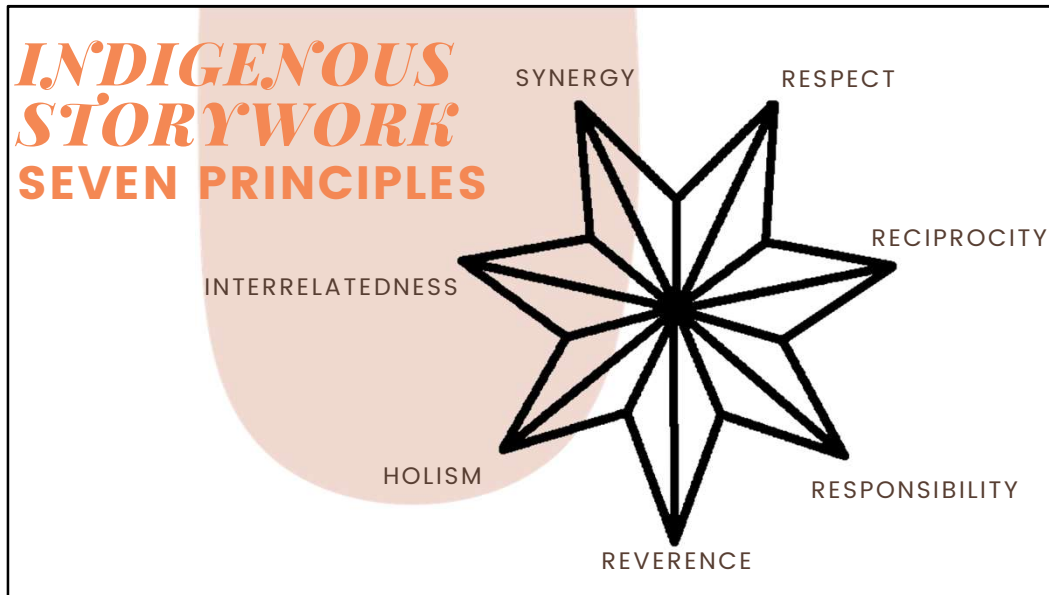


Epistemologically, I hold an Indigenous Research Paradigm or worldview in this research. This paradigm sees research as a sacred practice in which we engage to build relationships and bridge ideas (Wilson, 2008). The key principle of this epistemology is that knowledge is communal and we, as researchers, are accountable to all our relations when generating knowledge (Wilson, 2001). We are creating knowledge together through the sacred ceremony of research - myself, my research team, and my participants in this approach. As an Indigenous scholar, this epistemology is built into my positionality and is the framework from which I naturally work. It is also the nature of the community I worked with and participants - Indigenous students and the university community.



This paradigm emerged through four main stages as Indigenous scholars engaged in academic work: assimilationist, emergence, decolonization, and liberation (Fig. 2.4). The first stage is categorized by the assimilationist period of history (approximately 1940-1970). During this period, a few Indigenous scholars were able to enter mainstream U.S. higher education institutions. These scholars found themselves either losing their Indigenous cultural connections or simply keeping their academic and Indigenous lives very separate (Wilson, 2008), and following only Western models in their research. Assimilation was followed by “emergence” where Indigenous scholars started to bring in their Indigenous worldviews but struggled to have those worldviews accepted. The paradigm thus started to coalesce but remained heavily impacted by the dominant social paradigm to avoid any marginalization or discrimination (Smith, 2019). The third stage of development focused on the work of decolonization. This was a period of “disruption of western methodologies” (Smith, 2019, p 69), best demonstrated by the work of Maori scholar Linda Tuhiwai Smith (1999). This wave of Indigenous scholarly freedom allowed for the official recognition of the Indigenous Research Paradigm and provided a way to situate Indigenous worldviews within research while recognizing the effects of colonization on the system itself (Smith, 2019). The final stage brought forth a liberation of Indigenous scholars to articulate and honor their own worldviews, research, and data collection methods. It has provided space for Indigenous researchers to conduct research within their communities in a respectful, meaningful, and culturally appropriate way.

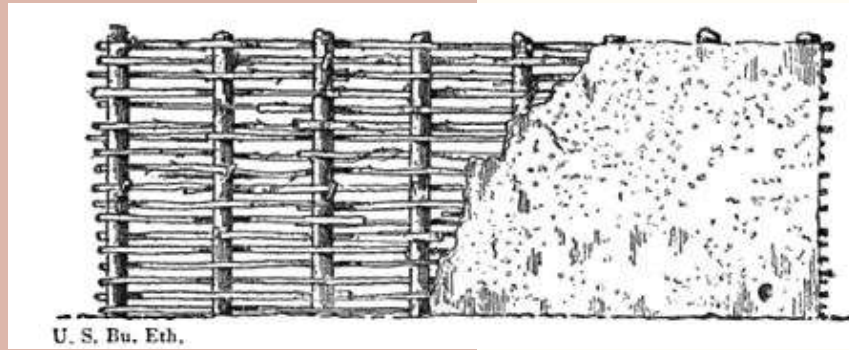
As such, this epistemology influence how I’ve designed every part of this study and methodology. The current stage of the Indigenous Research Paradigm is one where Indigenous ways of knowing and doing are incorporated and honored within the western structures of higher education. This is modeled by how I designed the study in a way that honors my Indigenous way of communicating, storytelling, and language. It played a role in the development of the research questions investigating the relationships between colonialism, university/program structures, and the lived experiences of students and communities. These call upon the relational aspects of knowledge and experiences in the Indigenous Research Paradigm. Secondly, the building of reciprocal relationships is the primary focus of my approach to recruiting and interacting with the community and students. I worked hard to establish relationships at my study site by having multiple conversations with members of the university Indigenous community before requesting participation. Throughout the research process, I talked to participants and the university Indigenous community about ways this research can give back to the community as much as I’m taking throughout this process, such as specific deliverables the community can utilize to advocate for resources and themselves within the university. Third, I employed a theoretical framework that also allows Indigenous scholars and participants to honor and articulate our ways of knowing and perspectives within the context of academic spaces and programs that have historically excluded these experiences.



Indigenous Storywork is another methodology or theory developed by Archibald (2008) as a way to honor stories and storytelling as a valuable and legitimate source of data in education research. It is guided by seven principles - respect, reciprocity, responsibility, reverence, holism, interrelatedness, and synergy. The first four are principles noted in most Indigenous research practices (Wilson, 2008), while the last three focus on relationality at different levels. Holism focuses on the different facets of our whole person in Indigenous communities (Fig 2.5) (Archibald, 2008). Interrelatedness speaks to how different things connect and relate to each other and synergy refers to working together with the community and participants (Archibald, 2008).



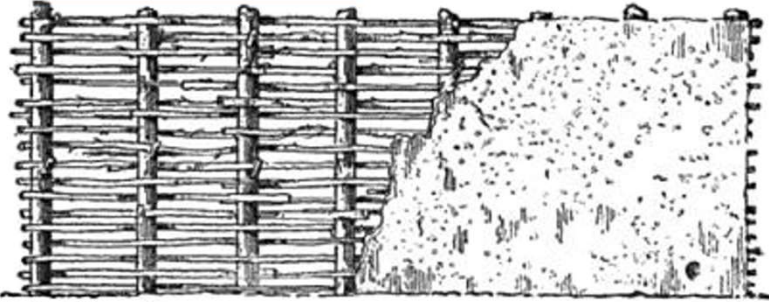
## *WATTLE & DAUB STRUCTURES*



The methodology was developed using the traditional engineering design of wattle and daub structures as our inspiration. These structures were commonly used for homes in Mississippian cultures in North America including ours as Cherokees. This technique builds a wattle frame by weaving thin branches between upright stakes and then applying daub to the frame. This design is the same concept behind reinforced concrete designs used today.

I will now move us through the process of building a wattle and daub wall while describing each step of our process and methods in the study.

Research Questions  
(Vertical Poles)

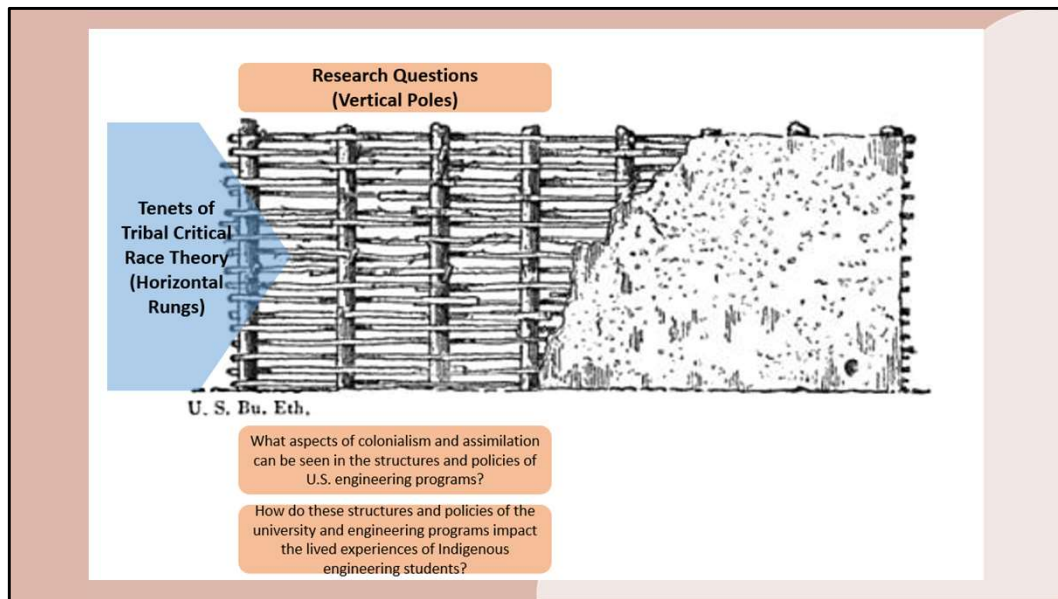


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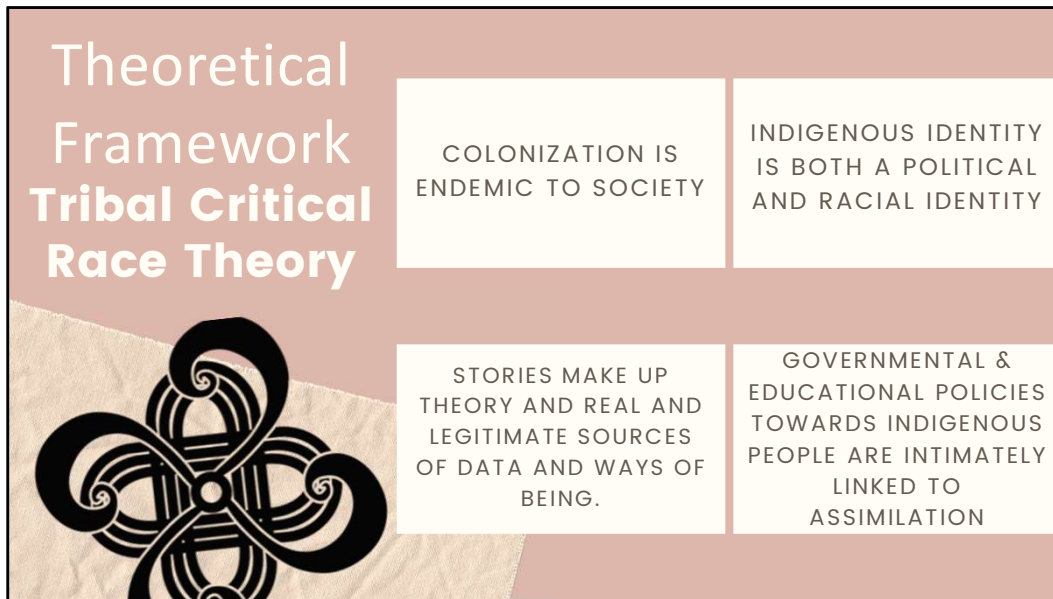
What aspects of colonialism and assimilation can be seen in the structures and policies of U.S. engineering programs?

How do these structures and policies of the university and engineering programs impact the lived experiences of Indigenous engineering students?

We start by positioning our vertical poles for the wall. These are the specific research questions we're looking to explore with our work. In this study, they were 1) What aspects of colonialism and assimilation can be seen in the structures and policies of U.S. engineering programs? And 2) How do these structures and policies of the university and engineering programs impact the lived experiences of Indigenous engineering students?



We then weave the thin horizontal poles between the upright stakes or our research questions in order to build the wattle frame. These branches are our theoretical framework or Tribal Critical Race Theory.

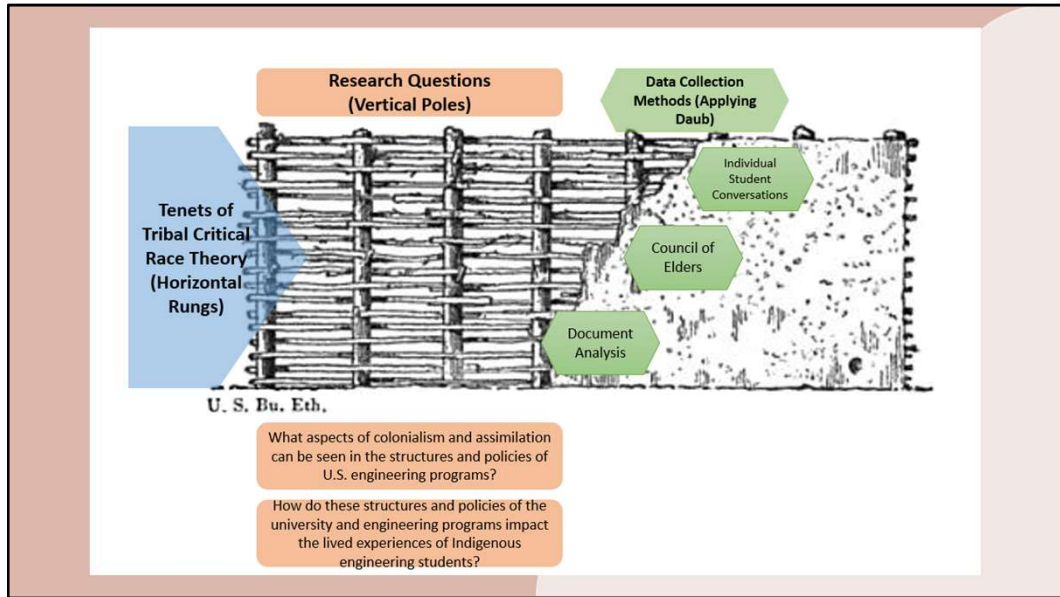


Tribal Critical Race Theory serves as the theoretical framework for this study. There are nine tenets of TribalCrit. However, right now I want to highlight these four that were particularly salient to the design of this work.

The central tenet to TribalCrit is that colonization is endemic to society in the United States. The colonialism that displaced and sought to assimilate Indigenous peoples at the time of European migration to North America is an on-going process that impacts all of today. Webster defines colonialism as the “domination of a people or area by a foreign state or nation or the practice of extending and maintaining a nation's political and economic control over another people or area.” This ideology is seen in the fact that European American thought, knowledge, and power structures dominate the present-day society in the United States (Brayboy, 2005) and in the dismissal, both historically and today, of Indigenous knowledge, ways of being, and cultures.

Another key tenet for this work is the understanding of Indigenous identity as both a political and racial identity. As discussed earlier, Indigenous nations are sovereign nations and Indigenous students are citizens of those nations as well as the United States. Most non-Indigenous U.S. residents are unaware of this dual citizenship, and this ignorance is directly tied to colonialism and the erasure of Indigenous sovereignty and cultures (Brayboy, 2005).

Since it was developed specifically to look at education, TribalCrit explicitly acknowledges that educational policies toward Indigenous peoples have been rooted in the goal of assimilation (Brayboy, 2005). The prior discussion on “appropriate” education for Indigenous students and the objectives of the BIA in the Federal Indian Boarding School system exemplifies this goal. TribalCrit rejects the call for the assimilation of Indigenous students in educational institutions and instead posits that Indigenous students can learn, through education, how to combine their Indigenous worldviews and culture with the European ideals of the majority society as a way to succeed, survive, and thrive as Indigenous people. Lastly, this methodology and work centers stories and Indigenous storytelling as its main source of data as advocated by TribalCrit.



Applying the daub to the wattle represents the data collection methods in the study as providing structure for the wall. This framework utilizes three primary forms of data: 1) collecting institutional and program documents through a document analysis process. 2) conducting a group discussion with the university Council of Elders. And 3) having individual conversations with Indigenous engineering & STEM students.

## *SITE SELECTION*



- LARGE, PUBLIC, NON-NATIVE INSTITUTION WITH STRONG ENGINEERING PROGRAMS IN THE EASTERN UNITED STATES
- Representative Indigenous population in engineering relative to undergraduate population
- Existing relationships that can be leveraged for recruiting and building reciprocal relationships

For the purpose of developing this methodology, we chose to focus on conducting the study first at a single site. In response to the lack of research regarding Indigenous populations in engineering east of the Mississippi River, this study was situated at a large, public, non-Native institution with strong engineering programs.

North Carolina has the largest Indigenous population of any state east of the Mississippi River and the eighth-largest state population in the country (North Carolina Commission of Indian Affairs, 2021). North Carolina State's College of Engineering has an Indigenous population that is representative relative to the total undergraduate population, at 0.34% and 0.39% respectively (North Carolina State College of Engineering, 2021), something that is not common at comparable institutions across the U.S. North Carolina State is the state's land grant university and as such has a responsibility to Indigenous populations whose seizure of land helped fund the university. North Carolina State received scrip to almost 270,000 acres and raised approximately \$135,000 from their sale (Lee & Ahtone, 2020).

North Carolina State was also chosen as the starting site for this study due to existing relationships between university Indigenous communities that assisted in the reciprocal relationship-building process that was so important in this work.

# *DOCUMENT ANALYSIS*



## **PROVIDE CONTEXT WITHIN THE COMMUNITY & STUDENTS LIVE AND OPERATE**

- Historical documentation of relationship between Indigenous communities & the university
- University documentation of structures & policies that impact students
- Examples - course catalogs, student life websites, program brochures, housing & building policies

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University and program documents were selected including, but not limited to, course catalogs, housing policy documents, student life websites, and land acknowledgements, as well as recruitment and retention documents. These were selected as a way to understand and define the structures that were playing a role in the students' lives. I also worked with the university library and working with their special collections team to gain access to historical documents regarding the university and Indigenous people. These documents were all analyzed using the tenets of TribalCrit as a way to define and understand the structures and histories that tell the story of the institution. The primary purpose of this analysis was to provide the historical context within which the participants live and operate (Bowen, 2009) and tell the story of the institution. A secondary purpose was to assist in developing questions for the conversations as done by Goldstein & Reiboldt (2004). These questions served as a starting place for framing conversations with the Council of Elders and students. The principle of respect within Indigenous Storywork incorporates the values of trust and being culturally worthy as the researcher (Archibald, 2008). By doing my research before engaging with the community, my hope is that I built trust in my intentions as both a researcher and scholar.



## Council of Elders Discussion



- ELDERS ARE AN IMPORTANT ROLE IN INDIGENOUS COMMUNITIES
- HYBRID TALKING CIRCLE & FOCUS GROUP METHODOLOGY
- BUILD RELATIONSHIP WITH COMMUNITY
- GAIN BLESSING FOR RESEARCH
- DEVELOP PLAN FOR RECIPROCITY

A common and important role in Indigenous communities is that of the Elders. These are people in the community “who have acquired wisdom through life experiences, education (a process of gaining skills, knowledge, and understanding), and reflection (Archibald, 2008 p 37). Age is not a factor when it comes to being an Elder. The main criteria are that an individual is respected by others in the community and has important cultural knowledge that is shared (Archibald, 2008). When conducting culturally responsive research, particularly with Indigenous communities, a very important beginning step is receiving permission from the community members (Masta, 2018). As such, I framed my starting conversations around the purpose of receiving permission or blessing for my research as well as engaging and building a relationship with the community and its Elders, and learning from them. This purpose will be communicated in my recruitment and relationship-building with the Elders prior to the discussion as well. The designed protocol for the Council discussion is a combination of the western data collection technique of a focus group session with the Indigenous method of talking circles. It will also be purposefully based on the principles of Indigenous Storywork, particularly respect, reverence, and reciprocity. This conversation also allowed me to develop a plan with the community on how this research can assist them in advocating for students, resources, or whatever else they might need.

## Student Conversations

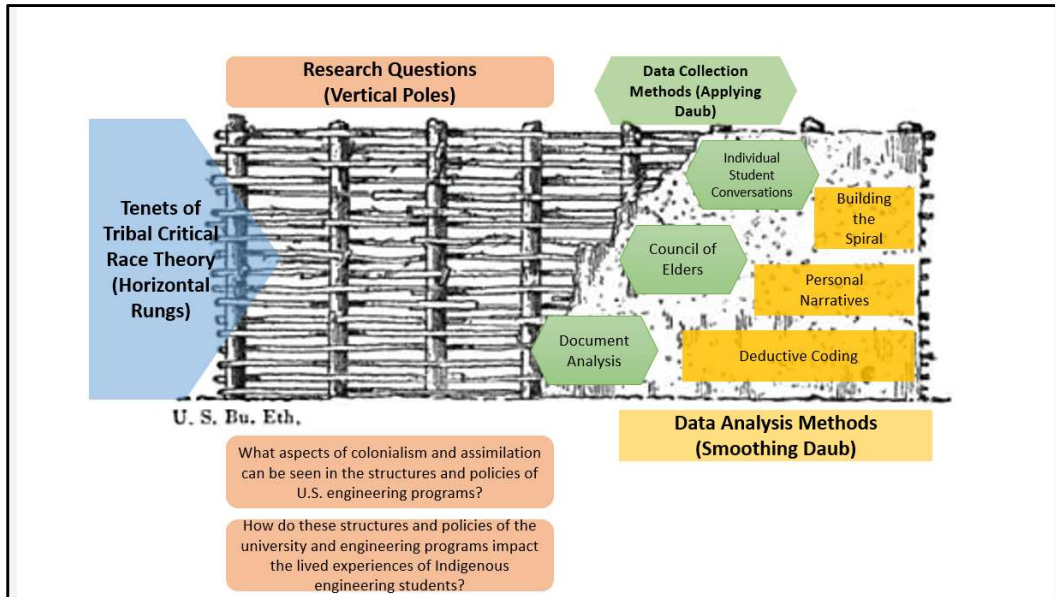


- STUDENT CHOOSES WHETHER TO BE KNOWN & TO WHAT LEVEL
- CONVERSATIONS VS INTERVIEWS
- USE OF ZOOM TO ALLOW STUDENT CONTROL OF SURROUNDINGS DURING DIFFICULT CONVERSATIONS

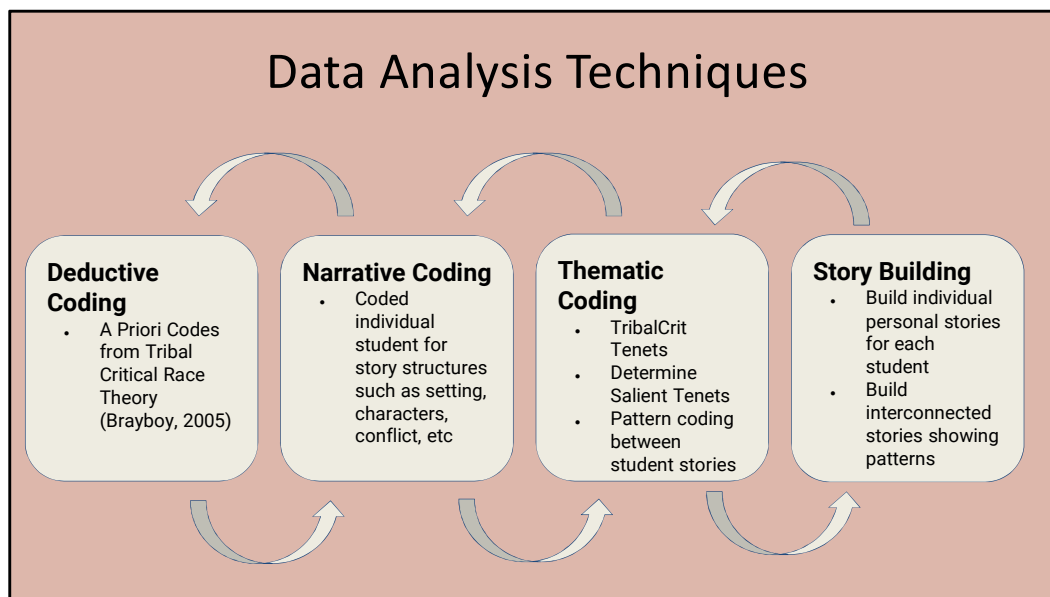
The previous data collection all informed my conversations with students in this study. A basic protocol eliciting stories from their home communities, why they chose to attend NC State and their major, as well as their experiences as Indigenous students and their understanding of the structures and policies of their programs and university. These were approximately one-hour conversations, held via Zoom.

Students were given the opportunity to choose whether or not to be known in this work as well as whether they want to have their tribal community/affiliation disclosed in the research. Twance (2019) followed this practice in their research and described how it “encourages my accountability as a researcher to those who participated in this study and reinforces the idea of relationally that is central to Indigenous research” (Kovach, 2009; Wilson, 2008; Twance, 2019, pg 1323).

Utilizing technology such as Zoom to collect data has been seen in similar studies to actually ease conversations around potentially difficult topics for Indigenous students, due to students being in more control of their surroundings during the conversation (Faircloth, 2022)



Now that the daub has been added to the frame, analyzing the collected data is represented by smoothing the applied daub on the wall and making meaning from the collected data within the context of the frame we've built.



Each conversation was analyzed using deductive coding techniques. They were each coded twice – once with narrative coding and then again with thematic coding.

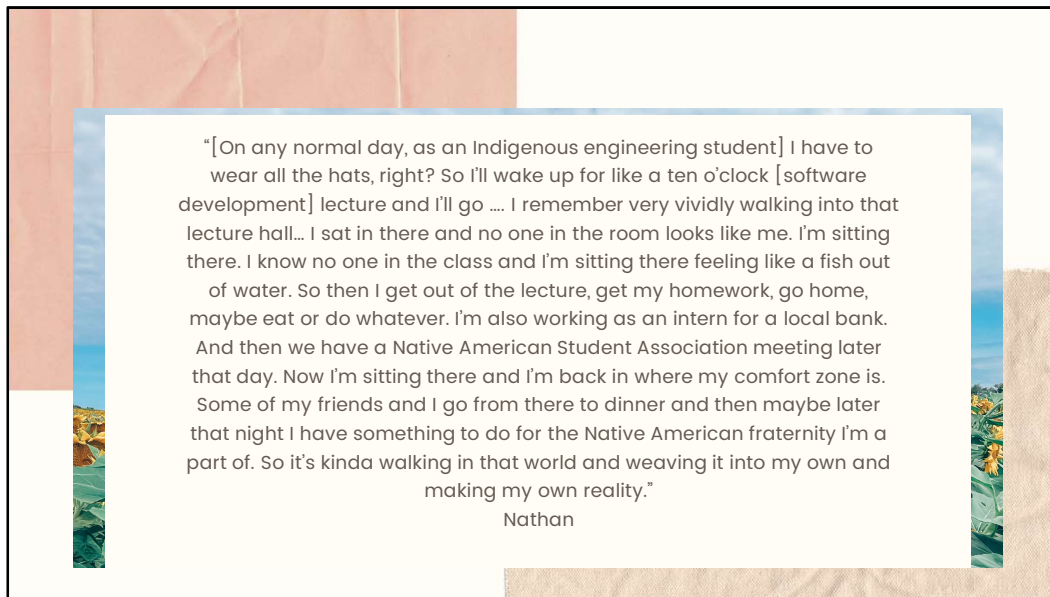
The Narrative codes included structures of storytelling such as aspects of plot such as conflict and resolutions, setting, and characters. Characters in the stories included the students, their home communities, elders & mentors on campus, peers, and the structures themselves.

The thematic coding utilized the nine tenets of TribalCrit to determine which showed up in the stories of Indigenous engineering students and determined what patterns are arising across student stories.

Once the coding was finished for each individual student conversation, the process of story-building began. This included creating a personal narrative for each of the individual students that shared their unique story of their experience as an Indigenous student.

Then when all of the individual conversations had been coded and personal narratives drafted, I worked to build the spiral and honor the interconnectedness of the experiences. This was done by sharing the stories highlighting the patterns in how the TribalCrit tenets showed up in their navigation of the structures of engineering and the university.

Aligning with Indigenous thought and being, all of these steps were very iterative throughout the data analysis process.



An example of a story told by one of my Indigenous student participants documented how we navigated a typical day in his life stating that “[On any normal day, as an Indigenous engineering student] I have to wear all the hats, right? So I’ll wake up for like a ten o’clock [software development] lecture and I’ll go .... I remember very vividly walking into that lecture hall... I sat in there and no one in the room looks like me. I’m sitting there. I know no one in the class and I’m sitting there feeling like a fish out of water. So then I get out of the lecture, get my homework, go home, maybe eat or do whatever. I’m also working as an intern for a local bank. And then we have a Native American Student Association meeting later that day. Now I’m sitting there and I’m back in where my comfort zone is. Some of my friends and I go from there to dinner and then maybe later that night I have something to do for the Native American fraternity I’m a part of. So it’s kinda walking in that world and weaving it into my own and making my own reality.”

It is this walking between worlds – the traditions and culture of their Indigenous identity and the systemic White structures of academia and engineering – that exemplifies described by the Indigenous students.

## Ensuring Quality



- NARRATIVES REVIEWED BY PARTICIPANTS
- WALKING ANALYSIS WITH SOMEONE ELSE
- JOURNAL THROUGHOUT PROCESS
- DEBRIEF WITH UNIVERSITY INDIGENOUS COMMUNITY
- PEER REVIEWING CODEBOOK, NARRATIVES, & RESULTS

Several different techniques will be employed in order to ensure the quality of research in this study. As part of the Indigenous Storywork methodology, each narrative was reviewed by the individual students. By incorporating their feedback, it is my goal that they become active participants in the research and that the knowledge shared is co-created by us together. This helps to enhance validity, trustworthiness, and that the story being shared is their story and not mine.

Trustworthiness is another important category in assessing qualitative research quality. Trustworthiness can be defined as how accurately we have told the stories of our participants, including descriptions of the settings, events, and perspectives (Leydens et al., 2004). As mentioned earlier, one way I will be working to ensure my trustworthiness is by sharing the narratives with the participants. We have also scheduled a final debrief with the university Indigenous community sharing my final results. This also highlights my responsibility to their community and builds reciprocity. Another strategy for enhancing trustworthiness is peer debriefing and reviewing. Every step of the process was reviewed by multiple peer reviewers including my codebook, the narratives, and the final stories.

## Sharing the Results



- TRANSLINGUAL PRACTICES
- THE STORY OF PLACE
- HONORING INDIVIDUAL STORIES & VOICES
- BUILDING THE SPIRAL THRU INTERRELATEDNESS

Another important aspect of this framework is how we have shared and presented the results. As with the whole process, I wanted to center Indigenous thought and storytelling in the way we presented the results.

As such, I started by incorporating translingual practices in all parts of sharing the results including the writing and structure of my dissertation. One example of this is starting both written and oral communication of this study in my Cherokee language. This is a practice in our communities as a way to honor my ancestors, community, and center Indigeneity in my presentation.

Another different way that I centered Indigenous ways was by sharing the story of place alongside the stories of the individual student participants. In this case, this looked like presenting the story of North Carolina State University before the individual students' as a way to both provide context and honor the setting and importance of place itself.

Honoring the voices and stories of the individual students acknowledges the many differences in the Indigenous experience in the United States. As mentioned at the beginning of this presentation, there are over 500 different Nations who have a different histories and experiences and even within those, each citizen's personal experience is different. Also, in regards to this specific study, Lumbee English is a unique dialect that was prevalent in the conversations so it was important to include and honor their unique linguistic voices.



## *REFLECTIONS FROM MY OWN WALK*








- RECOGNIZING MY OWN JOURNEY
- FINDING MY VOICE & ADVOCATES
- PRIORITIZING THE THINGS THAT GROUND ME I.E. MEDICINES, PRACTICES, COMMUNITY


Another important piece of ensuring quality is reflexivity which I really define as the active acknowledgment of my impact on the research. While discussing and studying how my student participants navigated these structures and walked between the two worlds of academia at Non-Native engineering institutions and their own Indigenous ways of knowing & being, I cannot ignore the fact that I was making that same journey while conducting this study.

This became a key component of not just my reflexivity but also of honoring my own voice and journey throughout the process. I journaled about how reading and writing about the horrors of the residential school made me physically ill. I honored those feelings by ensuring to take time to rest and reflect out in nature during that process. I incorporated my language, traditional stories, and cultural elements throughout the work. For example, the traditional symbols incorporated throughout this presentation, the use of the number seven, and the use of traditional knowledge and elders' stories as citations and creditable sources.

It is through these practices that I truly found my voice as an Indigenous engineer and scholar. I also want to honor the advocates who supported and encouraged me on this journey as my own Council of Elders. Although most were not Indigenous, their advocacy made space for this work to be welcomed and completed in a system in which that had not been encouraged for myself and others before me.

*WADO  
(THANK YOU!)*

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“IF I CAN LIFT YOU TODAY, YOU WILL LOOK BACK  
 AND GRAB THE HANDS OF A THOUSAND MORE.”  
Howard Rainer, "The Ascent"

RESEARCHER   MATRIARCH   SPEAKER   **WADO**   EDUCATOR   BOUTIQUE STYLIST

*DECOLONIZING SPACES, EMPOWERING PEOPLE*

WALKING BETWEEN TWO WORLDS      FEB 2023

Making space for other voices and ways of knowing and being is vital to decolonizing engineering practices. It is my goal that by sharing one such method of centering Indigenous voices and paradigms, we can further our understanding of engineering diversity particularly in regards to Indigenous populations with our unique history and dimensions. By acknowledging these differences, hopefully we can better address both the needs of Indigenous communities and students through STEM but also, decolonize and improve our curriculum for all.