CuRRENT

CULTURALLY RELEVANT RIVER EDUCATION FOR NATURE-BASED TEACHING

Using Integrated, Place-based Watershed Curriculum to Increase Teachers' Culturally Relevant STEM Self-Efficacy

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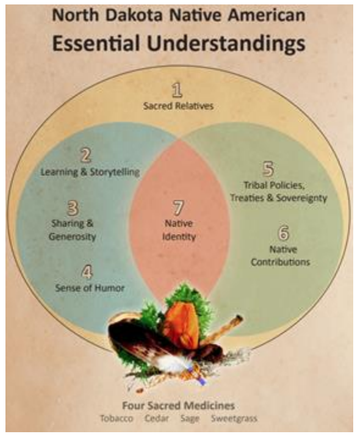
Project Description

CuRRENT provides professional learning to elementary teachers to Indigenize STEM instruction using place-based, interdisciplinary, local watershed-focused curriculum.
The content aligns the **North Dakota Native American Essential Understandings** (NDNAEU) and the **Next Generation Science Standards** (NGSS) to locally-situated, grade-level lessons and units.

2 summer workshops focused on place-based, integrated STEM & IWI's ***River of Dreams.***
7 online learning modules
4 online synchronous debrief sessions
Lesson implementation in own classrooms
1 choice activity to extend/sustain year 2 learning



Summer Workshop Sample Agenda:

Day 1:
8:30 Meet and gather - location- Eagle Point Park, East Grand Forks, MN
8:30-9:00 Reconnect, welcome and opening, land acknowledgement
9:00-10:00 Wondering walk and place-based lesson part 1 on the river
10:00-10:30 Return to UND - Education Building, Room 22 (same as last year), break
10:30-11:30 Place-based lesson part 2 - small group stations
11:30-12:15 Lesson debrief and reflection, Learning Principles
12:15-1:00 Lunch provided (Wilkerson Dining Commons)
1:00-3:00 Planning your own place-based instruction -brainstorming, concept mapping, developing the idea
3:00-3:30 Closing

3:30-5:30 Option to paddle on the Red River
6:00 Dinner provided - details TBD

Day 2:
8:30 Meet and gather, location - UND Education Building, Room 22
8:30-9:00 Reconnect, welcome and opening, land acknowledgement
9:00-11:00 Integrating art into STEM - workshop with the UND Art Museum
11:00-11:15 Break
11:15-12:15 Continuing to plan for your own place-based instruction - identifying outcomes and opportunities for assessment
12:15-1:00 Lunch provided (Wilkerson Dining Commons)
1:00-2:30 Finalizing lesson plans, mapping out a lesson flow, sharing with each other, and reflecting with the Learning Principles
2:30-3:30 Focus group sharing and closing

Project Purpose

To explore this PD's impact on teachers' self-efficacy and instruction; specifically, their ability to **design and implement place-based lessons** and **Indigenize STEM curriculum by aligning standards and content to local contexts.**

Methods

Mixed methods, convergent parallel design – gathering of both qualitative and quantitative data simultaneously to triangulate findings.

Qualitative

Data sources:
- Focus groups after each summer PD
- Individual interviews after lesson implementation
- Teacher lesson plans
- Written reflections and dream journals

Analysis: Iterative, thematic analysis

Quantitative

Data sources:
- T-STEM – Teacher Efficacy and Attitudes Toward STEM (Friday Institute, 2012)
- CCIS – Culturally Congruent Instruction Survey (Sievert, 2014)
- Nature Relatedness Scale (Nisbet et al., 2009)

Analysis: Descriptive statistics

Preliminary Findings

Connections	➢ "Connecting to nature, community, and self; being more mindful and aware." ➢ "People learn more when they feel a connection." ➢ "We have a reciprocal relationship with nature."
Interactive Experiences	➢ "Discovering, being creative, and using the resources around us." ➢ "Finding out 'the why,' then it becomes more internalized." ➢ "Learning from the environment and sharing knowledge with people."
Cultural Awareness	➢ "The diversity of it enhances the education system." ➢ "Understanding and accepting the things that are meaningful to someone else." ➢ "Awareness of personal identity and the identities of others."
Appreciative Perspective	➢ "I have a deeper care/respect for nature and noticing the value in things." ➢ "Being mindful of people/things around you and how you interact with them." ➢ "Get involved with others' cultures/identities and make them feel proud."
Meaning	➢ "Everyone experiences things differently and creates their own meaning." ➢ "I see things differently; there can be more than one meaning, no right/wrong." ➢ "There are stories behind art; art allows you to communicate how you feel." ➢ "Students will realize the purpose and value of something in the environment."
Enjoyment	➢ "Exploring makes us learn without even knowing it." ➢ "It's fun as the teacher and it will be fun and engaging for the kids." ➢ "Memorable experiences are connected to emotions and laughter/humor."
Self-efficacy	➢ "Before I wasn't confident in how to teach like this. I've learned a lot." ➢ "I've stepped out of my comfort zone and feel open to trying these things." ➢ "I used to be uncertain about answering students' cultural questions." ➢ "It's easier for me to manipulate lessons now."
Challenges	➢ "Misinformation about Native Americans hasn't been good." ➢ "We hardly utilized our STEM kits; they were mainly stored away." ➢ "Our school isn't diverse, so it's difficult for them to understand." ➢ "There's lack of time, support, and resources."

Transformations

- Increased awareness of **identity** (personal and others').
- Recognition of **purpose and place.**
- Increased understanding of **interconnectedness and biocultural relationships**.
- Increased confidence with **art-based learning within science.**
- Increased self-efficacy with creating and implementing **Indigenized, place-based STEM lessons.**

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