#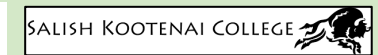 An investigation of Native STEM Faculty's Experiences on Professional Advancement: Identifying Supports, Opportunities, and Challenges

Stephan Chase[1], Ruth Plenty Sweetgrass-She Kills[1,2], Jennifer Harrington[1], Blakely Brown[1], Yukiko Maeda[3], Anne Grant[1], Laurie Walker[1], Ke Wu[1]

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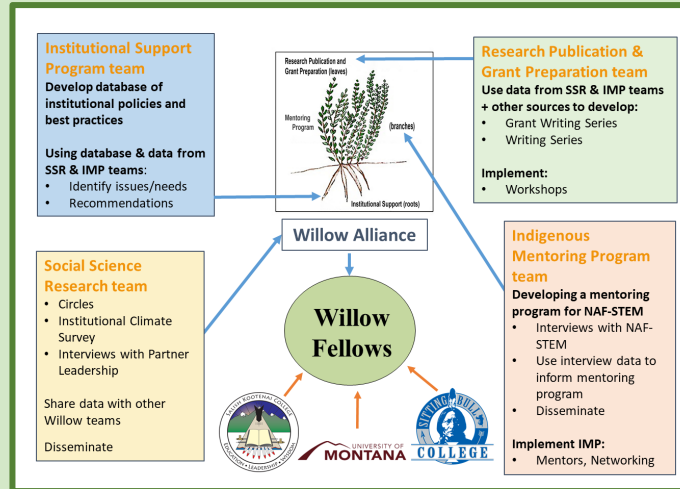
Willow Alliance Project Overall Goal

To develop, implement, study, and disseminate a model enhancing the professional success of Science, Technology, Engineering and Math (STEM) instructional and research faculty who are enrolled in, and/or descendants of, and/or affiliated with, the nation's Native American Tribes.

Social Science Research Aims

1. Explore the personal, relational, and collective experiences of Native American STEM faculty (NAF-STEM) that enhance or inhibit their professional development and career advancement.
2. Examine the underlying institutional issues that impact promotion and advancement of Native American STEM faculty.
3. Explore approaches that NAF-STEM use to increase their promotion and advancement in academia.
4. Examine the environmental differences in how support is provided to NAF-STEM at Tribal Colleges and non-Tribal Colleges and universities.
5. Assess the effect of STEM departmental institutional climates on NAF-and non-NAF-STEM professional development, promotion, and advancement experiences.

Guiding Principles for Willow AGEP Collaboration and Research

6 R's Practice Framework (Baskin, 2005; Chilisa, 2012; Kirkness & Barnhardt, 1991; Restoule, 2006; Kovach, 2009; Stanton, Hall, & Ricciardelli, 2017)

Communities of Practice (Wenger, 2011)
Cross-Cultural Digital Storywork (Stanton et. Al, 2017)

The Willow Alliance: Program Components

Institutional Support Program team
Develop database of institutional policies and best practices

Using database & data from SSR & IMP teams:
• Identify issues/needs
• Recommendations

Research Publication & Grant Preparation team
Use data from SSR & IMP teams + other sources to develop:
• Grant Writing Series
• Writing Series

Implement:
• Workshops

Social Science Research team
• Circles
• Institutional Climate Survey
• Interviews with Partner Leadership

Share data with other Willow teams

Disseminate

Indigenous Mentoring Program team
Developing a mentoring program for NAF-STEM
• Interviews with NAF-STEM
• Use interview data to inform mentoring program
• Disseminate

Implement IMP:
• Mentors, Networking

Circle Methodology
Interview Guide Themes and Selected Interview Guide Questions

1. **Connecting**
   What is important for us to know about who you are, your ancestors, and where you come from as an Indigenous person?
   What is important for us to know about your academic journey and your academic advisors, mentors, and/or intellectual ancestors?
2. **Reframing**
   Experience and goals?
   Definitions of success
3. **Survival**
   Frequency (if any) and pressure to change
4. **Sharing**
   Incorporating into teaching
5. **Negotiating**
   Support from institution?
   Institutional policies that foster respect
   What additional policies should exist?
6. **Representation**
   Is your service equivalent to other faculty? (Institutional and departmental)
   Do service obligations impact you personally?
7. **Remembering**
   Difference in teaching, research and service roles? (NAF and non-NAF)
   If yes, how?
8. **Envisioning**
   What do you propose as best practices for supporting new Native American faculty or research associates in STEM?
9. **Networking**
   Trusting peer relationships and the benefits.
   Trusting mentoring relationships the benefits.
10. **Claiming or Reclaiming**
    What professional assertions related to your Indigenous identity, values, and/or culture.
11. **Creating**
    What is something you developed or created in your career that you are most proud of or was the most rewarding?
12. **Writing**
    What types of tools do you use to share Indigenous knowledge (such as personal interaction, writing, PowerPoints, visual media, software, or press coverage)?
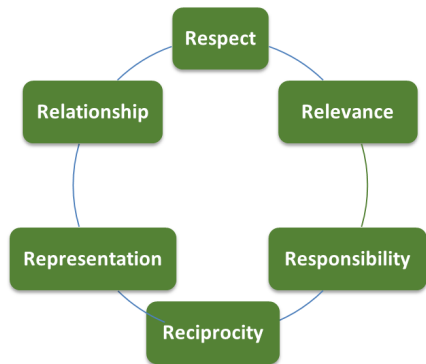
Circle Methodology Current Status

• 17 NAF-STEM participated in 10 Circles.
• Authorship protocol developed and implemented for NAF-STEM to participate in a new level of engagement and representation. Change in relationship: from interviewee to collaborator.
• Qualitative research workshop developed for interviewees with varied experience to assist with data analysis, interpretation and dissemination.
• Thematic analysis of the transcripts to:
   o Identify barriers and supports for NAF-STEM
   o Develop recommendations for improved institutional environments
   o Improve NAF-STEM representation across campuses

Qualitative Research Workshop

Week 1: Revisiting the Question – What is Science?

Week 2: There is No Qualitative Method in Science. But there is Grounded Theory, Phenomenology, Hermeneutics or Content Analysis

Week 3: Contrasting the Hermeneutic Approach, Content Analysis Approach and Ethnographic Approach Qualitative Analysis Methods

Week 4: Contrasting Hermeneutic Approach contrasted with a Researcher Coding Approach

Week 5: Practice analysis of interviews from prior studies

Week 6: Group works on analysis of a Talking Circle for the Willow Project

Week 7: Group works on a second Talking Circle for the Willow Project

Institutional Climate Study

Study focus
• Organizational culture at Native American faculty (NAF) current academic institution
• NAF will provide valuable knowledge and information by completing the survey
• Topics focus on how research and teaching faculty perceive current organizational culture and how administrative leaders might support them.

National Institutional Climate Study Methods
Identification of survey constructs: literature, circle data, IMP interviews
Recruitment of participants: NAF-STEM from the U.S.

If you are interested in participating, contact Ruth Hall at rhall@nhsc.edu.

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