

Sabbatical Report

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Summarized Statement of Purpose

The purpose of my proposed sabbatical was to do critical research on a grant funded through the NSF Hispanic-Serving Institutions Program (NSF-DUE 1953472, 5-year \$2.34 million). Our work operates under the name “Transformative Inclusion in Postsecondary STEM: Towards Justice” (TIPS: Towards Justice), and the goal of this program is to develop, pilot, and test a two-year pathway for academic departments to embody a truly Hispanic-*serv*ing vision of a radically inclusive STEM culture, leading to demonstrably equitable outcomes (including graduation and persistence rates).

As senior personnel on the grant as the Sonoma State research lead, I have been working with Dr. Luis Leyva, co-PI at Vanderbilt University, and together we direct a team comprising graduate students at Vanderbilt and undergraduate students at Vanderbilt and Sonoma State. We are adding to the existing body of research on inclusiveness in undergraduate mathematics education which has not previously focused on Latin* identity and belonging in undergraduate math and stats classes. Our research is ground-breaking work in the field.

Description of Work Completed

In January, 2024, we completed data analysis on Latin* students’ racialized experiences during small group work in gateway mathematics courses at SSU. Over the next month, we synthesized our findings and presented them at the annual conference of the Special Interest Group of the Mathematical Association of America on Research in Undergraduate Mathematics Education (SIGMAA on RUME) in Omaha, NE at the end of February. This conference provides a forum for an international community of researchers in collegiate math education to share findings in critical areas of the teaching and learning of post-secondary mathematics. In recent years, there has been increased interest in research relating to equity issues in the field.

I presented with Dr. Leyva and a doctoral student at Rutgers University demonstrating ways in which working in small groups can positively position Latin* students as members of the classroom and larger mathematical communities and also ways in which the same work can further marginalize these students and reinforce harmful stereotypes. We discussed steps faculty can take to increase the benefits and mitigate the drawbacks.

Additionally, members of our research team analyzed data about how faculty perceptions of their own White racial identities affect their teaching practices and steps universities need to take to ensure that White faculty are able to serve students of color. I am a co-author on a paper titled “Interrogating Race-Consciousness and Instructional Servingness among White HSI Mathematics Faculty” that was submitted to the *Review of Higher Education* and is currently under review.

As stated in the cover letter to *RHE*:

This manuscript offers a qualitative analysis of white HSI mathematics faculty race-consciousness, and its relationship to equitable instructional support for Latin* students. Our findings demonstrate connections between faculty race-consciousness and instructional practices, such as faculty’s interpretations and implementation of culturally relevant pedagogy. We illustrate these connections through the use of composite characters. Each character represents a different state of race-consciousness and articulates the analytic themes in instructional sensemaking and practices that were observed across participants. Drawing from these findings, we provide recommendations for HSI faculty development, and prompt further research conceptualizing culturally relevant pedagogy in undergraduate mathematics, to advance equity for Latin* STEM students at HSIs.

Benefits to the University

Hispanic-Serving Institution status is granted according to specific demographic enrollment data. The TIPS: Towards Justice program is working to transform SSU from an HSI to a truly Hispanic-*Serving* Institution by focusing on our Latin*¹ students, supporting their persistence in STEM fields and progress toward graduation.

Because of the work being done through the TIPS grant, Sonoma State is positioned as a national leader in departmental and institutional transformation. Our work is unique in the field of undergraduate math education, and the dissemination of our research highlights SSU’s commitment to diversity, equity, and inclusion.

¹ The asterisk in Latin* creates space for fluidity in gender identities among Latin American people. Latin* responds to (mis)use of Latinx, a term reserved for Latin* gender-nonconforming peoples (Salinas & Lozano, 2019).