

**Washington State University**

**College of Education**

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**Will defend the Thesis on**

**Date: November 15, 2023**

**Time: 10:00 A.M.**

**Pullman Campus – Cleveland Hall 160A**

*Faculty, students and the general public are encouraged to attend*

**STRATEGIES FOR LEVERAGING STUDENTS' FUNDS OF  
KNOWLEDGE IN MATHEMATICS INSTRUCTION: A  
SYSTEMATIC REVIEW OF K-12 PRACTICES**

**Chair: Amy Roth McDuffie**

Studies on equity and inclusion in the domain of mathematics teaching and learning are vast, but often do not connect students' home and community mathematics knowledge bases to classroom practices to support formal mathematics, especially for marginalized student groups. This research aims to synthesize the literature and present equitable teaching and learning strategies that connect students' funds of knowledge (FoK) in academic research published over the last 20 years in K-12 education settings. Through the systematic search procedures, I reviewed, analyzed, and synthesized 26 studies that considered teaching practices that connect to students' multiple mathematical knowledge bases. Findings from the review show that earlier research focused on the use of non-standard strategies to teach lessons, and task modification seemed to be the trend in recent research. Practices identified from the systematic review included home visits, digital technology, lesson material and task, teacher noticing, and contextualized problems. Studies operationalized students' FoK as resource-based knowledge similarly with different terminologies. Implications from these findings suggest the need for more researchers from different nations to engage in research on mathematics instruction that draws on students' mathematical thinking for in-classroom mathematics to further support teachers' understanding of how to incorporate home- and community-based knowledge in their practice.

*Keywords:* Funds of knowledge (Fok), Mathematics, Teaching Practices, Equity and Diversity