Theory Meets Access:
Working to Increase College Pathways for the Underserved
Rudy B. McCormick III | Director
University of Arizona
Land Acknowledgement

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O’odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.
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MISSION
Increase the number of low-income, underrepresented, and first-generation college-bound students who aspire toward and are eligible to enroll in a university degree program.
Theory of Change

Inspire Students
Engage Parents
Partner with K-12
Foster Career Aspirations
Develop College-Bound Peer Groups

eao.arizona.edu/overview
EAO Programs

Algebra Academy
Arizona MESA
College Academy for Parents
College Knowledge for Counselors
College Knowledge for Parents
Native American Science & Engineering Program
Start Now! College Planning Website and Resources
Strategic Statewide Outreach

eao.arizona.edu/overview
Funds of Knowledge
Dr. Norma Gonzales, Dr. Luis Moll & Dr. Cathy Amanti

An alternative to deficit models that may instead focus on lack of knowledge or experience that a student or family may have, rather than fully evaluating the assets that the family may offer the student.

Math instructors visited students homes and took note of mathematical practices that were naturally occurring in the home with the intent of scaffolding upon those mathematical experiences to anchor students’ learning.
College knowledge workshops, interactions with faculty & UA campus visits are key components of this 12-week parent outreach program that helps elementary school families develop a college plan for their children.
Funds of Knowledge

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Math instructors visited students homes and took note of mathematical practices that were naturally occurring in the home with the intent of scaffolding upon those mathematical experiences to anchor students’ learning.
The College Academy for Parents is a comprehensive 12-week program that works with elementary school parents as they develop a college plan for their children. Program components include:

- Workshops that engage parents with college knowledge and UA faculty members
- College camp provides childcare coupled with messages encouraging college aspirations
- Campus visits focused on Math & Science and Language, Arts, & Culture
- A university hosted graduation ceremony for parent participants

15 cohorts. 839 families. 1,236 parents. 2,523 students.
Funds of Knowledge

Develop Your Own University

Who are the “firsts” in your family?

The Chemistry of Diapers - Dr. Vicente Talanquer

Con Respeto - Dr. Guadalupe Valdes

Bridging the Distances Between Culturally Diverse Families and Schools
American Indian Well-Being Model in Higher Education
Dr. Shawn Secatero

Interview of indigenous elders and graduate students to understand the pillars that contributed to their success in higher education. Initially 8 pillars were identified:

Spiritual | Cultural | Professional | Social
Mental | Emotional | Physical | Environmental
Native American students from across Arizona are invited to a comprehensive 1-week summer program that exposes students to sustainability and a variety of STEM majors & careers. Students are then engaged in a university-level research project and receive guidance in college admissions and the scholarship search process.
American Indian Well-Being Model in Higher Education

Interview of indigenous elders and graduate students to understand the pillars that contributed to their success in higher education. Initially 8 pillars were identified:

Spiritual | Cultural | Professional | Social
Mental | Emotional | Physical | Environmental
NASEP is a year-long program designed to provide Native American high school students with a vision of a career in a Science, Technology, Engineering, or Mathematics (STEM) field; connects students with academic professionals and industry representatives from STEM related interests; and catalyze the student's motivation to complete chemistry, physics, and pre-calculus before graduating high school. Through one-on-one college preparation coaching with university affiliates, building a computer from its essential components, interactive workshops, and family events, students learn how to effectively prepare for the college admissions process, receive important information about academic success, and are exposed to different STEM career paths.
American Indian Well-Being Model in Higher Education

Students Share Funds of Knowledge

NASEP Schedule is built to include these critical elements to create a program that promotes well-being:

- Spiritual
- Cultural
- Professional
- Social
- Mental
- Emotional
- Physical
- Environmental

Indigenous Knowledge - Dr. Gregory Cajete

Elder Interviews regarding Water
Can our work to further bring equity into STEM be informed by theory?
Mathematics, Engineering, Science Achievement (MESA) encourages college readiness and exploration of Science Technology Engineering and Mathematics (STEM) academic pathways and career fields for low-income, minority or first-generation college-bound students in grades 6-12. Annually the program MESA currently serves approximately 1,000 students a year in 60 middle and high schools throughout Arizona.

Arizona MESA utilizes the following four pillars to accomplish our mission.

- Independent Inquiry
- Exposure to STEM majors and careers
- College Readiness
- Peer Support

Enrolled for 3+ years, 3x more likely to pursue STEM & 4x more likely to earn a Bachelor’s degree.
The Algebra Academy is a five-week, 120 hour summer program for rising 9th graders that allows students to construct their understanding of algebraic concepts via small-group, hands-on projects where students experience the application of math to the "real world." Students begin by learning about the fundamental concept of variables as they begin to explore linear relationships and advance toward more complex algebraic equations, such as quadratic equations that help students predict trajectories of water bottle rockets. In addition to the algebraic learning, students focus on their futures as they gain skills in how to manage the transition into high school, learn about college preparation, and explore career opportunities that match their interests.

999 students have participated in program’s 12 years.
Can our work to further bring equity into STEM be informed by theory?

Constructivism & Project Based Learning

Complex Instruction - Dr. Jennifer Wolfe
Norms, Roles, Instructor as Facilitator

Justice and Service Oriented STEM... and Legos
What other theories are you utilizing to increase access and success of Hispanic students within your institution’s programs and services?
What other theories are you utilizing to increase access and success of Hispanic students within your institution’s programs and services?

Partnerships

Center for the Study of Higher Education
Secondary Mathematics Education

Critical Role for Undergraduate and Graduate Students