

Building STEM capacity in indigenous nations: Research, Practice and Future Plans

Juliana Taken Alive, AnnMaria De Mars, Christy Hanson & Maria Burns Ortiz

In extensive interviews with 40 experienced educators of indigenous students, the four major areas of need identified were for highly qualified professional staff, more appropriate curriculum, support for educating the whole student and support for integration of technology. Based on this research, we developed the USDA-funded Growing Math project which provides classroom-ready resources integrating indigenous culture, math and agricultural science. All content is created and vetted by experts from the community. Collaboration with teachers occurs weekly to review material and revisit priorities. With software integrating Ojibwe, Dakota, Lakota and Mayan culture completed, the newest educational game in development teaches mathematics within the context of Diné culture and history.

Juliana Taken Alive is Hunkpapa/Mnicoujou Lakota. She is an enrolled member and citizen of the Standing Rock Nation. Her experiences include teaching, administration, instructional coaching, education policy in public and tribal schools, and tribal college director. Juliana is the former Director of the South Dakota Office of Indian Education.

AnnMaria De Mars is President of 7 Generation Games and adjunct professor in Applied Engineering at National University. Over 30 years, she has taught math from middle school to doctoral students. Dr. De Mars taught at the tribal college level for eight years including on-site, interactive video and web-based courses.

Christy Hanson is the community manager for Growing Math. Her ultimate goal is to see students excited to enjoy learning math alongside indigenous history and culture. Christy was raised on the Navajo Nation, where she taught 8th grade language arts for two years.

Maria Burns Ortiz is co-founder and CEO of 7 Generation Games, an educational video games studio making immersive games and interactive apps that teach math and history. Previously, Maria was an educator, journalist, international best-selling author and adjunct professor teaching courses in Digital Media.