

Engineering and Technology Challenges in the Native American Community
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I was in high school in Chicago the mid 1970's – right in the middle of the American Indian movement and other political awakenings. My tribe, the Menominee Indian Tribe of Wisconsin, was fighting for Restoration, the Black Panthers were pushing for civil rights, and I caught that spark. I was the first and only of seven siblings to graduate from high school. Indian elders were telling us kids to get an education not just because that would help Indian, Black and Hispanic communities gain power, but because education held the key to busting out of the limits of my family's drinking and poverty stricken lifestyle. I was told and I believed I had a greater purpose – service to my American Indian community – and never to forget that I belong to a great people.

After working for eight years in the corporate sector, I returned to school and graduated from DePaul University in Chicago with a B.S. in Economics. For the past 18 years, I have worked in the non-profit sector dealing with education, housing, discrimination, entrepreneurship and community development. As a Native American woman, I have volunteered on many grass roots community initiatives to improve the lives of urban Indian families as well as bridging with reservation Indian communities and collaborating with the Black, Hispanic and Asian communities.

Currently my work centers on the mission of American Indian Science & Engineering Society (AISES), developing the next generation of Indian leaders with skills in science, engineering and technology. These skills are critical to the sovereignty of Indian tribes, for example, water and air quality, land management, technology transfer, and engineering and improvement of roads and other infrastructure for economic development.

Unique and complex historical issues still impact the education of American Indians and Alaska Natives today, particularly in the need for more Native American representation in fields of science, engineering and technology education and the related need for Native Americans to enter into the higher-technology workforce.

Numerous barriers still exist with respect to Native communities' participation in postsecondary education including: 1) a legacy of distrust in the education system due to boarding schools and other historic practices seen as having a negative and assimilative effect; 2) a lack of preparedness for university or college; 3) many first generation college students; 4) feelings of social discrimination, isolation and loneliness at postsecondary institutions; 5) unemployment and poverty making the cost of attending difficult; 6) a lack of respect for cultural differences; and 7) often, family demands on time and financial resources competing with school demands. Further, the approximately 3.5 million who identify themselves as Native Americans or in combination with one or more races represent more than 560 tribes, each with its own unique culture.

Since its founding in 1977, AISES has successfully supported more than 17,000 Native American students who have pursued degrees in the science, math, engineering and technology disciplines. AISES uses a "full circle of support" model which links youth, adults, community and industry. In many ways, AISES is an extended family, a national network of affiliated schools, college chapters at universities and professional members connecting communities across a wide geographic area. That model includes:

- Reaching students early and creating pathways to access circles of support within their own communities, including educational programming that creates continuity and networks between students, community and the STEM professions.
- Reclaiming traditional American Indian scientific pursuits – such as traditional plant medicines, astronomy, and sustainable land use – as examples for addressing current socio-scientific issues, and incorporating, supporting and promoting the profound contributions AI/AN have made to STEM fields throughout our history as well as currently.
- Encouraging our members to pursue research opportunities, bringing their unique perspective, knowledge and understanding of the world to generate new ideas and innovation.

I'm constantly amazed to learn about the many historical contributions to science and math that have come from traditional American Indian knowledge and that there are many American Indian men and women working in the science, engineering and technology field. These professionals are already impacting industry, government and their Tribal Nations.

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