# A Story of Resilience: A Case Study of the Supports and Barriers for Native American Engineering Students (UMN: Undergrad. Res. Symp.)

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## Abstract

Little empirical information exists that address the persistence of Native Americans in engineering. There are few studies that address the supports and barriers that all students face, but there is still much to learn about specific communities. In order to address this gap, we conducted a case study to understand in greater depth the lived experience of a Native American engineering student. From this participant, the importance of community, early education, and parental support could be discerned.

## Method

A 45-minute semi-structured qualitative interview of the participant was conducted by an educational anthropologist with 20 years of experience doing research in Native American communities. Two undergraduate students took notes while the interview was conducted, and recorded their own observations of the interviewee in order to provide additional data and context. A quantitative survey consisting of 7 instruments was used to add more structured data to the case study. The data from both the survey and interview were compared and synthesized in order to construct the final case study.

## Background on the Case

On the first weekend of March 2018, roughly 30-40 Native American science and engineering students attended an American Indian Science and Engineering Society (AISES) regional conference on a 4-year university campus. This campus, on which the case study was conducted, was once home to a Native American boarding school, which served as a place of education, as well as a place that forced many Native American students to leave behind their own culture.

The case study was comprised of the lived experience of one 23 year old male Native American engineering student. At the time of the interview, he was a junior in a computer science engineering program at a 4-year state university.

He grew up on a reservation, attending schools both on and off the reservation. He had not been familiarized with the importance of STEM and its potential impact on his future. He also found that reservation education was "far behind" that of the off-reservation school he attended. Because of this he utilized campus tutoring centers and study groups. Despite his lack of preparedness and small Native American community on campus he continued to achieve good grades and pursue his degree in computer science engineering.



Successful Graduation

Perceived Importance of a Cohort of Native American Engineering Students

Perceived Importance of Parental Involvement and Encouragement

Perceived Importance of Academic Preparation

Taking leadership in campus community efforts

Parents Don't Understand Engineering

Only Native American Engineering Student

Connecting with friends

Not Prepared for College

Utilizing Campus Resources

Behind in Math and Science