

Chelsea Benally: Inspiring Current and Future Generations Alike

Dr. Chelsea Benally has a propensity for perseverance. Benally has displayed great strength and determination throughout her life, even before venturing into the field of engineering as an Indigenous woman. As a child, Benally, originally from the Navajo region of Arizona, was inspired by the work and accomplishments of Dr. Fred Begay, who was also from the Navajo region. Begay was a nuclear physicist and the first Indigenous person to earn a PhD in physics, making a tremendous imprint on young Benally, an aspiring scientist. However, it was, in fact, learning about environmental degradation in grade seven that really hooked Benally on the fields of science, technology, engineering, and math (STEM), particularly science. Throughout high school, her aptitude and interest in science only grew as Benally continued her studies. Her commitment and passion for the STEM fields shone through as she extended her learning far beyond school, partaking in several extracurricular math and science camps. After graduating from high school, Benally studied engineering at the University of Arizona. She successfully graduated with both her Bachelor's and Master's Degree in Chemical Engineering. Subsequently, Benally completed an internship with Sandia, the engineering arm of the U.S. Nuclear Weapons Enterprise. However, this career path left Benally feeling unfulfilled and dissatisfied, thus prompting a turn in her career. While enrolled in a course on nuclear weapons technology in the early 2010s, Benally switched gears and applied to an Environmental Engineering Doctorate Program in Alberta, Canada into which she was successfully admitted. On November 21, 2018, after pursuing her childhood aspirations of studying environmental degradation, Benally became the first Indigenous woman to graduate with a PhD from the University of Alberta in the field of engineering. Benally centered her PhD on the remediation of the oil sands and reclaiming the process water from the oil sands. During her doctoral studies, she worked alongside Mohamed Gamal El-Din, an environmental engineering researcher, on the treatment of tailings water, where they fabricated and tested the membranes and absorption materials used as water filters. Currently, Benally remains connected with the University of Alberta, holding the position of Causal Research Assistant in the University's Civil and Environmental Engineering Department within the Faculty of Engineering. She is now completing a postdoctoral fellowship studying mud under tailings pond water, and intends to continue working in water and oil sands remediation.

What is perhaps most admirable about Dr. Benally, however, despite her numerous academic achievements, is her character and fortitude. Benally denies being deterred from the field of engineering solely for being a minority. CBC News reports that she never “[thought] about being the only one [or felt] out of place” (“First Indigenous woman to earn engineering PhD at U of A”), which speaks to her determination about her work. Nevertheless, she admits that it can feel burdensome being one of very few Indigenous engineers and “wishes there were many before [her] and [hopes] there [will] be many, many [that come] after [her]” (“First Indigenous woman to graduate with PhD engineering in at U of A”).

Alongside her studies, she devotes her time to promoting the fields of STEM and continuing education amongst Indigenous communities, and mentoring undergraduate Indigenous students. Overall, despite the boundaries she has faced, which would discourage and prevent many from entering the field of engineering, Benally pushed past these obstacles, using them as a major source of motivation throughout her career. She knew she could do anything she put her mind to. Through her impactful actions within her community, assisting and promoting the breaking of boundaries, defiance of expectations, and deviance from social norms to pursue passions and dreams through post-secondary education, along with her resilience and bravery navigating a glass elevator in her field, Benally is an inspiration to all current and future generations, particularly girls and Indigenous people.

Works Cited

“First Indigenous woman to earn engineering PhD at U of A aims talents at tailing ponds.”

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