

Milena Cuellar

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Personal Story

As you enter Dr. Cuellar's statistics lab, you might see her walking around the room, checking in with students working in pairs. She describes, "when they are working, I usually to go one-by-one and ask 'do you have any questions?'. That way, at least they know I care about what they're doing...I look at their eyes and they look at my eyes—it sounds silly but sometimes they've never had anybody doing that to them." Today in class, the topic is probabilities and two-way tables. The pace and noise level in the classroom pick up when the students start conducting probability trials by playing the game Pass the Pig. The pairs work to create probability estimates of the plastic pig landing on its back for 25 trials, and make a plot for their team and then the whole class.

Dr. Cuellar indicates teaching is a "family tradition" that came naturally to her, as both her parents were teachers in Colombia, and she served as a tutor and teaching assistant throughout her undergraduate and master's programs. She finds teaching helps her "learn more and deeply" about a topic, and "that part of learning more always keeps me going." However, Dr. Cuellar initially struggled with students not believing "that I was able to teach them because I don't look like a teacher"—a Latina with "an accent." Dr. Cuellar used to act more serious to prove herself in the classroom. She learned, over time, that telling students early on about her background and qualifications, such as studying physics in Colombia and earning her PhD in statistics in the UK, establishes trust with her students without having to act authoritarian.

Working at LaGuardia Community College since 2012, Dr. Cuellar mainly teaches co-requisite, traditional, and hybrid statistics courses, and a first-year seminar. She became involved in developmental education reform because she wanted to break the mindset that some students have about not "being a math person" or "not liking math." She hopes to change this perception of math and help students feel comfortable with numbers by applying concepts to their everyday lives. Dr. Cuellar grounds their learning in the four-step statistical process: question, collect data, analyze, and infer. She believes understanding this statistical process will empower students by giving them "independence of thought" and the ability to make "...informed decisions, not people tell [them] what to do... I say to them every day... 'if you just remember this in twenty years I'll be happy.'"

Dr. Cuellar says she continues to evolve as she "learn[s] more about new things and get[s] to know the students." What is constant in her teaching, however, is her effort to create a student-centered classroom by engaging students in hands-on learning during class. Regarding her approach, Dr. Cuellar says she was influenced the most by her involvement with the Carnegie Foundation's Math Pathways program, which positioned her to be more of a facilitator than lecturer. "[T]he way the worksheets are done are actually to foster...collective struggle—so you need to learn how to reply back to the students without answering the questions, and then help them through." The process of supporting students to uncover the answer on their own promotes deeper learning, rather than memorizing answers given by the instructor. Dr. Cuellar indicates that not giving them the right answer is difficult, at first, but the students end up realizing that working collaboratively promotes deeper understanding of mathematics.

Policy-Related Overview

Statway is a mathematics program created by the Carnegie Foundation to address the challenges faced by students who need developmental math support to earn college-level math credit. This model integrates basic skills of remediation with the traditional course so students can simultaneously complete developmental math requirements and earn college credit. An example of the success of this model can be seen in California community colleges, where the Statway co-requisite tripled the math completion rate in half the time compared to the traditional models.

There was a great need for the Statway co-requisite at LaGuardia, as Dr. Cuellar says “the last five years average is about 71 percent of students who come, they need developmental math.” She started the Statway pilot at LaGuardia Community College in 2013, and saw the pass rate increase from 40 percent in the developmental course to 80 percent in the new co-requisite course. Due to the success of the pilot, LaGuardia scaled up in 2015 by adding more co-requisite sections. Dr. Cuellar attributes the success of the scaling up phase to communication and collaboration with the wider college community. For example, everyone from faculty, registrar staff, advisors, and human resources had to be on board to help schedule, advertise, and make the course run.

The key to maintaining the success of the co-requisite model at LaGuardia, Dr. Cuellar indicates, is professional development. She says, “the administration was very supportive, but it is very expensive so you need to make sure that the money put in in the beginning can be sustained for later years, particularly for the professional development.” When they lowered the intensity of professional development last year, they noticed a decline in students’ pass rates. This is where Strong Start to Finish funds have been integral—to “boost that professional development” in order to maintain high pass rates.

Dr. Cuellar views this reform as part of her larger mission to improve equitable educational outcomes for her students. Early on, the department assessed the rigor of the course and found students in the co-requisite course performed just as well as students in the traditional course on the same final exam. This finding was important to her because as she shared, “I want to make sure I’m not disserving these students because they are starting in a lower level.” Her department is excited to continue to scale up, developing a third co-requisite pathway course. She says, we are “trying to reproduce the same process because it worked.”

Citation:

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