Lueny Morell: Innovator in engineering education [1]

Submitted by Charlene Nicole Rivera Bonet [2] on 23 March 2021 - 9:05pm

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Lueny Morell

In memory of Lueny Morell (1952-2020)

There are people whose work transcends generations, continents, and expectations. One of them is Lueny Morell, a Puerto Rican chemical engineer who transformed teaching methods in engineering, not only in Puerto Rico but around the world. The legacy of Lueny, who passed away in September of 2020, continues to impact the lives of many today.

Lueny wore many hats, even the ones she was told did not belong to a woman. When she decided to study engineering, her high school counselor told her that “engineering was not for women.” But that only fed her desire. Lueny obtained a bachelor’s degree in chemical engineering from the University of Puerto Rico at Mayagüez (UPR-M), and a master's in the same discipline from Stanford University.

Her successful career started in 1978, when she was 26 years old, as a professor of engineering at UPR-M. Her first challenge as a professor was to find a way to increase the percentage of students who passed the introductory course for chemical engineers, which held steady at 40%. After a couple of years teaching the course, she noticed that, even though she had put a lot of effort into her classes, things were not getting better. She understood that the problem was not the students, but her teaching methods. “She assumed that if a student got a failing grade it was her responsibility,” commented her husband, Waldemar Ramírez Beiso.

This course in particular required analytical and critical thinking skills, so it was not enough for students to learn equations and memorize the theory. Even though engineering industries had caught up to this, teaching methods in engineering had not.

Lueny was a woman of action. She started reading books and taking courses and workshops in order to improve her teaching techniques until she met Dr. Rich M. Felder, professor of chemical engineering at North Carolina State University. Morell later described this as a “small miracle.” Felder started sharing new strategies with her, which she implemented in her classroom. These strategies included interactive experiences to help students apply what they learned in class. She also implemented methods such as cooperative learning and started observing her student’s learning styles, letting those shape her own teaching. The percentage of students passing the class started to go up, and more students started requesting her course sections.

Lueny did not settle for using these new teaching methods in the classroom. She started making alliances so that other professors could implement these techniques as well. There was some resistance at first since many professors refused to change their old-school ways. But this didn’t stop Lueny, “those experiences did not deter her,” Waldemar said. The success of her efforts was so big, that institutions like the National Science Foundation [4] (NSF) and NASA started funding her innovative curriculums at the UPR-M in partnership with two other universities. But that was just the beginning. In one of her writings [5], Lueny commented “one thing I am most proud about is sharing my experiences with others and catalyzing positive change in their careers.”

Her dedication to transforming education in engineering took her to different parts of the world. After the creation of new successful curriculums, Lueny started traveling to different countries to provide seminars for professors and students in engineering, who welcomed her with enthusiasm. She gave seminars in India, Ecuador, Chile, Spain, China, Russia, and Korea, among others. “She always emphasized a global point of view,” stated Waldemar. Lueny believed that the problems in engineering could be solved by collaborating and sharing ideas and resources with other countries, learning from their perspective and ways of tackling problems.

Lueny Morell at the beginning of her career in the 1980's.

After 24 years at the UPR-M, Lueny began working at Hewlett Packard (HP). At HP, she was responsible for forming relations with academic institutions in support of research, student recruitment, curriculum development and facilitation of accreditation initiatives. Throughout her entire career, her goal was to innovate in engineering education and facilitate partnerships between academia and industry.

Lueny founded two universities of engineering: “New School of Engineering” in Silicon Valley, California, and “School of General Engineering” in Beihang, China. She was co-founder and

president of the International Federation of Engineering Education [6] Societies (IFEES), helped with the foundation of the Global Engineering Deans Council [7] (GEDC) and served as an adviser in multiple committees such as the National Academy of Engineering [8] (NAE), the NSF and the accreditation agency ABET [9]. Additionally, she created an organization called InnovaHiEd [10], through which she offered consultation and training for educators and leaders in science, technology, engineering, arts, and mathematics (STEAM).

2006, Washington DC — Lueny receiving the “Bernard M. Gordon Prize for Innovation in Engineering and Technology Education”

Her success was recognized with multiple awards, the most prestigious of which was the Bernard M. Gordon Prize [11] given by the NAE in recognition of her innovation in engineering and technology education. Upon receiving it, she donated the monetary prize in its entirety to the UPR-M. Lueny was also recognized in Valencia, Spain, being invited to sign the *Libro de Oro de la ESPA* [12], also signed by the first Spanish astronaut. “And all of the sudden there was Lueny Morell, among so many internationally renowned people,” remembered Waldemar proudly. But this is only a short list of all of her recognitions and awards.

Not all of her efforts were publicly recognized. Some contributions were not part of her professional resume, but rather, of her personal life. Lueny had a giving spirit. As her husband mentions, and as evidenced by her legacy, Lueny was at the service of whoever needed her. For 15 years, Lueny and Waldemar traveled to the Holy Land during Holy Week. After seeing the conditions of some of the schools in Jordan, Lueny and her husband started to financially support education there and finding funds to provide scholarships for college students, impacting the lives of over 50 of them.

Lueny, who loved education, her faith, and her family, lived a full life. These paragraphs include only a sampling of her accomplishments and legacy.

“Like the Quixote, she would get on her horse, grab her spear and face the windmills…if she was afraid, she would keep it to herself,” concluded her husband. Lueny’s efforts transformed engineering education around the world, shaping better educators and providing a solid foundation for a new generation of engineers. Rest in power, Lueny.

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