The Chemistry of Going from Mentee to a Mentor [1]

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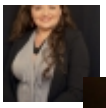

 [3]

Dr. Luis Echegoyen is Robert A Welch Endowed Professor in Chemistry at the University of Texas, El Paso

In general terms, a mentor is a role model—a person that has delivered positive results or achieved professional success and is in a position to help others that want to accomplish similar goals. Dr. Luis Echegoyen [4], a Robert A. Welch [5] endowed Professor in Chemistry at University of Texas at El Paso [6], understands the true meaning of this definition.

His family immigrated to Puerto Rico in the 1960, when his father, the famous comedian Luis Echegoyen, sensed that abrupt political changes in Cuba were about to occur. In his words, "the educational system in Puerto Rico was not as advanced as it was in Cuba" and he was placed in 6th grade, thereby skipping the 4th and 5th grades. Of those elementary school years, he remembers his 8th grade science teacher, Ms. Díaz, at his school, Colegio La Merced, in San Juan; she engaged her students with her contagious enthusiasm for sciences.

From an early age he was an avid reader and writer, especially of scientific topics. His passion and innate talent for science made him pursue both a bachelors degree (1971) and a doctorate in Chemistry (1974), which he completed in only 6 years at the University of Puerto Rico, Río Piedras [7]. He published 9 scientific articles during that time. In 1975, he moved to the University of Wisconsin, Madison [8] to pursue postdoctoral training. It was there that the colder climate,

culture shock and what he describes as the impostor syndrome, made him wonder if all the achievements obtained until that point were deserved or if he had just been lucky.

Although he had been successful until that moment, he had not had mentors or role models to follow (aside from his 8th grade science teacher) that inspired him to develop more confidence as a scientist. Thankfully, Dr. George Rubottom, a member of his doctoral thesis committee, helped him during this period, giving him perspective, and therefore, improving the outcome of his professional career.

On a difficult day, Dr. Echegoyen told Dr. Rubottom his fears and insecurities about being successful in the United States. Dr. Rubottom told him: "Listen carefully: you are as good as or better than some of the people here, and you will do as well as you did in Puerto Rico". With this in mind, Dr. Echegoyen emphasizes the importance of serving as a mentor at the right time. The well-timed words of his mentor were the best motivator and catalyst to push for his professional goals.

After a successful postdoctoral appointment, and years working in industry, government (National Science Foundation, NSF [9]) and academia, his passion for chemistry is still intact. As he explains: "there are many organic molecules compounds with potentially interesting properties to be discovered" and his Physical Organic Chemistry laboratory at the University of Texas, at El Paso [10], continues to discover and work with many important compounds, especially with carbon-based compounds.

His work with carbon compounds, focuses on the development of equipment to increase energy efficiency, in particular in solar energy. A compound created in 1996 by a laser vaporization system, C60, is the focal point of his research. This compound is identical to a soccer ball, but is 1 nanometer in size and its known as a "buckyball [11]". "Holding something in your hands that does not exist in nature and was created in your lab is awe-inspiring"-explained Dr. Echegoyen.

Dr. Echegoyen's lab is looking to introduce a cluster of atoms and molecules inside the buckyball, creating an instrument similar to a "maraca" [rattle], a "nanomaraca" [nanorattle] to be exact. This cluster of molecules will change the properties of the carbon cages, generating materials with useful applications for solar energy. The process involves the design of compounds that can separate the electric charges after absorbing sun light with higher efficiency, generating higher currents and voltages.

Among his achievements he has published many scientific papers, trained dozens of graduate students and made important discoveries. His impeccable career as a scientist, have gained him a place among the most distinguished and recognized scientists in the world. Part of his future plans include establishing interdisciplinary collaborations, promoting global education and spreading the importance of chemistry in innovation and sustainability.

When asked about the requirements of a successful scientist and a good mentor he opines that: "perseverance is crucial; hard work is essential, concentration very important. The intellectual ability and knowledge are also fundamentally important, but creativity (the least common of these qualities) is what can really take people places. Doing what you do with passion is also very

important to succeed. Be professional, not a “jobber”. If you are more concerned about holidays and vacations, then do not become a scientist”. However, for him, "mentoring is not advising; it requires strength and firmness, along with patience. If at first it does not seem to work, try harder, many times until it turns around. Try a second time, use passion to get interest and engagement. If that does not work, don’t try anymore".

Despite his innumerable accomplishments, Dr. Echegoyen has not lost his foundation, and he has not forgotten about his Cuban-Puerto Rican roots. He understands the importance of role models to inspire Latinos and underrepresented minority students in the sciences, to help them build the confidence to pursue higher education degrees. Dr. Echegoyen has reaffirmed his commitment with Latino students through his role as a member of the board of directors for the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) [12].

His charisma, passion, intellect and talent for chemistry has made him an excellent mentor and role model for the future generations of Latino scientists and his message for our community is: “Stick to your principles, do not give up (at least not easily), learn to recover from adversity and believe in yourself – minority groups are as good as anybody else. Perhaps, most importantly: be passionate, love what you do. If you don't, do something else.”

If you want to know more about Dr. Luis Echegoyen [4] visit his profile in CienciaPR.org [13].

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Links
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