Race and physics teaching in Uruguay: An unexpected quest [1]

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Zulma Sosa-Giles, with the famous Uruguayan Rambla in the background.

It had been almost a year of planning my research and teaching duties for my visit to Montevideo Uruguay, as part of a Fulbright Fellowship. This international exchange program of teachers, faculty, students and other professionals was started after the end of World War II by Senator J. William Fulbright to foster understanding and tolerance among nations.

A couple of days before my departure, I read Gary White's TPT editorial on starting a conversation about race, ethnicity, and gender in physics teaching [1]. As a Puerto Rican physics educator, I immediately thought it would be interesting to talk with physics teachers who were "Afro-uruguayos", Uruguayans of African descent (AU, for short). With a population of 3.3 million people, 8.1% of which are AU, and 40% of the country's population concentrated in Montevideo

[2], I was expecting to find several high school physics teachers to share thoughts on similarities and differences regarding race and physics education between the United States and Uruguay.

Of course, things do not always work out as planned…

For about two months, I was referred back and forth between various organizations interested in physics teaching or AU people. After many phone calls and email messages, no one knew of an AU physics teacher. A person did mention that in Uruguay there had been significant “ethnic mixing”, implying that identifying AU physics teachers might not be easy.

The case is somewhat similar to Puerto Rico’s, where recent studies have pinpointed the genomic admixture of current inhabitants caused by a history of complex population interactions. [3]. The study found that in Puerto Rico genetic mixing patterns vary significantly by geographic regions and that there is a strong tri-hybrid component (European: 64%, range 40-80%; African: 21%, range 5-45%; Taíno: 15%, range 5-35%).

Of course, genotype is not always obvious, but phenotype is. Colorism occurs when dark-skinned people experience more bias and discriminating acts compared with light-skinned people of African descent [4, 5]. Since colorism is commonplace in many countries, I hoped that I could still find enough dark-skinned AU physics teachers to share their experiences.

A colleague at Universidad Católica del Uruguay, my host institution, suggested I contact the Inspectors at the Consejo de Educación Secundaria. These inspectors supervise and evaluate all middle and high school teachers nationwide; they must know where the physics teachers I was looking for were located. Their response [6]:

They were not aware of any active AU physics teachers in Uruguay.

According to various statistics compiled by the U.S. Department of State [7], Uruguay is 1st in South America in democracy and prosperity indicators, percent of the population considered middle class, political rights and civil liberties, quality of living, and social progress. How can a progressive and socially conscious Uruguay, with free and open access to both K-12 and college education, have no active physics teachers of color?

Part of the answer can be found in a report from Intendencia de Montevideo [8], the capital city government. The report described economic and education factors that negatively impact this minority group. For example, 36.9% of AU people were at the poverty level, compared with 13.8% of non-AU. Another report noted that, overall, completion of K-12 education is only 7.3% for the lowest income quintile and 18.1% for the second lowest, compared with 42.2% and 64,6% for the highest two income quintiles; the correlation between income and K-12 attainment is obvious [9].

For the whole country, 55% of 18-20 year-olds completed K-9, and about 51% of them went on to finish high school [9]. For the AU community in Montevideo [8], about 7.9% and 44.3% of AU did not finish elementary or middle school, compared with 3.2% and 21.7% of non-AU inhabitants; in fact 23.7% and 5.1% of AU reported finishing high school and college, respectively, compared with 51.9% and 17.1% of non-AU, respectively.

These statistics suggest that a larger proportion of AU students abandon school, so few of them reach teacher education programs. Furthermore, it is likely that, similar to the United States, those who reach it and are interested in high school science teaching major in biology and chemistry education rather than in physics education.

To get additional insight of the alleged absence of AU physics teachers, I interviewed Tomás Olivera-Chirimini, an artist, author, researcher, and community leader of African descent. As director of Asociación Civil Africanía (http://www.bantuuruguay.com [3]), Don Tomás is a scholar of the history of AU in Uruguay. He knew of very few AU professionals in any discipline, including medicine, law, business, and administration, but public and private, let alone any physics teachers.

Don Tomás acknowledged that, although currently many laws are in place to ensure equality for all Uruguayans, for the AU community it has been difficult to overcome the legacy of slavery, and historic and contemporary obstacles. He mentioned that race-based biases were covert but still very much a presence in Uruguayan society and that AU who finish college and become professionals might face a hostile work environment, and little access to higher-level jobs.

Don Tomás proposed that a heritage of conformity, along with an apparent lack of unity among groups and organizations interested in AU issues, the misperception that there is an equal playing field for Uruguayans of all racial and social groups, and the self-perpetuation of poverty, among other factors, seem to have created an environment that might hinder the social mobility of many AU. Readers will recognize some of these racial and social factors affecting many minority communities in the United States. However, unlike Uruguay, U.S. organizations of underrepresented groups are very strong advocates.

A lunch meeting with a group of colleagues resulted in an unexpected twist. When I mentioned that I was unable to find any AU physics teacher, a professor mentioned that, in the 1980s, she took high school physics with a teacher of color and that the school was just four blocks away! A quick walk to the school eventually resulted in a name and a phone number.

A couple of days later, I met Zulma Sosa-Giles, a retired physics teacher. She was a fascinating person and our conversation was extensive. Doña Zulma was adopted by a White couple in Minas, about an hour northeast of Montevideo. She stressed that her new parents, a tailor and a seamstress, treated her the same as their own children, and motivated them to read as much as possible and to write stories and poetry.

Doña Zulma was 12 when she met a medicine student, who showed her many physics experiments, particularly in electrostatics. She was fascinated and decided to read as much as possible about the subject and to teach it to her peers. Eventually, she completed a degree in chemistry but decided to teach physics. She retired from teaching full-time around 2005, but still teaches part-time at private schools.

Doña Zulma mentioned that, as a child, people said that school was not for her, or AU people in general. However, as a professional adult she said she was not treated differently because of her race. In her classroom, Doña Zulma tried to inspire all students by emphasizing content knowledge, close personal relationships, and contextual learning. For example, her idea to teach

the right hand rule of electromagnetism as “la regla del mate” was brilliant (Mate is a traditional drink in Uruguay; it is infused in a round gourd-like cup and sipped with a metal straw-sieve. The shape is similar to a closed fist and an upward thumb).

When asked about why few AU become physics teachers, Doña Zulma noted that in Uruguay a high school diploma is considered as a “terminal” degree, that is, public high schools and not college-preparatory. This might be underpreparing college-bound students, especially in low-income neighborhoods, resulting in low college retention. She also noted that school desertion was a widespread problem, and suggested for the government to develop initiatives to better inform people about the importance of science and careers as scientists and science teachers.

The combination of interviews and government statistics suggest that, despite having different historical paths, the underrepresentation of minority groups in physics teaching is something both the United States and Uruguay have in common. Knowing that for many minority school students, a role model of the same racial or ethnic group can be a strong and positive influence in their decision to remain in school and pursue higher education [10-12], it is a shame that most AU students will likely never see an inspiring teacher like Zulma Sosa-Giles.

References

[1] Gary White, "Race and physics teaching, and the fair: A call to all physics educators for manuscripts on a rarely discussed topic," 2016, *Phys. Teach.* 54, 70-71 (February 2016).

[2] Instituto Nacional de Estadísticas, 2011, “Censo Nacional 2011.” http://www.ine.gub.uy/web/guest/censos-2011 [4].

[3] Mark Via et al, “History shaped the geographic distribution of genomic admixture on the Island of Puerto Rico,” *PLoS One*. 6, e16513 (January 2011).

[4]. Mark Hill, “Color differences in the socioeconomic status of African American men: Results of a longitudinal study,” *Soc Forces* 78, 1437-1460 (June 2000).

[5]. Margaret Hunter, “The persistent problem of colorism: Skin tone, status, and inequality. *Soc Compass* 1, 237–254 (September 2007).

[6] Departamento de Física, Consejo de Educación Secundaria, personal communication.

[7] U.S. Embassy in Uruguay, U.S. Department of State, personal communication.

[8] Intendencia de Montevideo, “Informe de población afrodescendiente 2013". http://www.montevideo.gub.uy/sites/default/files/informe_afro.pdf [5].

[9] Instituto Nacional de Evaluación Educativa, “Informe sobre el estado de la educación en Uruguay 2014,” Montevideo, Uruguay, http://ieeuy2014.ineed.edu.uy/ [6]

[10] Arnetha Ball, “Empowering pedagogies that enhance the learning of multicultural students.” *Teach. Coll. Rec*., 102, 1006–1034 (December 2000).

[11] Spencer Holland, “Project 2000: An education mentoring and academic support model for inner-city African American boys,” *J Negro Educ*. 65, 315–321 (July 1996).

[12] Chance Lewis, “African American male teachers in public schools: An examination of three urban districts,” *Teach. Coll. Rec*., 108, 224–245. (February 2006).

Links
[1] https://www.cienciapr.org/en/blogs/members/race-and-physics-teaching-uruguay-unexpected-quest [2] https://www.cienciapr.org/en/user/wgepr [3] http://www.bantuuruguay.com [4] http://www.ine.gub.uy/web/guest/censos-2011 [5] http://www.montevideo.gub.uy/sites/default/files/informe_afro.pdf [6] http://ieeuy2014.ineed.edu.uy/