

2008-2009 APS K-12 Minority Outreach Fellowship Report

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Overview:

My participation in the APS K-12 Minority Outreach Fellowship has provided me with an opportunity to teach as well as to be taught. This fellowship provided interaction with students at various levels as well as with science teachers and fellow physiologists. Through each activity, I gained valuable insight into the role of a science educator, both formally and informally.

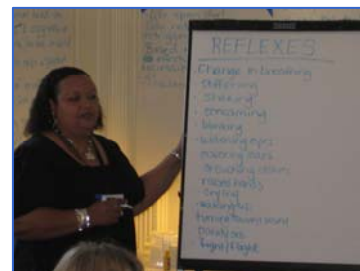
Experimental Biology 2008:

Participation in the Experimental Biology 2008 conference not only gave me an opportunity to present my research in front of fellow physiologists, but allowed me to receive preparation for upcoming outreach events such as Physiology Understanding (PhUn) Week, as well as visits to classrooms. I was able to meet the Frontiers Research Teachers, past outreach fellows and the staff of the Education Office of the APS. Additionally, I was able to talk extensively with Dr. James Pawelczyk and other panelists with established careers in physiology. Unfortunately, I was unable to fully participate in the Teacher-Student workshop as I was scheduled to present my own research to an audience of esteemed investigators in cardiovascular science. Nonetheless, this was a great introduction to the Outreach Fellowship Program and helped to ensure that I could serve as an effective Outreach Fellow.



Science Teaching Forum:

The Science Teaching Forum at Airlie allowed me to interact with science teachers from middle- and high schools and to aid them in incorporating various physiology laboratory exercises into their teaching curricula. I thoroughly enjoyed developing these exercises for the Research Teachers and was intrigued by how each group of teachers implemented the focus topic in different ways. As a Physiologist-in-Residence, I was able to provide background information and answer questions regarding each of the science topics presented.



The Science Teaching Forum benefited me personally by educating me on various learning styles. The forum reinforced the notion that an individual's capacity for learning may be greatest depending upon the method of presentation (i.e. visual, auditory, or kinesthetic). Armed with this knowledge, I am now conscientious about incorporating each of these learning styles in my own teaching. Additionally, the Forum also used a methodical approach to inquiry-based learning and equipped each of the participants, teachers and physiologists alike, to implement this style within our teaching environments.

SACNAS:

Attendance at the conference for the Society for the Advancement of Chicanos and Native Americans in Science was a wonderful



opportunity for me to learn of the different research foci of Latino and Native American students throughout the country as well as to present them with information and services provided by the Education Office of the APS.

Not only was I able to give critical feedback to many of the presenters regarding their research, but I also offered information and guidance on entrance into graduate school and other career development advice. Moreover, I was able to develop networking relationships with other exhibitors, which is of considerable importance at this stage in my career.

Physiology Understanding (PhUn) Week:

My visits to classrooms during PhUn Week allowed me to increase the student's awareness of Physiology and to introduce an array of Physiology- and science-based careers. With the assistance of six of my colleagues from Wake Forest University School of Medicine, we were able to carry out three classroom visits (ranging from 3rd through 7th grade) during PhUn week.



We were able to share with the students about careers in renal physiology, neurophysiology, cardiovascular, and muscle physiology from our personal research and experiences. The students were surprised to learn of all the possibilities for Physiology-related careers. Moreover, their ideas of what scientists look like had been dispelled, as our Physiology team consisted of a very diverse group.

In one classroom setting, the students were instructed to draw pictures of their perception of a scientist. At the end of our visit, the students were asked to revise their picture based upon the new information they had been presented with about scientists. It was amazing to see how these images had changed.



Students were directed to participate in laboratory exercises that centered on the physiology of the cardiovascular system, where they enacted the role(s) of various components of the system. This brought on a new understanding of how the heart, lungs and brain work cohesively to carry out gas exchange. As they continued in role play, the students were surprised to learn just how much information they already knew about this system.

Students also participated in exercises that focused on muscle physiology. In these activities, they were presented with background information regarding the different types of muscle fibers, when each fiber type is active during various types of activities, and the length of time required for each fiber type to reach fatigue. This information was particularly interesting to those students who were athletes.



Summary:

Participation in the APS K-12 Outreach Fellowship has given me a tremendous opportunity to further develop my own teaching skills, to actively promote interests in science-related careers and has challenged me to relay information to students across a spectrum of ages and educational levels. This fellowship has helped to equip me to become a more effective science educator through increased awareness of learning styles, sensitivity to diversity and an increased consciousness regarding stereotypes and preconceptions that may thwart interest in science careers.

One of my initial objectives as an outreach fellow was to expose students to “non-traditional” careers in science. During this fellowship, I have gained considerable interests in helping to create career development programs to assist trainees entering undergraduate and graduate education. I have also gained a greater appreciation for networking and the mentoring process and the value each has on science education.

Furthermore, this fellowship has created a means by which I have established relationships with neighboring institutions of education in which to collaborate through summer research projects and career focused seminars for high-school students as well as continued “in-classroom visits” and presentations for elementary and middle-school children beyond the duration of the fellowship.

In short, this has been an invaluable experience in which I have gleaned considerable information and enlightenment regarding science education. I am truly appreciative of the opportunity and relationship I have formed with the American Physiological Society Education Office.