

HENAAC Roundtable: Growing the Hispanic Technical Workforce

October 6, 2006 in Anaheim CA

Summary

By

Ray Mellado, Chair & CEO, HENAAC

Anna Park, JD, Executive Director, HENAAC

John Yochelson, President, Building Engineering & Science Talent

HENAAC convened 40 senior representatives from government, industry, and education for a two-hour discussion of challenges and action steps to expand the Hispanic contribution to America's science and engineering workforce. Introducing the Roundtable, **Ray Mellado**, Chair & CEO of HENAAC, explained its intent was to bring together leaders from the demand and supply sides of the tech talent equation. The objective was to lay the groundwork for a national initiative aligning the efforts of policymakers, employers, and educators to grow the Hispanic talent pool. **Anna Park**, Executive Director of HENAAC, moderated the Roundtable with **John Yochelson**, President of Building Engineering and Science Talent.

The HENAAC Roundtable was led by:

Hon. Michael Dominguez, Principal Deputy Under Secretary of Defense for Personnel and Readiness, U.S. Department of Defense

Hon. Kathleen Leos, Assistant Deputy Secretary of Education & Director, Office of English Language Acquisition, U.S. Department of Defense

Hon. William A. Navas, Jr., Assistant Secretary of the Navy, Manpower & Reserve Affairs, U.S. Navy

Ray Mellado, Chair & CEO, HENAAC

Overall Challenges

1. Fragmented Ownership of the Value Chain

Michael Dominguez, Principal Deputy Under Secretary of Defense for Personnel and Readiness, framed the discussion by pointing out that ownership of the long value chain for developing talent is fragmented. Knowledge-based organizations concentrate on meeting their own needs, while educators take responsibility only for their own links in the value chain. As a result, despite many pockets of individual excellence, the whole adds up to a lot less than the sum of the parts. Overcoming fragmentation is the defining challenge, especially in tapping the potential of under-represented minorities. **Dan Arvizu**, Director of the National Renewable Energy Laboratory, agreed that more of the same will not work. American K-12 students have lost ground in international comparisons in math and science since the mid-1990s, while under-represented minorities continue to lag in educational achievement and opportunity.

2. Lack of Interest in Science and Engineering

Adalio Sanchez, General Manager for Technology Solutions, IBM, noted that high-profile technical careers have lost the sex appeal they once had. Youngsters who used

to dream of becoming astronauts now want to become superstars in sports or entertainment. **Ron Glover**, Vice President for Global Workforce Diversity, IBM, argued that the only way to redress the imbalance between supply and demand is through understanding the larger social forces that fuel disinterest in math and science. The surest way to offset these larger forces is through partnerships between educators and employers.

3. Insufficient Commitment

James Rosser, President of California State University LA, contended that there is no substitute for a generational commitment if we are going to solve the problem of educational inequity. Most low-income children start behind and stay behind. Developing the technical talent of Hispanic and African American youngsters will take a national effort equivalent to winning the space race. **Al Diaz**, Vice Chancellor for Administration, UC Riverside, and former HENAAC engineer of the year, agreed that the challenge is far too great to tinker around the edges. There is not enough input into the system to fix it by systems engineering.

Concerns on the Demand Side

1. A Thin Homegrown Talent Pool

William A Navas, Jr., Assistant Secretary of the Navy, Manpower & Reserve Affairs, highlighted the ever-rising skills requirements for war fighters in the Navy and Marines as well as Department of the Navy civilians. On the military side, however, only 28% of the national cohort of 17 to 25 year olds meets entrance requirements. This is an especially tight constraint because the U.S. armed forces must be culturally and racially diverse. **Rear Admiral Clifford Pearson**, Assistant Commandant for Human Resources, U.S. Coast Guard, added that employers must reach students before the end of middle school to cultivate their interest in technical careers. **Lt. General Carl Strock**, Commandant, US Army Corps of Engineers, pointed out that many organizations look more for potential than specialized skills because they invest heavily in training. As a result, supply and demand merge in the workplace. **Wilbert Berrios**, Director of Corporate Information, U.S. Army Corps of Engineers, added that it is important for the government and industry to provide near-term experiences to the local schools in the area to motivate them to pursue STEM careers early on. **Kuei-Wu Tsai**, Provost, Wentworth Institute, and former Dean of Engineer, California State University, L.A., noted that only 15% of U.S. students have the prerequisites to realistically pursue careers in science, technology, and engineering. Yet **Adalio Sanchez** observed that the Bureau of Labor Statistics projects a 36% increase in US-based IT jobs by 2012. If companies like IBM cannot fill these positions, the threat posed will be strategic.

2. Baby-Boom Retirement

Christopher M. Hernandez, Sector Vice President for Corporate Strategy, Northrop Grumman, contended that the biggest concern on the demand side is the attrition of the current workforce. The departure of the baby boomers does not just mean a loss of skill, but the loss of the best high-end skill. **John J. Tracy**, Senior Vice President for Engineering, Operations, and Technology, The Boeing Company and HENAAC

Engineer of the Year in 2006, agreed that attrition is a national crisis. Thirty percent of Boeing's science and engineering will be retirement eligible within five years, creating an imperative to fill the pipeline and develop solid plans for knowledge management. **Al Diaz** concurred, noting that 35% of science and engineering workforce at NASA's Goddard Space Flight Center will soon be retirement eligible.

Concerns on the Supply Side

1. *The Achievement Gap*

Kathleen Leos, Assistant Deputy Secretary of Education, explained why No Child Left Behind represents landmark legislation but noted that – despite the gains that have been made – 35% of Hispanic students fail to graduate high school. Those are unacceptable numbers and they reflect the impact of forces that extend far beyond the classroom.

Adam Chavarria, Executive Director, White House Initiative on Educational Excellence for Hispanic Americans, noted that there is solid evidence that low-income Hispanic children are capable of achieving at the highest level – but success requires early and sustained intervention including parent and family involvement. **James Rosser** stressed that early interventions are pivotal, especially in the Hispanic community. The single most important step toward closing the achievement gap in quantitative and inquiry-based reasoning would be to insure that every child in America enters kindergarten knowing the alphabet and leaves third grade with basic reading comprehensive skills.

Kathleen Leos added that kindergarten children need a vocabulary of at least 5000 words to become successful readers.

2. *Role Models and Mentors*

Victoria Castro, retired principal and former member of the Los Angeles Unified School District, agreed that early interventions are critical but noted that they must go beyond the curriculum. Hispanic children, in particular, lack role models in science and engineering. HENAAC's Viva Technology program meets that need by combining student and professional role models with inquiry-based problem solving. **Kathy Furnald**, Superintendent of El Monte Union High School, said, "I cringe when I hear, it's too late at eighth grade, I'm a superintendent of a high school district and yes it's much better if we can reach them younger but it's never too late. I have also observed that mentors are just as important in high school as earlier. They complement but cannot replace skilled math and science teachers, which are in short supply."

3. *The K-12 math and science teacher corps*

John Tracy, speaking as a former teacher, observed that few are adequately prepared to teach students about the impact of engineering on our world. Low-income Hispanic students are disproportionately exposed to the least experienced teachers of mathematics and science. **Elizabeth Casas-Ray**, Director of Hispanic Outreach, Department of Education, called for membership in the Adjunct Teacher Corps as an option for retiring engineers and scientists. The Corps seeks 30,000 professionals to serve as classroom-based resources in science and math.

4. *University Engagement in K-12*

Gary Reichard, Executive Vice Chancellor and Chief Academic Officer, The California State University System, underscored the need for university outreach to under-represented communities. The Cal State system views its role as a public policy advocate for these communities (e.g. to establish college preparation as a default curriculum in all high schools); as a partner to provide training for family members who have no experience with high school or college success; and as a resource to make the path to post-secondary education more accessible to students. The Cal State system is proud that **Ray Mellado** serves on its strategic committee for community outreach.

5. Post-secondary attrition

David Hayhurst, Dean of the College of Education, San Diego State University, agreed that high rates of attrition of Hispanic students, which exceed 35% in science and engineering, must command priority attention. The key is pro-active intervention that prepares students to do college - level work before teaching them to become engineers. Specially tailored preparatory programs can dramatically increase achievement and retention. **Dan Arvizu** suggested that the Hispanic community as a whole, with the support of employers, assume special responsibility for tackling the attrition challenge.

Action Steps

1. A Targeted National Collaborative

Michael Dominguez framed the issue of action steps as a choice between diffusing and concentrating the resources of a network of committed public and private sector stakeholders. It makes much more sense to do something extraordinary on a small scale than to try to cover the waterfront. Integrating the wide-ranging activities that are now underway into a value chain would represent a huge step forward. Proof of concept that such a value chain can be established and managed matters more than the number of students reached. DoD is ready to lead an effort that recognizes the demand side's equity stake in the supply side of tech talent development – especially in developing the talent pool of Hispanics and other under-represented groups.

2. Focal Points of Collaboration

Joe Petrone, Vice President, Lockheed Martin, endorsed the proposed collaborative as a framework for leveraging resources and gaining greater insights into what other stakeholders are doing to strengthen the Hispanic technical talent pool. **Ron Glover** stressed the need for a forum to take the best ideas and share them broadly across industries. **Major General Larry Knightner**, Deputy Commanding General U.S. Army Accessions Command argued that the objective of pulling assets together is not just to build skills but also to communicate more effectively to America's youth why these skills matter and what opportunities they can open up. **Adalio Sanchez** suggested that a joint effort to transform the image of science and engineering is the key to sparking greater

interest. **Belle W. Wei**, Dean of the College of Engineering, San Jose State University, noted that even the most interested students pay close attention to market signals – especially with regard to the impact of globalization on their career choices. **John Tracy** and **Kuei-Wu Tsai** maintained partnerships are at the heart of increased collaboration. HENAAC's partnership with the Boeing Company and Cal State LA, for example, represents a model of creating links in the value chain.

3. Conclusions

John Yochelson summed up three main points of consensus that emerged from the Roundtable: First, all participants found the vision of a targeted collaborative compelling. A national initiative that pools the know-how, resources, and capabilities of committed stakeholders has the potential to break important new ground. Second, there are numerous points of intervention from pre-school through graduate school in the value chain. The collaborative should concentrate on interventions that reflect the core strengths of its members. Third, HENAAC, when funded, will be the organization to plan, coordinate, and help execute the work program of the proposed collaborative.