

# Out Before The Game Begins

Hispanic Leaders Talk about What's Needed to Bring More Hispanic Youngsters  
Into Science, Technology and Math Professions



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## Hispanic Leaders Talk about What's Needed to Bring More Hispanic Youngsters Into Science, Technology and Math Professions

Public Agenda Analysis by Paul Gasbarra and Jean Johnson

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### Introduction

Hispanics are not only the largest minority in the United States but also one of the fastest growing. One out of every two of the 1.4 million people added to the nation's population between 2005 and 2006 was Hispanic<sup>1</sup> or Latino. As of July 1, 2006, there were 44.3 million Hispanics living in the United States, making this country home to the third largest Hispanic population in the world.

Alongside this trend is another equally compelling one. The United States will need 1.75 million engineers by 2010.<sup>2</sup> That's a 20 percent increase from the current number of practicing engineers. Moreover, the demand for engineering talent is increasing at three times the rate of other professions. Despite the growing number of STEM (Science, Technology, Engineering and Math) careers in the American economy, education statistics suggest that far too few Hispanic students are being encouraged and equipped to take advantage of opportunities in technical disciplines. American business and industry and the nation's Hispanic communities would both benefit from addressing this mismatch.

In summer 2007, The IBM International Foundation asked Public Agenda to interview Hispanic and Latino leaders in a variety of fields, asking for their views on what will be needed to bring more Hispanic students into the technical and scientific disciplines. Our report is based on 19 30-minute telephone interviews conducted in the summer and fall of 2007. Public Agenda spoke with Hispanic scientists and inventors, officers at technology corporations, leaders from prominent non-profit and corporate entities, as well as government and educational institutions. All had

a strong interest in Hispanic and Latino affairs and were able to speak on the challenges of improving math and science education for Hispanic youngsters. A complete list of the individuals we spoke with is on page 14.

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### Diverse Communities, Diverse Issues

Issues related to science, technology, engineering and math education in the Hispanic community are as varied and complex as Hispanic communities themselves. Each region, each stage of education and each field carries with it a unique set of opportunities, conditions and problems. In this report we have divided our observations into three main categories, all connected and intertwined. The first portion of our report focuses on basic education issues such as high-poverty schools, problems for English language

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<sup>1</sup> For the purpose of this report, Hispanics are identified as Latin American individuals, and their descendants, living in the United States, regardless of race. We recognize that individuals have different preferences concerning the use of "Latino" and "Hispanic." In this report, we use both terms, although we rely more frequently on the term "Hispanic." According to surveys by the U.S. Census, this is the preference of majorities in this group. It is also the terminology the Census itself uses. In most cases, we have also shortened the Census Bureau's "non-Hispanic white Americans" to "whites."

<sup>2</sup> "Facts for Features: Hispanic Heritage Month 2007," U.S. Census. (Available for download at [http://www.census.gov/Press-Release/www/releases/archives/facts\\_for\\_features\\_special\\_editions/010327.html](http://www.census.gov/Press-Release/www/releases/archives/facts_for_features_special_editions/010327.html))

learners and dropout rates. The second part of the report examines issues specific to teaching science and math, and the third addresses challenges connected with higher education and attainment of degrees in advanced science, math, engineering and other technical fields.

## A Laudable Goal, But Hurdles Ahead

The 19 Hispanic leaders interviewed for this project came from vastly different fields and backgrounds. They included top-echelon professionals from the sciences and technology, high-level officers in business and government and leaders of community and advocacy organizations. Virtually all readily and gladly accepted the premise of the IBM initiative: that the U.S. economy needs more technically-trained professionals and that this need presents an outstanding opportunity for the Hispanic community. Yet despite their interest and enthusiasm for the goal, most focused the lion's share of their comments on what they saw as the chief hurdle to meeting it—the urgent need to improve K-12 schools overall and to do so quickly.

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Respondents across the board believed that the current educational system is not serving the Hispanic population well. This failure extends to all subject areas, not just science and math.

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Nearly all of the interviewees said that when it comes to Hispanic and Latino students, the educational pipeline is all but broken. Respondents across the board believed that the current educational system is not serving the Hispanic population well. This failure extends to all subject areas, not just science and math. Before these specific subjects can be taught well, most said, the nation needs to bring basic education up to par. According to nearly all of those we

spoke with, the overall poverty of Hispanic-Americans is perhaps the largest contributing factor to poor quality education; Hispanics tend to live in areas of concentrated poverty with struggling public schools and a less-than-adequate tax base for funding them.

A wide swath of the Hispanic population also lacks the necessary English language skills to comprehend instruction, many of the interviewees pointed out. The lack of bilingual teachers complicates this problem. Students who speak a language other than English at home are at an added disadvantage. Not only is their own ability to thrive in school hampered, but lack of English language skills naturally limits parental involvement in their education. Along with poverty, children of immigrant parents often find themselves contending with other pressures such as threat of deportation of their parents or family relocation for the purpose of work.

Our interviewees did have a number of comments and suggestions specifically related to science and math education. Many believed that top-notch teaching in these fields is in short supply and that many Hispanic youngsters are in effect barred from entering technical fields because their early science and math education is so inadequate.

Many also commented on cultural traditions and expectations that sometimes hinder access to good schools and college education. Parents from Central and South American countries often have a different perception of the roles of school and family. They often place more trust in the teachers to look after the student. Hispanic youngsters who complete high school and aim for college are often the first in their families to do so. They cannot turn to their parents for advice and guidance in the same way that children of college-educated parents can. Since their families are often struggling financially, many young Hispanics find themselves torn between spending money for college as a long-term investment versus beginning work immediately to help their parents and sisters and brothers. In the following pages, we describe what we heard in this series of conversations in more detail.

# Observations from the Interviews





## Poor Communities, Poor Schools

The leaders often began by focusing on the socio-economic conditions of many Hispanics. Most saw poverty and poor schools as a primary, first-order-of-business barrier. The U.S. Census reports that 20.6 percent of Hispanics were in poverty in 2006, more than twice the national percentage of 9.8 percent.<sup>3</sup> As many of our interviewees underscored, schools in poorer urban areas with a high concentration of Hispanics tend to have a lower quality of education, poor bilingual education programs, high dropout rates and woefully inadequate curricula. Here is a sample of what we heard.

“The likelihood of a Latino child being educated in a low-performing school with unqualified teachers in a physical plant that was deteriorating was extremely high. Those three factors alone, or each one of them, is a major contributor to low academic performance. It’s the combination of those three. It just sets up the perfect storm.”

“There are schools and school districts that do not even offer students a curriculum that makes college an option... Last year there was a huge political fight to try to get the school board to require all high schools in the Los Angeles Unified School District to make sure they even offered the [basic or minimal] ‘A-G’ requirements required to attend SCU or UC’s campuses, as remarkable as that may sound.”<sup>4</sup>

“Coming from under-resourced schools—without high quality programs, faculty and so forth—many of our Latino students are coming out of those schools, even when they finish the high-school curriculum, under-prepared to succeed in college courses.”

“The overwhelming majority of Latinos are concentrated in low-income neighborhoods, which make up school districts in central cities primarily—metro cities like New York, LA, Chicago and so forth. [These communities have] a relatively lower tax base, in terms of their real estate tax base, compared to other communities and therefore much less money.”

“I think that our district is—and many urban districts in California are—largely Latino, Hispanic, and those schools that are traditionally high poverty, low performing are populated with kids of color. In our instance—in California, in Los Angeles—more and more Latino, Hispanic kids are in those seats, so there is a correlation.”

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“There have been a number of resource allocation lawsuits over the years... it’s been approached... in terms of resource allocation among schools within a school district, or among school districts within a state... The majority of Latino schools or school districts tend to get less resources than... white majority schools, or white majority school districts, either within a school district or within a state.”

<sup>3</sup> “American Community Survey,” U.S. Census 2005. (Available for download at [http://www.census.gov/Press-Release/www/releases/archives/income\\_wealth/010583.html](http://www.census.gov/Press-Release/www/releases/archives/income_wealth/010583.html))

<sup>4</sup> A-G requirements refer to the 15 year-long high school courses students must complete to be eligible for admission to the University of California.

## Circumstances Jeopardize Learning

Some of our respondents also commented on the web of problems encircling Hispanic students and their families—problems that can undercut a child’s ability to learn, even when they do have access to better schools with better teachers and courses. One told this story about the stresses and distractions of a child whose parents were undocumented immigrants.

“I got a call from a third grader [who] was worried about going to school. She was worried about going to school because she was afraid that when she came back her mom, who is an undocumented immigrant, may not be there because she had heard through the radio that they were doing some immigration raids or police were rounding up undocumented immigrants.”

Another respondent detailed the dangers of crime, drugs and gangs prevalent in some poor Hispanic communities. These often entrap Hispanic teens, he said, but he also wondered about the possibility of redirecting these youngsters toward less self-destructive goals.

“Because somebody is in a gang doesn’t mean they’re not academically capable. Most of these kids have excellent number skills. Just try to shortchange them.... That can be transferable to something productive... [They have] chemistry skills, unfortunately, with all the crystal meth that’s out there... if we could redirect those energies down a more productive avenue, society benefits as well. In so doing, we transform our communities economically.

## English Language Learners Need More Help

Many of our interviewees honed in on another barrier facing Hispanic youngsters. In addition to attending under-financed, low-performing public schools, many are attempting to master academics in a language not yet their own in less-than-nurturing circumstances. Of the 78 percent of Hispanics five and older who speak a language other than English at home, only half say that they speak English very well.<sup>5</sup> Lack of English literacy, our interviewees told us, contributes to academic failure, frustration with the school system, isolation from teachers and principals. It also simultaneously prevents meaningful engagement by parents. Unless these issues are addressed, achievement in science and math can seem like a far-off goal.

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“Many of these children in the K through 12 school system are immigrants, whether they’re legal immigrants or undocumented immigrants. That is a big challenge. Unfortunately, here in the school system, there is story after story of a kid who is in college [who] says when [he or she] first got here, they sent them to the basement with a teacher and basically said, ‘Here, learn what you can,’ and left them alone. [They] isolated them.”

<sup>5</sup> “Facts for Features: Hispanic Heritage Month 2007,” U.S. Census. (Available for download at [http://www.census.gov/Press-Release/www/releases/archives/facts\\_for\\_features\\_special\\_editions/010327.html](http://www.census.gov/Press-Release/www/releases/archives/facts_for_features_special_editions/010327.html))

“I think that we, as a nation, need to do a better job... making content accessible to Latino and Latina children, especially kids [who] come from homes where English is the second language. I don’t think that the nation has put enough resources behind making these content areas accessible.”

“[Hispanics are] good at science and math, but without overcoming the language barrier, science and math concepts are difficult to test... there are kids that I know in the school systems [who] had to take the science portion of their graduation test many, many times. They had A-pluses in science.”

“The issue that [the parents are] not willing to join the PTA, I think that that’s unjust because, for example, the language issue. There’s that language barrier.”

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## Family Poverty, Lack of English Skills Lead to Dropping Out

Interviewees frequently pointed to the high drop-out rate among Hispanic youngsters. According to The Pew Hispanic Center, the Hispanic student dropout rate of 21 percent is more than twice that of non-Hispanic white students (8.2 percent) and nearly twice that of blacks (11.7 percent), although the numbers vary dramatically depending on whether the students are immigrants or not. According to Pew, Hispanic students born in the U.S. have a dropout rate of 14 percent, compared to a jarring 33.7 percent for those students born outside the United States.<sup>6</sup>

Many of our interviewees pointed out that disproportionate numbers of Hispanic students leave school because of poor language skills, lack of family engagement and the students’ need to work to help their families survive economically.

“Most research, and educators who do this research, can pretty much identify by [the] early grades if a kid’s going to drop out or not.... The revenues to a family of a part-time job or a very entry-level job is one... [of] such great need to the families... The kids who are diligent and do want to help the family get involved in [choosing between getting] a job versus going to school.”

“Some of the issues are, for example, there are no structured parental-engagement or parent-involvement programs in most of the schools that... understand the background, the culture, the language of the parents... because the parents are a very important part of the equation of keeping that child in school.”

Many national education experts fear that schools systems tend to understate their dropout rates, rather than overestimate them. However, a few respondents questioned the statistics which they feared may overstate Hispanic dropout rates because families may move for work.

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<sup>6</sup> Fry, Richard. “Hispanic Youth Dropping Out of U.S. Schools: Measuring the Challenge,” Pew Hispanic Center June 12, 2003.



“I think one of the main [explanations] is transience in a large urban system. Kids may—let’s take migrant workers for example. They may be in a district for 15 weeks of the semester and then Mom and Dad say well, we’ve got to go up to Salinas, and they’ll check into school there.”

## Science and Math Are Not Well-Taught

The way math and science are taught was another an oft-cited failure of the current educational system serving Hispanic students—this coming on top of the over-arching educational failures. Interviewees often felt that science and math instructors aren’t as qualified as they should be—nor did they possess effective teaching strategies.

Many, especially professionals in these fields, believed efforts should be made to make science and math more real and tangible, so students understand the work beyond the text book. Many emphasized the need to make these subjects more relevant to students’ lives and to shift pedagogy from a lecture structure to a discovery method. Science and math can seem too abstract, many said. One participant said that he believed No Child Left Behind’s focus on testing has impeded a sense of cultural relevancy that science and math education can have. These shortfalls were complicated by the lack of necessary equipment and supplies to properly instruct students.

“If [students] think they’re just learning one plus one equals two for the sake of passing a test, it’s not very much of a motivator. But if they see that basic mathematic skill is a stepping stone towards something bigger and better for themselves and for their families, then I think that’s where an increased motivation can happen.”

“If you hear about quantum theory for example, you might as well think, “Oh my God, let’s go to sleep.” If you think, ‘That’s the reason you can actually listen to DVDs or listen to CDs,’ you want to know how this works and what makes it work. That type of cognitive style or that type of pedagogical approach might work better to make kids interested.”

“[When I was in school,] we didn’t have access to computers. We used toothpicks and popsicle sticks to really play on engineering concepts. It doesn’t need to be high tech... just the concepts of engineering and science and what that means and how the connection between those basic skills and the professions was really essential, in my opinion.”

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“I mean [they could show students how math and science connect to actual] workplaces, such as for example, a Verizon switching station where they can talk about physics. They can talk about electronics. They can talk about engineering... They can go to a hospital. They can go to different sites, different locations where the math and science will be made relevant, not only abstract.”

Many of those we interviewed believed that sound math and science education must start early. It is vital, many said, to stoke natural curiosity while students are still young, to continue to exploit that momentum to middle school and then later develop it in advanced science and math courses in high school. Most interviewees believed that by the time students were in high school, it was too late to provide them with the instruction they would need to go on to an advanced science degree.

“The biggest thing is, if you wait until 10th or 11th grade, it’s too late, because you have to get to pre-calculus or calculus to score high enough on an SAT math score to be looked at by a college of engineering. We have to start, we think, in the fourth grade... We need a four-year runway to algebra.”

“Make sure kids in kindergarten, grade 1, 2 and 3, explore the wonder of science because they’ve got—man, you know, they got that curiosity.”

“I think presenting [science] as an experiment, as a discovery, especially in the early grades, to create some curiosity and show students how concepts are developed in science—what science really means rather than just a book and a subject that I have to study.”

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## Hispanic Students Need Role Models

Interviewees continually stressed the need for more role models in the STEM fields. Participants believed that seeing more Hispanic teachers and science professionals in the schools would help Hispanic students appreciate the diversity of choices before them, as well as their own potential. The experts and leaders we spoke to pointed out that many Hispanic parents are in working-class or service jobs: their children do not get the chance to see adults who look like their parents working in white-collar and professional fields. Young Latinos, many said, do not seem to appreciate science and math-oriented careers as possible career options. Some participants said Latino students who are attending universities should return to the community in order to give something back. They also emphasized the need to encourage students to aspire to greater heights.

“There’s not enough exposure where they can tell their friends, or their neighbors, or their little sister, ‘You and I could go on to be a pharmacist, or go on to work... as an engineer.’ There’s not enough exposure.”

“I think in general kids in public school systems with families that have not had a college education don’t have the exposure to many of the diverse careers and professions that are available to their particular skill set. With that limited exposure, I believe that it doesn’t allow the kids in the K through 12-system to really see outside of that world.”

“It was easier for a [Hispanic] college student to encourage a high school student to consider engineering and science careers. The age disparity was not that great. The connection between high school students and college students was really—there was a low threshold for that connection where people could very closely relate to their situations.”

“If you set the bar high, you give them the right kind of support, and you believe in them, students will achieve at that level. It certainly happened to me. When somebody said I couldn’t do it, I didn’t do it. When somebody believed in me, it just turned my whole world around.”

We often asked our interviewees whether they were concerned about a more general decline of interest in the sciences and whether they believed that stereotypes about scientists tended to discourage young people from the field. Some did believe that the image of the socially-awkward figure in a white lab coat continues to haunt the profession, and several raised the issue of a social stigma against participating in science or math—how interest in these fields would single a student out as a “nerd”.

But others said there is a converse picture that may take hold. Television shows such as “CSI” provide graphic demonstrations of the power and adventure of science and how students could find empowerment through familiarity with technology.

“I think the media also plays an interesting part here—the whole concept of the nerd stereotype having such a negative connotation—that idea of bringing down those stereotypes of scientists as boring or engineers [as people who] don’t know how to have fun. When you are talking to adolescents, I think that plays a big role of desiring to be cool and to fit in. Somehow there need to be more role models to show that being a scientist is cool. Being an engineer or mathematician is cool. It’s interesting.”

## The Prospects for the Latina Scientist

Several of the interview participants remarked that Latinas are outpacing their male counterparts when it comes to attending and completing college. Under-represented in the STEM fields, female scientists and engineers are in high demand, many told us, but the male-dominated environ-

ment of high-level science positions can be a less than hospitable atmosphere for women of all cultures. Some also felt that traditional gender roles continue to discourage young Hispanic women from pursuing careers of their own.

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“There’s not the stigma that there used to be. A girl is just as adept at programming an iPod as [a] boy or opening one up and seeing what’s inside.”

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“More studious students tend to be little girls. They’ve got great talent, and I think just taking that and making sure that we expose them to other successful women that have been able to achieve these careers in engineering and science would be a great service.”

“There’s not the stigma that there used to be... The advent of technology in general with kids today has blurred those gender lines. A girl is just as adept at programming an iPod as [a] boy or opening one up and seeing what’s inside.”

“There is also unfortunately still—not all over the board—but there are still some family social pressures, especially regarding females about ‘Why do you even want to study? Look for a husband.’”

“I do believe that there is a gender gap in these fields, and again it goes to the stereotypes that exist within the Latino community; women should not be doing these fields that are greatly perceived as fields that only men should go into.”

“Things are changing right now. We have a lot more females into those fields, but still we need to have a lot more of support groups, role models, et cetera.”

## Families that Respect Teachers, Ask Few Questions

Some interviewees also raised concerns about the ability of Hispanic families to bolster their children’s education and be advocates for them in the public schools. Although Hispanic communities are extraordinarily diverse, some we spoke with believed that the way Hispanic families sometimes interact with each other, the limited educational attainment of the parents and traditional conceptions of the school’s role in childhood development can have a variety of effects on the success of education.

“There’s a cultural difference specifically in that... Anglo parents understand and recognize that the education of their child is a shared responsibility between school and home. In Latino culture, the home is where you learn ethics, and school is where you have your formal education.”

“The Maestra or Maestro is a person of high esteem in their culture from Mexico or from Central America or South America where they are not really questioned. They place their trust in the knowledge of the Maestro or Maestra as taking care of their kids.”

“[When] a kid [who’s] not well-prepared reads an item on a standardized test, there may be inherent biases in the item that are related to—not necessarily the content—but [to] how the kid accesses the print and [whether he or she] has had opportunities to access that print in their homes and through their communities... In that regard, I think they have not done justice to kids of color in general across the country under this NCLB and other accountabilities.”

## Obstacles to College: Poor Preparation, Lack of Money

Our interviewees cited a tangle of interrelated factors that keep too many Hispanic youngsters from attending and completing college—much less pursuing advanced training in science and math. Dysfunctional public schools, sub-standard K-12 education, schools that don’t even offer required coursework for college, lack of knowledge about how to apply to and pay for college, a reluctance to take on debt, pressure to join the work force and lack of mentors and role models were some of the many factors cited.

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The cost of college was perhaps the leading obstacle, but it was not by any means the only one. According to a number of our interviewees, Latino families find it difficult to reconcile the long-term financial stability promised by a college degree with the immediate financial needs of the family. Many students take on part-time jobs to meet immediate financial needs which distract them from their studies both while they are in high school and once they make it into college.

“The number one barrier to college education is finance. It’s access to money, because a lot of money is earmarked for academically advanced children, or economically disadvantaged children, and there are many Latino kids who don’t fall into those categories. They are not necessarily poor, but don’t have a college fund, or they’ve gone through the 12 years but maybe are a C student. Money is the number one [reason] that kids don’t even apply to college.”

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The parent(s) are just not aware of what it takes to get prepared for and to be college educated, [much] less asking them to go for a Master’s or a Ph.D.

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“Pew Hispanic Center did a study two years ago where they found that Latino parents more than other parents just don’t want to be in debt. So taking loans for college is not an acceptable option. There’s nothing in place for the system that really targets this problem.”

“First of all, you have to finish high school. I mean, that’s one of the biggest barriers. Assuming that we have this level of success, which I couldn’t even fix my lips to say that’s successful, but anyway, assuming the 46 percent that go, the ones that go into college, by the third year of college, they end up not graduating.”

“Many times, there’s not access to information about the college application process. You even you have students who are in a private/parochial school setting, and there’s a tendency for these kids to kind of be ignored.”

“If immigrants had access to loans, I think they would take them for the education. But the fact of the matter is, since they are undocumented, they don’t have access to many of those loan programs.”.

“Most Latino kids work more hours than they should.”

“The parent(s) are just not aware of what it takes to get prepared for and to be college educated, [much] less asking them to go for a Master’s or a Ph.D., so there really has to be an awareness campaign, I think, federally that hits our community, and by our community I mean the Hispanic community, as well as other minority communities.”



## First-Generation College Students Need Support

Our respondents often emphasized that many Hispanic students entering college are the first in their family to attend. They aren't able to depend on their parents' experience in higher education to guide and advise them as is common in non-Hispanic white families. Many young Hispanics have close ties to their family, and some find being away from home painful. For this reason, our respondents pointed out, they often enroll in local programs. Strong mentorship, faculty support and study groups were all recommended means of mitigating the pressures that college puts on the Latino student.

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"At Texas A&M University, they had a very strong minority engineering program... and the advisors, as well as the program in and of itself, was... very rich... They made sure they created a space for other minority students to network with one another, to create study groups with one another, create a really positive environment for learning and sharing."

"What I'm asking my staff to do is I want to develop a program that says, 'What are the needs of a first-year student, second-year student, third year, fourth year?' What I don't want to see are students still just being advised by us as juniors and seniors."

"We should be helping them transition into their colleges so that they're receiving faculty support. Faculty can write letters of recommendations for them. I think we have to look at each year and develop programs around that, in terms of what their needs are. I think it's really important that a program like ours is intrusive the first two years. That's when students have a difficult time."

"We also know that students are dropping out at a higher rate if they don't have a major by the time they're juniors. Huge issue. We need to figure out how to make sure those students have majors, so they stay and graduate."

"In some disciplines, like mathematics, where it's cumulative and you've got to keep up, if you fall behind several weeks, it's going to be very difficult for you to catch up."

## Desirable Destination, Miles to Go

Virtually all of the scientists and business people, government officials, community organizers and advocates voiced an enthusiasm for the goal of bringing more—many more—Hispanic and Latino youngsters into the scientific and technical disciplines. But many also pointed to a long road ahead.

"I believe it is an end-to-end problem. We do not have the teachers trained well enough in grade schools; we don't have the message out there that there are careers for Hispanics in this stuff, and we don't have the high schools prepped the right way, linked with [encouraging students] to take the right classes. The universities aren't reaching back. Now there are some schools that are doing a very good job, but most of them are not."

Most of those we spoke with were optimistic that positive steps could be taken, and some pointed to positive programs and promising precedents in math and the sciences. But many urged a broader and more muscular approach—once that ramps up the opportunities for Hispanic youth regardless of the field they choose by improving the schools they go to and dramatically improving services for English language learners. Too many youngsters, they pointed out, have lost their chance at becoming an engineer or biologist long before they ever set foot in algebra class. And even those who succeed in learning English and thriving in school face an uphill battle entering higher education. Others underscored their belief that there is too much focus on “why the problem exists” and not enough focus on the how to fix it.

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“It’s been studied to death, but what hasn’t been done is the kind of going to scale of best practices, effective models that is needed... I think at this point it should be what is working and the why. I think we’re done with diagnosis. We should be [working on] treatment.”

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“There are lots, of lots of assessments about why—what are the reasons for the failure of Latino children in school. Are the schools failing to educate Latino children? It’s been studied to death, but what hasn’t been done is the kind of going to scale of best practices, effective models that is needed... I think at this point it should be what is working and the why. I think we’re done with diagnosis. We should be [working on] treatment.”

## Interviews were conducted with the following leaders:

1. Rossana Rosado, Publisher and CEO, El Diario/La Prensa, July 11, 2007
2. Nancy “Rusty” Barcelo, VP of Equity and Diversity Program, University of Minnesota, July 18, 2007
3. Jerry Gonzalez, Executive Director, Georgia Association of Latino Elected Officials (GALEO), July 19, 2007
4. Robert Arias, President, Communities in Schools: Los Angeles and the San Fernando Valley, July 26, 2007
5. Robert Amezcua, Vice President, Power Systems Operations, IBM, July 31, 2007
6. Conchita Gonzalez, Chemical Engineer, GlaxoSmithKline, August 1, 2007
7. Ray Mellado, Chair and CEO, HENAAC, August 1, 2007
8. Allyson Peerman, Global Community Affairs Director, AMD (Advanced Micro Devices), August 2, 2007
9. Lorraine Cortes-Vazquez, Secretary of State, New York, August 9, 2007
10. Major General William A. Navas, Jr., Assistant Secretary of the Navy, U.S. Navy, July 18, 2007
11. Martin Castro, President and CEO, Mexican-American Opportunity Foundation (MAOF), August 24 2007
12. Fernando Martinez, Outreach Coordinator, Hispanic Interest Coalition of Alabama (HICA), August 28, 2007
13. Cyd Heyliger-Browne, Administrative Director of Science Education, Miami-Dade County Public Schools, September 6, 2007
14. Ricardo Fernandez, President, Lehman College of The City College of New York, September 11, 2007
15. Antonio Flores, President and CEO, The Hispanic Association of Colleges and Universities (HACU), September 19, 2007
16. Mildred Fernandez, Orange County Commissioner: District 3, Orange County, FL, September 20, 2007
17. John Villamil-Casanova, Executive Vice President, ASPIRA, September 24, 2007
18. Todd Ullah, Director of Secondary Science Programs and Project Director of the Los Angeles Urban Systemic Program, LA County Schools, October 10, 2007
19. Arturo Vargas, Executive Director of the National Association of Latino Elected and Appointed Officials Educational Fund (NALEO), December 5, 2007



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