

## CHANGING DEMOGRAPHICS AND CHALLENGES OF THE FUTURE

*Dr. Diana Natalicio, President of the University of Texas at El Paso and Vice Chair of the National Science Board, began the panel by noting recent demographic shifts throughout the country. These shifts have created tremendous potential for higher education in science and engineering; however, currently there is a deficiency in the number of minorities in the science and engineering workforce. The major challenge is therefore to embrace changing demographics by opening up opportunities to these underrepresented populations.*



It is no secret to any of us that the demographics of the United States are changing. The 2000 Census<sup>26</sup> reveals a 58 percent increase in the U.S. Hispanic population between 1990 and 2000. These numbers continue to grow as states across this country try to adapt. These shifts are not only a challenge for elected officials; they represent a major wakeup call and a huge opportunity for U.S. higher education, especially in science, math, engineering and technology.

To put things in perspective, consider the following rankings of the University of Texas at El Paso. It ranks first in the Nation in the number of master's degrees awarded to Hispanics in geological sciences: the University has awarded two such degrees. It ranks first in the number of physics master's degrees awarded as well: the University has awarded two of these degrees. The University ranks first in awarding master's degrees in environmental engineering with six and first in awarding master's degrees in metallurgical and materials engineering with four. At the doctoral level, El Paso ranks first in computer engineering degrees awarded to Hispanics with one. Everyone should consider what this means in the context of the demographics changes reflected in the 2000 Census.

The situation is not limited to Hispanics either. People of color are grossly underrepresented in graduate schools, master's programs, Ph.D. programs, and as a consequence, on university faculties as well. The implication is that if we do not increase the size of the pool of available candidates, then Universities are just going to steal from each other, which is exactly what has been occurring. The highest bidder wins the prize. We all know that this is not

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good enough and we are all here today because we recognize the challenge that we have before us.

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<sup>26</sup> U.S. Department of Commerce. Economic and Statistics Administration. U.S. Census Bureau. United States Census. 2000. "The Hispanic Population," <http://www.census.gov/prod/2001pubs/c2kbr01-3.pdf>

*Dr. Beverly Daniel Tatum, President of Spelman College, discussed the importance of recognizing racial biases in our society. She argued, based on studies by social psychologists, that affirmative action programs and thus, attempts to increase diversity at universities, are threatened by unexamined evaluative biases.*



*This “aversive racism” must be scrutinized if the United States is to appropriately respond to demographic shifts and the needs of the science and engineering workforce.*

As one of the small number of black women who has been a tenured full professor, as a mother of two young black men, both of whom aspire to careers in the academy, and as president of Spelman College where we are both producers and consumers of a diverse faculty, I have many personal and professional connections to this topic and I’m glad to be a part of this discussion. Although I wear multiple hats, I want to speak today from the perspective of a psychologist who has written about racial issues.

The NSF plays an important role in advancing the knowledge for the whole nation and producers of that knowledge need to reflect the multiple perspectives of this nation. Since I will be addressing the issue of bringing diversity to university faculty, I want to begin by reflecting a little bit on the demographics.

According to the 2000 Census,<sup>27</sup> there are approximately 280 million people in the U.S. One percent are American Indian, four percent are Asian, twelve percent are black, thirteen percent are Latino or Hispanic and seventy-five percent are white. By the year 2050, whites are projected to be fifty-three percent of the population in the U.S and by 2010, Latinos are expected to surpass African Americans as the largest racial or ethnic group of color.<sup>28</sup> Though the Asian population is smaller than both of these groups, it is expected to increase in number more rapidly than any other group.

College enrollment among students of color has increased dramatically. According to the Department of Education,<sup>29</sup> students of color represent approximately 28 percent of those participating in higher education today and the percentage is rising.

Though the population is shifting, it is still the case that there exists social segregation. Students go to college with little

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knowledge of one another's backgrounds beyond the stereotypes that are so pervasive in our society. The residential segregation patterns currently in place do not serve our children very well in this regard. White children are the most likely to grow up in segregated neighborhoods and consequently, have the least experience learning to negotiate diverse settings. The average white person lives in a neighborhood that is more than 80 percent white, while blacks live in neighborhoods that are on average approximately 60 percent black and 30 percent white. Hispanics live in neighborhoods that are roughly equal: 40 percent white and 40 percent Hispanic. Asian and Pacific Islanders are the most urbanized group: 94 percent reside in cities and they are most likely to be in neighborhoods that are composed of a mix of whites, blacks, Hispanics and other Asian and Pacific Islanders.

What is true for students is even truer for faculty who are even less likely to have grown up in diverse neighborhoods or to have been educated in diverse school environments. This lack of exposure makes both students and faculty very susceptible to a subtle but pervasive form of racism that John Dovidio<sup>30</sup> and his colleagues have called "aversive racism." Aversive racism is defined as, "an attitudinal adaptation resulting from an assimilation of an egalitarian value system with prejudice and with racist beliefs." In other words, most Americans have internalized the espoused cultural values of fairness and justice for all, while at the same time breathing what I call the smog of racial biases and stereotypes pervading the popular culture.

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We breathe this smog not because we want to but simply because it is the only air available. The existence of almost unavoidable racial biases and the desire to be egalitarian and racially tolerant forms the basis of an ambivalence that aversive racists experience. This creates a desire to be fair on the one hand, but on the other hand, your thinking is unavoidably influenced by these biases in the culture. Pointing to the findings of several impressive research studies, social psychologists such as John Dovidio and Samuel Gaertner<sup>31</sup> argue that because aversive racists see themselves as non-prejudiced and racially tolerant, they generally do not behave in overtly racist ways. When the norms for appropriate non-discriminatory behavior are clear and unambiguous, they do the right thing because to behave otherwise would threaten the non-prejudiced self-definition that they hold.

Dovidio and his colleagues assert that in situations where it is not clear what the right thing is, or if an action can be justified on

the basis of some factor other than race, negative feelings toward blacks will surface. In these ambiguous situations, an aversive racist can discriminate against blacks without threatening his or her racially tolerant self-image. For example, a study asked white college students to evaluate black and white people on a simple good-bad basis. Students consistently rated both blacks and whites on a subtle continuum of goodness, and clearly choosing bad rather than good to describe blacks might indicate bias. Whites were consistently rated better than blacks but blacks were not rated as bad. For instance, when the rating choice was ambitious versus not lazy, blacks were not rated as lazier than whites but whites were evaluated as more ambitious than blacks. Repeated findings of this nature led these researchers to conclude that a subtle but important bias was operating. In the eyes of the so-called aversive racist, blacks are not worse but whites are better.

Dovidio and his colleagues concluded that the aversive racism framework has important and direct implication for the implementation of affirmative action type policies. Affirmative action has often been interpreted as, when all things are equal, take the minority person. Because whites tend to misperceive the competence of blacks relative to themselves, insufficient competence, not race, becomes the rationale justifying resistance. The particular irony here is that the more competent the black person is, the more likely this bias is to occur. The research that I have just discussed has been framed, of course, in terms of black-white relationships and I have just mentioned the demographics of our society as moving us beyond just a black-white perspective. Yet the black-white emphasis in the aversive racism framework seems well placed when we consider that researchers have found that negative attitudes toward affirmative action are expressed most strongly when blacks are identified as target beneficiaries.

Certainly anyone involved in faculty searches knows that there are many opportunities for evaluation bias to manifest itself: in the initial recruitment and screening of applications, in the interview process and ultimately, in the final selection. Competent candidates of color are likely to be weeded out all along the way. Some of you may recall the book by Stephen Carter,<sup>32</sup> *Reflections of an Affirmative Action Baby*.<sup>33</sup> In that book, he reflected on his experience as a student at Yale and his knowledge that he had been a beneficiary of affirmative action. Carter argued that affirmative action might not be so necessary when black candidates were “too good to ignore:” that if you were really good, then affirmative action would not be necessary. However, this research that I have

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presented suggests that it is those who are too good to ignore that are perhaps too good to hire in the way that this bias operates.

Though the research on evaluative bias is dismaying, it also points in the direction of an effective response. Remember that when expectations for appropriate behavior are clearly defined and a biased response can be recognized, whites are consistently as positive in their behavior toward blacks as toward whites. The role of institutional leadership is clearly important here. If administrators on campus and federal agencies or other entities off campus articulate the organization's diversity goals and the reasons that such goals are in the organization's best interest, the appropriate behavior in the search process should be clear. If we keep our eyes on the prize in this way, it is possible to get past this kind of evaluative bias.

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<sup>27</sup> U.S. Department of Commerce. Economic and Statistics Administration. U.S. Census Bureau. United States Census. 2000. "Overview of Race and Hispanic Origin," <http://www.census.gov/prod/2001pubs/c2kbr01-1.pdf>

<sup>28</sup> U.S. Department of Commerce. Economic and Statistics Administration. U.S. Census Bureau. United States Census. 2000. "U.S. Interim Projections by Age, Sex, Race, and Hispanic Origin," <http://www.census.gov/ipc/www/usinterimproj/>

<sup>29</sup> U.S. Department of Education. National Center for Education Statistics. *Digest of Education Statistics, 2002: Postsecondary Education*, [http://nces.ed.gov/programs/digest/d02/ch\\_3.asp](http://nces.ed.gov/programs/digest/d02/ch_3.asp)

<sup>30</sup> Dr. John Dovidio. Faculty Page, <http://departments.colgate.edu/psychology/web/dovidio.htm>

<sup>31</sup> Dr. Samuel L. Gaertner, Faculty Page, <http://www.psych.udel.edu/people/detail.php?firstname=Samuel&lastname=Gaertner>

<sup>32</sup> Stephen L. Carter, Faculty Page, <http://www.law.yale.edu/outside/html/faculty/slc2/profile.htm>

<sup>33</sup> Olson, Walter. "Breaking Ranks (review, Reflections of an Affirmative Action Baby by Stephen Carter)." *National Review*. October 7, 1991, <http://walterolson.com/articles/carteraa.html>

*Dr. Shirley Malcom, head of the Directorate of Education and Human Resources for the American Association for the Advancement of Science, challenged the system of hiring faculty into academia and suggested that this a major obstacle for recruiting diverse student bodies into science and engineering careers. She asked, "Do minority students see teachers and faculty who look like them? Why is this important? I think that everyone needs an existence proof. When you have to become something you have never seen it is really tough. A lot of us in this room had to become things we never saw and we had to somehow be convinced by somebody at some point that we could in fact become these things." Arguing that universities are making the same systematic mistakes in recruiting faculty, she argued for the sharing of ideas amongst universities on how to achieve a diverse faculty to prevent 'reinventing the flat tire.'"*



I want to start off by telling you that I wear a lot of different hats, meaning that I speak from multiple perspectives. I will be wearing a couple of different hats today as a minority and a female. I hope that the National Science Board will learn from my experiences as such and that we can all work together to bring diversity to science and engineering.

The AAAS Directorate Education and Human Resources Programs houses the National Postdoc Association. It is interesting for me, because we have responsibilities that range from pre-K through postgraduate, to look at issues across the spectrum and at those that relate to women, minorities and people with disabilities, there are some issues and some perspectives that emerge from the breadth of our responsibilities.

One of the things that has always been very useful about having women's issues in our portfolio, was that I never believed that if we got the numbers right, we would get the positions right. I never believed that because I saw the numbers of degrees awarded to women in Science and Engineering change, and I saw nothing happen for them within the institutions. In the case of people with disabilities, a lot of the problems early on that those individuals faced were because the laws were not on their side. You had to get the law right first. But even once you got the law right, you still had a lot of work that had to be done in faculty pipeline; they are not even present at the assistant professor level among S/E faculty.

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The situation with postdocs was very instructive because I came to understand that you had a group of people who had played by the rules; they had done everything that everybody told them that they were supposed to do to get through the system, and yet they still couldn't get into the system. I now refuse to believe that just because you play by the rules and do everything right, that a way will be made for you.

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In America today, we have a group of people who are marginalized, disenfranchised, treated as children to a certain extent, not supported in assuming independent lives and not paid adult wages so that they can support families. These are people who are advancing in age. These are people with families. Yet, this kind of perspective (a recognition of their roles and responsibilities) really is not one that seems to be in place within institutions. The bottom line to all of this is that the problem is the system. The things we have put in place over the years have basically been Band-Aids: programs that have been in the margin. The only way that you can in fact accommodate the needs of the majority is to reengineer the system so that it serves the majority. And until it serves the majority, the system does not really work. Yet we have not really looked at ourselves as addressing a system that does not work.

When radical changes have been proposed, such as in the way we support students or develop careers, many of my colleagues say, if it ain't broke, don't fix it." Well, it's broke. This has been one of the crucial tenets that has not been accepted. The other thing that I would say is that students are walking away from science and from academics; they're voting with their feet. It's not a choice when you have no choice. People are not just voluntarily leaving. They're being pushed out. They're being given unhealthy academic climates, be it smog, fog or whatever you want to call it, and then asked to perform in ways that just make no sense.

John Gardner once said, "We are continually faced with a series of great opportunities, brilliantly disguised as insoluble problems." Thus, I want to pose a question and seek the opportunity it provides to question the system. Do minority students see teachers and faculty who look like them? Why is this important? I think that everyone needs an existence proof. When you have to become something you have never seen it is really tough. A lot of us in this

never saw, and we had to somehow be convinced by somebody at some point that we could in fact become these things.

Regarding the role of faculty in research, we know what the role is and we know what the expectations are. However, I think that there is a much larger issue, namely, the faculty role as educator. The question of faculty role as educator - transmitting knowledge and know-how, culture and values, socialization and networking, guiding intellectual development - is the role that we really are talking about. In the university that role has to be in place, in addition to the role as researcher.

So how do we create the next generation of scholars and educators? How do we provide future faculty with the kind of career guidance, the notion of societal responsibilities and the ideas of cultural competence that are necessary? The notion of cultural competence was introduced in medicine and in other areas where it makes a difference how people relate those who are at the other end of whatever service they are providing. We have not really had this kind of discussion within education. The notions of being able to understand where people are coming from, what they need, what they value, and how to work with them in ways that are respectful to get the best out of all kinds of people, are crucial. I think that it is time to really have a serious discussion about cultural competence in the context of a faculty role and of creating the next generation of scholars and educators. It is the next generation of scholars and educators that we are addressing in this panel.

Looking at current figures for the education pipeline we see that there is an increasing minority student population and a declining white student population. This is happening in the face of decreasing numbers of minority faculty at the K-12 level and no gain in minority faculty in higher education. We talk about this as being a national issue, but I think that the important thing is that it not be seen as just a national issue. It is a regional and state issue as well, because it is more exaggerated in some places than in others. The numbers are real on a national level, and they are even more real and more immediate on a state-by-state basis. That is where a lot of the action has to happen within the institution. Already in California and Texas, we have school age populations where no single group comprises the majority. And in other states such as Florida, New Jersey, New York and Illinois, similar trends are emerging. But the student changes are not being accompanied by changes in faculty makeup.

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The thing that really makes this tough to get a shift in share (of faculty) is that it requires very large numbers. Yet minorities are not even in the faculty pipeline; they are not even present at the assistant professor level among S/E faculty.

Now I think that Beverly's (Tatum) presentation is quite telling because it calls into question everything that we hold dear. When we speak of "peer review," what do we mean by peers? Do we have a sufficient expectation of fairness? We know that there is research that says when you evaluate teaching competence, if you show the same things to students and one person being evaluated has a female name and the other has a male name, they consistently rate the female lower. If you have this phenomenon and you know this is happening in the evaluation, how can we continue to do what we have always done? If the system is the problem, then somehow the system must stop being the problem. It must first do no harm and then try to do good.

What are some possible strategies? I think that everything has to be on the table, and that has never been the case. We talk for example about academic freedom but I seldom hear discussions of academic responsibility. One of the other quotes from John Gardner is "liberty and duty, freedom and responsibility, that's the deal." That is the deal in a society where it is the taxpayer who is supporting research and where the agencies are the stewards of the public dollar. That is the deal.

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I think the question becomes one of how do we begin to affect the way that we make decisions about the processes that are in place. We have to reduce the time to degree because right now, science/engineering does not look like a good life. I was trustee of an institution that saw too many students that had been there too long. When told that they were not going to be supported for longer periods, it was amazing how fast these students then graduated. These kinds of strategies can be effective. We have some models that look like they may be exemplary, but they have taken on only parts of institutions, not the entire thing. We have no example of real structural change, where the money and the positions and everything follow this vision, and yet, that is the one thing that we have to create. We have to start looking at each other's models and programs so that we stop reinventing the wheel. I know that everybody has to have their own context, and I know that everybody wants to look at things their own way. It may even be okay to reinvent the wheel, but we keep reinventing the flat tire and that is where the problem really occurs.

A large part of the problem with regard to faculty hiring relates to the fact that the systems are poorly managed and that there is no transparency. But the lack of transparency is something that I think presents a real challenge to the NSF and to the way it relates to its grantees.

When you are giving large grants for centers that are supposed to have education as well as research purposes, you have the right to talk to the people who have benefited from these grants; you have the right to insist that there are processes and procedures in place that could lead to a desirable faculty and student makeup. If Xavier, Morehouse, Spelman and other institutions can produce students who go on to get Ph.D.s in science and engineering fields (where they are not expected), why can't others? Why can't we hold accountable some of the other institutions whom we continue to fund but without asking for accountability with regard to the way that they run their programs?

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***Dr. Richard Tapia***, Professor of Computational and Applied Mathematics at Rice University, highlighted the importance of retaining, not just admitting, students from underrepresented groups. Retention success follows from the creation of a community within an academic program. He believes that what we are dealing with is not a supply problem, but rather a demand problem because minority students are not demanding careers in science and engineering. Also, not enough minority students are being led to graduate programs, which is translating into a lack of minorities at the faculty level. He calls for the need to recruit “the precious few,” the minority students who have the skills and potential to fill top positions in the science and engineering workforce.



The Rice Department of Computational and Applied Mathematics,<sup>34</sup> which I represent, is number one in the production underrepresented minority Ph.D.’s in mathematical sciences of any school in the United States. And we’ve been that way for many years. On occasion, we’ve been told, you have 50 percent of the productivity of the country. Since 1998, our department has produced 23 Ph.D.’s. Of the 23, 12 have been women. Of the 23, 8 were underrepresented minorities. Of the 8 underrepresented minorities, four were African American, four were Mexican American. Next year’s freshman class will have eight people coming in. Of the eight, four are underrepresented minority, two are African American, two are Mexican American. Two are males, two are females. We do a sort of a Noah’s Ark approach to everything.

When the data that I have just quoted was published in *Science*<sup>35</sup> a month or two ago, I had a lot of calls. One of them was, “Okay, Richard, how many are foreign?” I said, “Zero.” “How many did you steal from other schools who could have gotten into Stanford?” I said, “Zero.” The issue is retention, not admission. It’s easy to admit. If I judge a school, I’m not going to judge on the percentage they admit, I’m going to judge on the percentage that they retain.

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I gave a talk recently at the University of California, Berkeley, and they said that there is something wrong with our Computational and Applied Mathematics Program at Rice because our retention rate is too high. They claimed that we have to get rid of some of the people in the program, otherwise we cannot have a quality

program. I believe that our retention of students is our greatest asset because it shows that we have a community. We have critical masses in the department and problems across divisions. We essentially have an inverted pyramid where I am at the top. I do not spend every day with all the students: I have a hierarchy of students and senior graduate students who mentor the less senior, down to the undergraduates and even to the high school students.

I hear from a graduate student that X has failed the qualifying exam and is getting kicked out of the program. I tell them, "Let me take care of it. X has another chance." X then takes the exam, passes, and goes on to get a Ph.D. At Rice we do well and we are able to recruit students, minority students, who are thinking of other elite schools: Stanford, Princeton, Harvard. But these students visit Rice and they say, "I have been accepted at these elite schools but I am turning them down to go to Rice." They see a strong model and they want to be a part of it.

We have a model that works but it is difficult to place our Ph.D. students because of this pedigree syndrome. The students want to go into academia, and they do get jobs, but it's also true that in many of the schools where we sent an application, we don't get close to the short list.

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Concerns regarding representation are not just lamenting the injustices of the past; rather we understand that underrepresentation endangers the health of the nation. It is not the health of the discipline that we worry about because the disciplines will go on with or without minorities or women. Maybe the disciplines will be better with them, I agree, but the discipline is not in danger. The danger is basically the health of the country because people are becoming second-class citizens for generations and generations. We must be concerned with our United States born and raised black, brown and red.

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As we go up the ladder from high school to undergraduate to graduate to faculty the representation gets worse. Evaluations also get worse, with the pinnacle of faculty hiring being the absolute worst, in terms of representation and in terms of hiring. I am going to step out and say a bold statement here. In spite of increasingly poor evaluations as we go up, the number one enemy of underrepresentation in this country is poor preparation of minorities at all levels. Number one. The number two enemy is maybe evaluation. We cannot focus on evaluations without addressing the fact that there are extremely poorly prepared

minorities at all levels. Cities are problematic and ninety percent of all minorities live in cities.

Let me tell you a bit about Houston Independent School District. If I get a valedictorian out of Moody High School, which is 98 percent Mexican American, or a valedictorian out of Yates, which is 98 percent African American, or a valedictorian out of Bel Air and Lamar, the two premier schools in Houston, I will have to go to the ones that come from the minority schools and say, “You have not been told this and you do not know this, and you are very good, but you are not prepared to run with the big dogs.” However, it could be that Bel Air and Lamar come up with a minority valedictorian and that minority will be prepared to run. So the lack of homogeneity in urban public K-12 education is one of our number one problems in terms of representation.

So what we are dealing with is really not a supply problem but a demand problem. The students are not demanding the career that we have been talking about. It is not that they rationally said, “no.” I gave the commencement address at Jones High School, a minority school, last year. I was introduced as a mathematician and I was given huge round of boos. The fellow who introduced me was very embarrassed and he said, “Wait, wait, wait, this is not just your normal mathematician. Wait until the talk is over, okay?” After my speech, a young woman came up to me and said, “You were right, it was a great talk. Are you sure you are a mathematician?” So this is what accounts for the loss of the masses.

Now I want to focus on a bigger problem and a bigger sin: the loss of the precious few. Positions of national leadership are produced in major research universities. If we want to produce minority leaders, then we must have minorities represented in these universities. The same is true of faculty. We break them, burn them out, make it unfriendly for them, take away their self-confidence and take away their self-esteem. These people do not know how good they really are and they do not know how well they have been educated.

The loss of the precious few is a bigger sin than the loss of the masses. Those few are the ones that should have been essentially going to graduate school, becoming our leaders, and they stopped with their bachelor’s degree because the environment is so unfriendly. Another thing you find is that minority students come into engineering and science and then move to the humanities.

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Huge percentages of minority students nationwide in selective schools do this and we have to hold schools accountable for this.

The Peter Principle says that you are promoted to a level of incompetence. There is also a modified Peter Principle for minority students. They enroll at a university one level above what the preparation should be. So the student who should have gone to University of Houston ends up at the University of Texas and the student who should have gone to the University of Texas ends up at Rice, one step out of phase. If we had pushed them back, they would probably all go on to graduate school.

I went to community college and that is where I built self-esteem. I was the hottest thing they had seen in community college. They told me that I was great and they were going to take me to UCLA and I said fine. At UCLA I survived because I had thought I was so good at community college and I went on. But what is happening today is that we are losing these groups of students who are the very, very best because we are sending them to environments which will not lead them into graduate school and in turn, to a faculty position. That is a critical issue and I see it every day. I see it across the board. My job is to tell these students that they should go to graduate school. It does not matter that you got a “C” as a freshman, you should go to graduate school. As a result of this, I have had success with taking undergraduate students from Rice directly to graduate schools and they do very well.

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<sup>34</sup> Rice University. Department of Computational and Applied Mathematics, <http://www.caam.rice.edu/>

<sup>35</sup> *Science*, <http://www.sciencemag.org/>

## DISCUSSION

*The discussion concentrated on two issues: statistical discrimination and bringing a level playing field to academia. With regard to statistical discrimination, each panel member expressed the view that faculty hiring committees are afraid of hiring a poor candidate but not afraid of not hiring a good candidate. This is one of the reasons for a lack of diversity in university faculty because those who are different are looked over. Dr. Tapia responded to the second issue of level playing fields in academia by saying that teachers must be made to feel part of a larger community: a community of educators, as well as scientists and engineers. By doing this, teachers will realize the importance of bringing high quality education to all students at all levels, ultimately creating qualified students for faculty positions and positions in the science and engineering workforce.*

*An audience member brought up the issue of statistical discrimination before the panel.*

### *Audience Member*

Statistical discrimination is the idea that in the system there are two kinds of error. One kind of error is hiring somebody who turns out to be a failure. We are utterly terrified university faculties are making that kind of error. The other error in a statistical term is to fail to hire a star. For some reason we do not worry about that. If someone went to the same school you went to, studied with the same mentors, looks like you, talks like you, thinks like you, you are never going to make the first kind of error. If somebody is different, if somebody went to the wrong school, studied the wrong thing, studied with the wrong advisor, is female or black or Hispanic or does some kind of research that you have never seen, you are likely to make the other type of error.

### *Dr. Richard Tapia*

I have convinced our departments in terms of admissions, not faculty but in terms of admissions, that these errors really do happen. Our success has been this holistic approach both at graduate and undergraduate level and really looking to see if that person has something to offer. However, you are right that we have not adequately convinced faculty on this issue.

***Dr. Shirley Malcom***

One of the concerns I have is that in a lot of cases, when you ask about hiring, what will be said is that the faculty knows the people who are good. This kind of statement will then be enough that the discussion shuts off. The thing that I have raised in my role as a trustee is that I do not care who you know: everybody can learn from training and going through some kind of experience where you are walked through the process.

*Institutions are leaving themselves open for quite a number of lawsuits when they do not provide training because there are a number of questions that search committees can, through ignorance, ask that are patently illegal to ask.*

Institutions are leaving themselves open for quite a number of lawsuits when they do not provide training because there are a number of questions that search committees can, through ignorance, ask that are patently illegal to ask. I think that if training were raised as an issue of liability as well as one of perhaps not getting the best candidates, then there might be more openness to this notion of error, and we might get around this idea that “my people know the best people in the field.”

***Dr. Beverly Daniel Tatum***

Prior to going to Spelman, I was a faculty member, department chair and ultimately dean at Mount Holyoke College. At Mount Holyoke, one of the things that I did was serve as the chair of the faculty affirmative action committee. Something that I learned from that experience was that most departments were actually quite open to rethinking this ordering process and establishing a threshold of excellence over which anyone who exceeded that was considered a viable candidate. The problem was that no one knew how to recruit a diverse pool.

One of the articles that we were given as background reading for recruiting a diverse pool talked about how the usual passive placing of ads in the *Chronicle of Higher Education* or whatever professional publication it was, was not sufficient to recruit. However, if members of the faculty affirmative action committee talked with department members well before the search process began, for example, in the spring in the spring when the dean of the faculty announced who was going to have openings, then there was time to meet with the search committees, and in the spring to talk about the difference between goal-oriented versus process-oriented hiring. This allowed us to talk about strategies for effectively increasing the diversity of the pool. As a result, at Mount Holyoke we found tremendous success in being able to recruit faculty of color, even to South Hadley, a small town that is not particularly attractive for many people of color to come and live.

*An audience member next asked the panel to address the issue of “gatekeepers,” and creating a level playing field for minorities so that minorities are qualified for faculty positions in science and engineering departments.*

***Dr. Richard Tapia***

The best way to address bias on the part of the faculty, and there is no doubt about this, is to have some really good success. If you have enough success stories with underrepresented minority students, you go forward. If you have enough failures, you move back. One aspect of success is to get students to believe in themselves. Poverty is the worst kind of violence. It is not about students being smart: it is about being ready. If you can get students to believe in themselves, then they can be successful no matter what the situation.

Another one of the things that I think you have to remember is that the field is not necessarily level from the beginning. If you have teachers who have seniority, guess where they are not going to want to teach? If you have teachers who are really top teachers, they are going to want to teach your AP classes, not bottom level classes. If you have minority schools, you will often have schools without AP classes even available so the opportunity to even be challenged is not available.

I believe that community is important for teachers in the same way that it is for students. You have to make teachers feel they are not just a member of the education community: they are also members of the scientific and mathematics communities.

