

ABSTRACT

This short note provides the briefing paper that Carlos Castillo-Chavez will use as the basis of its presentation on February 12, 1998 at a panel co-organized by the White House Office of Science and Technology Policy and the Directorate for Education and Human Resources Programs of the American Association for the Advancement of Science (AAAS). The panel session at the AAAS 150th Anniversary Meeting is entitled, *Meeting America's Needs for the Scientific and Technological Challenges of the Twenty-First Century*. The panel will focus on (1) the need to diversify the science and technological community; and (2) how to deal with the challenges to targeted minority recruitment programs in science and engineering. The panel will be chaired by John H. Gibbons, Assistant to the President for Science and Technology. This panel discusses the President's Initiative on Race and its impact on the diversity of the science and technological communities, a topic, that will be addressed by Clinton himself at this AAAS meeting.

Prof. Carlos Castillo-Chavez <cc32@cornell.edu>
Carlos Castillo-Garsow <cc96@cornell.edu>
Cornell University
434 Warren Hall, Biometrics Unit, Ithaca, NY 14853-7801
Phone 607-255-5488; Fax 607-255-4698

February 9, 1998

President's Initiative on Race: Briefing Paper

Youth media has proved to be a strong determinant of youth behavior and cultures. It has been used to foster racial stereotypes with movies like "Gone with the Wind", "West Side Story", and "White Men Can't Jump". Unfortunately, youth media, the most powerful approach for systemic change in education, has stimulated disinterest in science while keeping alive racial and gender stereotypes. No presidential program directed at diversifying the science and technological community will have a significant impact without the systematic cooperation and systematic participation of the media.

One of the saddest problems with this country is the state of public education, which is wildly inconsistent, even within schools. Clinton's program of "Getting Good Teachers Into Underserved Areas" is a step in the right direction, as good teachers are very badly needed. But why were they missing in the first place? At the heart of our educational differences is a public education system based on the "richness" of the local property tax base. Wealthy communities may spend as much as \$14,000 per student while poor communities may not even spend a tenth of this amount. Economic inequities in the public school system foster sustained disadvantages among individuals and naturally affect people of color in a more dramatic way. A Clinton plan without a systemic approach to the resolution of economic inequities in a property-tax driven public school system will have no substantial impact on the nation's efforts to diversify the scientific and technological communities. Furthermore, a lack of a systemic economic initiative in the way we fund public school systems combined with future racial demographic changes will create a two-class society that will rip our society apart. The president and congress must commit the time and resources needed to reform education. The president and congress must foster broad and constructive dialog on the impact of economic inequities on the scientific and economic fate of our nation. A leadership program that engages the country in the search for solutions for the nation's racial problems and its impact on the scientific enterprise is fundamental. This leadership program, however, must continuously inspire all the nation's citizens to act on their own to create an America where equal opportunity is not measured by an SAT score but by the ability of students to get a first-rate education from K-16 and beyond. Business, academic, and religious leaders must be critically involved in every *single* national and local effort that fosters diversity in the workplace. Leadership must come from the President, John Gibbons, and Congress.

Institutions of higher education have always been involved in the promotion of change at the national level from the time of sputnik. The national interest would be shortchanged without the significant and systematic participation of grade and high schools, technical schools, colleges, and universities in the development and implementation of the ideas, programs, and policies needed to help establish a diverse scientific and technological community. Systemic efforts such as those

led by Luther Williams at the National Science Foundation (NSF) must not only continue but must also become an integral part of the portfolio of ideas and programs outlined on the President's Initiative on Race. Efforts to support individual scientists and mathematicians like Richard Tapia (Rice University) or Uri Treisman (University of Texas-Austin) who have developed and maintained research and educational programs that have dramatically improved the training and recruitment of underrepresented minorities into the sciences at the graduate and undergraduate level must be maintained. Efforts to reward, within the scientific community and within various university cultures, the work that all faculty carries on the recruitment and training of minorities must be established in a systematic way. University administrators and faculty must be educated on the importance to the national interest of making sure that all our citizens have a clear opportunity to develop their scientific and technical talents.

At the moment most faculty, including most of our first-rate scientist and mentors, will not devote a sustained effort in the education, training, and recruitment of underrepresented minorities. Why can't our students have access to the best researchers and mentors in the world? Simply because these types of activities are not valued by individual departments and by university administrators. NSF, NIH, and federal agencies like NSA or DOD, and private foundations like the Sloan Foundation which have systematically provided funds for summer research experiences and fellowships for a diverse population have been fundamental to the few successes that have increased diversity in our community of researchers. The sustained efforts of these federal agencies have resulted in the creation of high impact research programs for undergraduates that have already made a difference. The policies and initiatives of these federal agencies and the President's Initiative on Race must make it clear to university administrators and its faculty that support for these programs is fundamental to the nation's future.

Models of support and involvement by federal agencies must also be encouraged and rewarded. The systemic efforts of NSF's Luther Williams--MIE programs, for example--represent an extraordinary model the role that NSF can play particularly when its director, Neal Lane in this case, believes and supports the development of a diverse scientific and technological community. The individual effort of Jim Schatz at NSA provides a clear example of the impact that a single individual at a Federal agency may have on the nation's scientific infrastructure. Jim Schatz has devoted considerable amount of time in identifying and supporting programs at Berkeley, Cornell, and Rice that have become extremely successful. However, we must find ways of implementing successful individually-driven programs which often depend on successful and highly committed scientists into a broader community.

Programs like those supported by the Division of Mathematical Sciences at NSA and by the Division of Human Resources at NSF must have the resources to reach a significant number of students if they are going to make a difference nationwide. The creation of institutes that foster undergraduate research during the summer based on existing successful models is fundamental. Institutes must not only support research activities and mentor students, they must develop the expertise needed to implement them in diverse environments.

The establishment of institutes that bring the best faculty and the best institutional resources to students from all corners of the nation is urgently needed. To generate systemic change programs

must be developed everywhere that include a significant number of the pool of eligible students. In order to generate systemic change, programs must not depend on the charisma or energy of extraordinary individuals who have taken upon themselves to address the issues of representation in academia. In other words, the essentials of programs that provide opportunities to a diverse community of students must be transferable to universities and local environments.

Faculty of all races will learn and implement successful models only if the value of recruiting, mentoring, and educating a diverse group of students is highly recognized and valued within each university and within each community. We are blessed with the most impressive scientific community in the world and yet most college students (of all races) have no significant opportunities to work with and be mentored by this invaluable resource.