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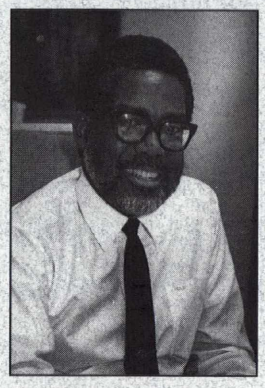
NEW YORK CITY ALLIANCE NEWS

ALLIANCE FOR MINORITY PARTICIPATION IN SCIENCE, ENGINEERING AND MATHEMATICS

The New CUNY Policy on Remedial Courses: Meeting the Challenge Head-On, Some Thoughts from Principal Investigator, Dr. Neville A. Parker



Dr. Neville A. Parker
NYC AMP Principal Investigator

Unless we act swiftly and creatively, CUNY's decision to discontinue remedial education at four-year colleges will mitigate against AMP's ability to achieve its goal of dramatically increasing the number of students who earn bachelor's degrees in SMET disciplines. AMP must address this change in policy by making it an opportunity for innovation and reform.

We should not confuse the level of skills which some students bring to CUNY four-year colleges from high school with their ability to master SMET disciplines. We know from the performance of AMP students over the past six years that many students who enter CUNY with deficient skills are, in fact, highly capable. They need help in surmounting the early hurdles. When they receive an extra boost, when they have access to the peer tutoring and faculty mentoring which are AMP hallmarks, they perform not just well, but often with distinction, in science, mathematics, engineering and technology. The need for remediation will not go away. We must find new ways of addressing it or we will loose students who are able to do excellent academic work, flourish in the research-oriented undergraduate environment which AMP has brought to the sciences at CUNY, and go on to fine scientific careers.

Models exist to help us innovate. TRACC (Transfer and Retention at City College) and PRES (Program for Retention of Engineering Students) in the City College School of Engineering have been very successful in helping students reach their full potential. They are, however, limited in scope. TRACC, for instance, serves only thirty students. We must ask ourselves how we can expand and leverage these programs to reach a larger number of students. We must make use of the summer months. There are many parallel summer programs across the University. Could these be rationalized to deal aggressively with the issue of remediation? An intensive month-long course might in fact be a more effective way of overcoming deficiencies than the current semester-long model.

The new CUNY policy is a challenge, and in the end we may do our job better. For the past six years, AMP has been restructuring the gatekeeper courses in calculus, chemistry and physics which have kept minority and majority students out of the scientific community. We have held out a beacon to community college students, showing many of them that they have the skills to make the leap from technical to scientific studies. We are working hard to build a SMET pipeline from high school to graduate school. These are daunting tasks. Throughout, our philosophy has been to open doors for talented students who had previously been shut out of SMET disciplines. AMP has often been commended for bringing SMET departments across the university together and bringing about CUNY-wide solutions to academic problems which seemed intractable. We have taken the lead in SMET reform, now we hope to spark a fruitful discussion on maintaining access to SMET studies for all CUNY students who have the potential to pursue them.

"Shaping the Future": An Important Conference Takes Place at BMCC

In early May, Borough of Manhattan Community College was host to the conference, *Shaping the Future: Transforming Undergraduate Education in Science, Mathematics, Engineering, and Technology*. The meeting was sponsored by the National Science Foundation as a follow-up to the national conference on undergraduate education held two years ago in Washington., D.C. It was designed to provide opportunities for faculty and administrators in the New York City metropolitan region to continue the process of developing programs that will

National Science Foundation, Alliance for Minority Participation

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New York City Alliance News

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AMP Project Directors Drs. Leon Johnson and Neville Parker (seated, left to right), and Dean Louise Squitieri (standing, center), surrounded by members of the AMP community at the Shaping the Future panel discussion

transform SMET education as outlined in the *Shaping the Future* report. The document advocates that "All students have access to supportive, excellent undergraduate education in science, mathematics, engineering, and technology, and all students learn these subjects by direct experience with the methods and processes of inquiry." It contains recommendations on what should be done to bring about educational reform by institutions of higher education, business, industry, the professional community, state and federal governments, and the National Science Foundation. In terms of the NSF, it cites as a first priority "the allocation of enhanced resources to the undergraduate part of the Alliances for Minority Participation program."

At the conference plenary session, speakers included BMCC's Vice-President Sadie Bragg, a member of the committee which prepared the *Shaping the Future* report, and Dr. Robert Watson, Division Director of the NSF's Division of Undergraduate Education. Dr. Bragg pointed out the importance of top down commitment to institutional change and of articulation between high schools and colleges. "We can no longer be satisfied with incremental improvement in a world of exponential change," she said. Dr. Watson spoke of changing SMET content and method to make undergraduate institutions more effective in preparing students for baccalaureate level jobs. He cited the growing importance of community colleges, of collaboration between community and senior colleges, and of engaging all students, not just a fortunate few, in research. Half of the country's K through twelve SMET teachers will be replaced over the next ten years, he said, creating a tremendous opportunity and a weighty responsibility for undergraduate institutions to prepare them well.

The core of the conference was devoted to over thirty panel discussions and presentations which shared the exemplary work being done in SMET undergraduate education at metropolitan area institutions and highlighted key issues to be addressed. Topics ranged from collaborative and interdisciplinary learning, to admission, retention, and transition, teacher preparation, funding and grant writing.

In their panel discussion on the Alliance for Minority Participation, the AMP Project Directors, Drs. Neville Parker, Louise Squitieri and Leon Johnson were joined by Steering Committee members and Activity Coordinators. Three main themes emerged from the session: the importance of putting an increasingly heavy accent on research at the undergraduate level; the key role of teacher preparation, which Dean Squitieri called "the single biggest issue in SMET today"; and making the high school - graduate school pipeline a reality.

The NASA Connection Flourishes at CUNY

In 1992, in a pilot project initiated by the late Dean John Stevenson of LaGuardia Community College and Emily Michaud of NASA's Goddard Institute for Space Studies (GISS), five CUNY students began doing research at GISS on diurnal variations in temperature with scientist Barbara Carlson. That initial collaboration proved to be the seed of an important partnership, facilitated by AMP and GISS, between NASA and CUNY. As the Alliance finishes its sixth academic year, NASA-related projects are flourishing at the University. In 1997-1998, they were supported by over two million dollars in NASA funding.

The Institute on Climate and Planets, in which CUNY was a founding participant, has finished the initial year of its second three-year funding cycle. It is now a model pipeline program, bringing together 14 colleges and universities, including seven CUNY colleges, ten high schools, and two junior high schools. In a groundbreaking approach to SMET education, the ICP is initiating use of the Internet to establish research and education programs dedicated to the study of climate on the participating campuses.

The close working relationship developed in the ICP between CUNY AMP and NASA GISS has been the springboard for other highly successful NASA-funded grants. They are: ***MASTAP*** (Science and Technology Teachers for the Next Millenium), which uses GISS activities to enhance the preparation of CUNY students for precollege science careers; ***MUSPIN*** (Minority University Space Interdisciplinary Network) which provides technology and training so that ICP participants can communicate with GISS from their campuses; the ***Global Climate Variability Project*** which is dedicated to advancing understanding of natural and anthropogenic climate change through interdisciplinary analyses of models and data. Most recently, in 1997, teams at Medgar Evers and City Colleges received grants under the ***NASA Partnership Awards*** program to conduct research which fits within a major NASA initiative, the Mission to Planet Earth.

STEERING COMMITTEE PROFILES

Dean Louise Hainline, Brooklyn College

Dean Louise Hainline holds a bachelor's degree in psychology from Brown and a doctorate in developmental psychology from Harvard. She has spent her entire career at Brooklyn College where she is the Breuklundian Professor of Psychology. Dean Hainline's research centers on the development of vision in babies and the visual components of problems such as dyslexia.

Dean Hainline has brought to the AMP Steering Committee her strong belief and vast experience in increasing the effectiveness of funded programs through cooperation. The thrust of her administrative work at Brooklyn College has been getting initiatives which target undergraduate students in SMET disciplines to work in concert. These include AMP, MARC, STEP, CSTEP, and a Howard Hughes grant. The programs' targets vary. Some are dedicated to minority students, others to honors level students and others to bringing students up to honors level. What they share is the determination to get students excited about science and involve them in research.

Dean Hainline's goal is to maximize the productivity of funded programs. Her concept is that they can leverage their assets by working together as an undergraduate science consortium in which they function as individual units. To accomplish this, funded programs addressing undergraduate education at Brooklyn College will be housed in a center whose board of directors is comprised of the chairs of Brooklyn's SMET departments. The center will bring together all of the program administrators in one suite of offices, allow sharing of computers, and provide space for meetings. It will permit pooling of information on summer opportunities and careers. It will offer GRE preparation courses, house a collection of materials on graduate schools, and be stocked with graphics materials so that students can prepare posters and presentations. Perhaps most importantly, it will be a place where undergraduates in a variety of funded programs can get to know each other, creating a larger peer group and a network of students interested in science, mathematics, engineering, and technology. Cooperation between funded programs will greatly profit the college, allowing, for instance, the development of a comprehensive data base which will track SMET students after they graduate.

In speaking specifically about AMP, Dean Hainline applauds both the Teacher Preparation Initiative (TPI) and the Alliance's determination to create a high school to graduate school pipeline. As in her work at Brooklyn College, she sees the importance of collaboration and leveraging. It is essential, she says, for TPI and the CETP (Collaborative for Excellence in Teacher Preparation) to work in tandem and for AMP to collaborate with programs such as the Hughes Outreach to High Schools to find students interested in science and attract them to beginning courses.

Cooperation, according to Dean Hainline, is a natural for AMP. Thanks to the dialogues between institutions which the Alliance has facilitated across the University, she has become involved in several initiatives which join CUNY colleges in a common effort. These include the NIH Bridges program with New York City Technical College and City College and the NIH Initiative for Minority Student Development with City Tech. "Through AMP, I got to know colleagues at other colleges, and we have been able to leverage our resources by working together. This is a way in which AMP has broken new ground at CUNY," she says.

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AMP STUDENT IN THE NEWS

Shellie Gumbs, Medgar Evers College

Shellie Gumbs, who did her precollege work in her native Barbados, has always been interested in science. A 1998 graduate of Medgar Evers, she majored in biology, doing AMP research under the mentorship of Dr. Stanley Bajue.

Shellie Gumbs

Shellie's AMP project, "Synthesis and Characterization of Organotin Complexes of Schiff Base Ligands," has won her plaudits and tremendous opportunities. She has presented her work at AMP Research Days at Medgar Evers and BMCC and has spoken before a meeting of the American Chemical Society at New York University. "Going to conferences has exposed me to different areas of science and given me the opportunity to network with other committed students," she says.

Shellie feels that being an AMP research scholar has helped her excel academically. "Doing research made me go into chemistry in great detail," she says, "far more than ordinary course work would have done." Her undergraduate research experience has been so positive that she hopes to pursue her interests in chemistry and biology with a career in biomedical research.

NYC AMP Students to Participate in the Sixth National AMP Research Conference

For the past five years, the National AMP Research Conference has presented some of the New York City Alliance's brightest students with the opportunity to travel to a new part of the country, meet peers and working scientists, and excel through the quality of their oral and poster presentations.

The 1998 conference will be held from July 17 to 21 in Pablo, Montana and hosted by the All Nations Alliance for Minority Participation. The following students have been chosen to represent NYC AMP:

Melody I. Zevallos, *City College*
Lilian L. Garcia, *LaGuardia CC*
David Garcia Cervetti, *BMCC*
Shelly Ann Miller, *Brooklyn College*
JaimeLee Iolani Cohen, *Queens College*
Elizabeth Galban, *NYCTC*