



Getting to the Heart of it All

Connecting Gender Research, WIE Programs, Faculty & Corporate Partners

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Reducing the Bottleneck ... Breaking the Bottle! Addressing the Recruitment of Postdocs through Best Practices of AGEP and ADVANCE Horizons Programs

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Abstract

The University of Maryland, Baltimore County (UMBC) has two National Science Foundation (NSF) funded programs, the Alliances for Graduate Education and the Professoriate (AGEP) and the ADVANCE Program that have led to measurable increases in the number of graduate students and faculty from underrepresented minority groups (URM) in Science, Technology, Engineering, and Math (STEM). In 2002, PROMISE: Maryland's AGEP launched Graduate Horizons, a three-day workshop that provided aspiring graduate students with panel discussions by visiting faculty of color, graduate student mentoring sessions, and visits to academic departments. Students were also provided with hands-on seminars to prepare for the GRE, write the statement of purpose, and navigate the graduate school application. Building upon the successes of Graduate Horizons, the ADVANCE Program created Faculty Horizons, a two-day summer workshop that through panel presentations, interactive workshops and discussions led by distinguished women scientists and engineers from universities, agencies and companies throughout the nation, upper-level graduate students and postdoctoral research fellows were informed about what it takes to secure a faculty position in STEM. While both Horizons programs have been recognized as models for recruiting URM graduate students and faculty in STEM, the recruitment of postdoctoral fellows has been largely neglected. Data and experiences at conferences such as the Southern Regional Education Board's Compact for Faculty Diversity and AWIS-ADVANCE have convinced the authors that there is a bottleneck at the postdoctoral stage in the academic career trajectory. Given global competitiveness and the establishment of the postdoctoral fellowship as an increasingly necessary qualification for a faculty position in STEM, it is imperative that we also empower upper-level PhD students with the tools and knowledge needed to find postdoctoral opportunities during this critical time of transition. UMBC has taken the initiative by opening an Office of Postdoctoral Affairs and funding the Postdoctoral Fellowship for Faculty Diversity, but more work remains to be done. In this paper we will share best practices from both Horizons programs to offer insights on breaking through bottlenecks that have traditionally limited appointments of URM STEM postdoctoral fellows.

Background

Over the past 10 years, women and minorities have made significant inroads into the professoriate in the STEM fields but their representation still lags behind that of men. Williams and Ceci (2012) note that "in math-intensive fields... in the top 100 U.S. universities in 2007, women full professors in these fields numbered only 4.4 to 12.3 percent, and women were only 16 to 27 percent of assistant professors" (p. 138). The same is true for minorities, especially women minorities. Johnson (2012) relays that "thankfully, women have made some small gains...however, for minority women in particular, the news is abysmal" (p. 15). A growing

number of women and minorities are attaining doctorates in STEM but those numbers are not translating into their proportionate representation in the STEM professoriate. Some action has been taken to address the pipeline at the graduate level through the NSF AGEP program. In addition, the NSF ADVANCE program is helping the small numbers that do make it to the faculty through Institutional Transformation (IT) and Partnership for Adaptation, Implementation and Dissemination (PAID) grants. However, very little, if any, action has been taken to address the issues facing women and minorities at the postdoctoral stage of their careers.

There is a growing body of literature that addresses what we call the “postdoctoral bottleneck” in STEM. For instance, Martinez et al. (2007), remark that “the transition from postdoctoral fellow to faculty is a period during which a worrying number of women leave academic research” (p. 977). Given that a postdoctoral position is often, if not a required, gateway prior to a faculty position, and if increasing the numbers of underrepresented minority faculty in STEM is a national goal, why has a bottleneck been allowed to form at this critical stage? The answer to this question is complex, as Nerad and Cerny (1999) point out, because “few universities have a central authority overseeing the conditions of postdoc appointments, such as duration, salary structure, benefits and placement services...few universities can provide a truly accurate count of the number of postdoc fellows on campus” (p. 1533). We believe, however, that the lack of clarity surrounding postdoctoral fellows at universities need not be viewed as an insurmountable roadblock but rather as an opportunity for meaningful change. Leaders of UMBC’s AGEP and ADVANCE programs see this crisis as another occasion to apply lessons learned from these initiatives to postdoctoral fellows. This paper discusses how UMBC is utilizing experiences with Graduate Horizons (AGEP) and Faculty Horizons (ADVANCE) to respond to our own postdoctoral challenge. It also offers a future vision of how experiences with AGEP and ADVANCE can be employed to create a Postdoctoral Horizons program to further break through the bottlenecks that have traditionally limited URM STEM postdoctoral fellows.

University Overview

UMBC is a national model for broadening participation and inclusion among our undergraduate and graduate student bodies. Most recently UMBC was named a national leader in innovation and undergraduate teaching in *U.S. News & World Report’s* Best Colleges guide. *U.S. News & World’s Report* has also for the 4th consecutive year ranked us as the #1 Up and Coming University and we are tied with Yale as the 4th best university in undergraduate teaching in the country. UMBC is known nationally for its contribution to increasing the participation of underrepresented minority students and faculty in STEM. The hallmark Meyerhoff Scholars program was founded in 1988 with the goal of increasing the representation of undergraduate African-American males committed to earning PhDs in STEM through mentoring, advising, research training and financial assistance. The program emphasized fostering community among students and creating a strong network of support to ensure their continued success that will ultimately result in the attainment of the undergraduate degree and subsequent graduate work. Going into its 24th year, the program is now open to everyone committed to diversity regardless of background. Meyerhoff has 700 alumni and 300 students, positioning UMBC to become the leading producer of minority STEM PhDs from a Predominantly White Institution (PWI). The best practices and lessons learned from the Meyerhoff Scholars program have been applied to other university initiatives such as the National Science Foundation funded Alliances for Graduate Education and the Professoriate (AGEP) and ADVANCE programs on campus.

The National Science Foundation's ADVANCE Program and ADVANCE at UMBC

The overall goal of the National Science Foundation's ADVANCE program is to increase the representation and advancement of women in academic science and engineering careers thereby contributing to the development of a more diverse science and engineering workforce. To meet this goal, NSF provides award opportunities through ADVANCE for both individuals and organizations. The awards include Institutional Transformation Awards (IT), Leadership Awards, Fellows Awards and Partnership for Adaptation, Implementation and Dissemination (PAID) Awards. Through these awards the NSF seeks to support new approaches to improving the climate for women in U.S. academic institutions and to facilitate women's advancement to the highest ranks of academic leadership. In 2003 UMBC was awarded a 3.2 million dollar IT Grant from NSF to enhance policies and procedures affecting the recruitment, selection, promotion, and transition of women faculty in the STEM fields. The goal of our program was to ensure that women are represented in all departments, advance through the faculty ranks and into leadership positions, and reflect the diversity of our student body. The funding for the ADVANCE program supported leadership development, increased networking opportunities, and provided support to all STEM faculty on issues concerning family and medical leave, the tenure and promotion process, grant writing, and other pertinent issues related to faculty life at our university. To realize this level of institutional transformation, ADVANCE developed a range of targeted-programming that due to their high-impact have been replicated by other ADVANCE grant receiving institutions. Examples of successful programming include the Faculty ADVANCEment Workshop Series, the Distinguished Speaker Series, the Faculty Sponsorship Committee, the Eminent Scholar Mentor Program and Faculty Horizons, a workshop for aspiring STEM faculty. The real indicator of our program's success, however, is found in the increase in the number of our tenure/tenure-track women STEM faculty. In 2003, there were 30 women faculty in STEM and in December of 2009, at the conclusion of the grant, there were 45 tenured and tenure track women faculty in our STEM departments. These numbers reflect that since the inception of ADVANCE, there has been a 50% increase in the number of tenured and tenure-track women STEM faculty at our institution.

The National Science Foundation's AGEP Program and PROMISE: Maryland's AGEP

The National Science Foundation's Alliances for Graduate Education and the Professoriate (AGEP) program is part of the Directorate for Education and Human Resources, Division of Human Resource Development. This former "Minority Graduate Education" program is intended to increase significantly the number of U.S. citizens receiving PhDs in STEM fields. AGEP focuses on population groups that are underrepresented in STEM (i.e., African-Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians or other Pacific Islanders). The AGEP program also welcomes participation from underrepresented minority students with disabilities. The goal of AGEP is to broaden the participation of minorities in STEM who will become faculty members. There are more than 20 groups of colleges and universities, i.e., alliances, in the national AGEP program. Objectives of the AGEP include developing models for recruiting more underrepresented students for graduate study in STEM fields. In order to retain and train students once they have been recruited to graduate school, AGEP programs include mentoring constructs that will assist students as they pursue the PhD. All AGEPs must include strategies for promoting careers in the professoriate.

PROMISE: Maryland's AGEP is an alliance of the three public research universities in Maryland, led by UMBC, dedicated to increasing the number and diversity of Ph.D. graduates in STEM who go on to academic careers. The initial award for Maryland's AGEP was funded in 2002 for 5 years. The PI for the first phase of Maryland's AGEP grant was our former Provost and a professor of public policy. The second award for NSF's PROMISE was made in 2008 and the next provost, a professor of psychology, became PROMISE PI. When this provost left the university to become president of another institution, the new provost, a professor of physics, became the next PI. Each of the three campuses have a structure that includes a Co-PI and a coordinator. Co-PIs have had ranks that include a Dean of the Graduate School and Vice Provost of Graduate School. The alliance between the three universities encourages interaction between the university communities. Each university has developed its own set of activities in three areas: 1) cultivating new graduate students; 2) building a supportive community where students can excel; and 3) promoting professional development. PROMISE, with co-sponsorship from the three graduate schools, offers seminars in areas such as writing proposals, responsible conduct of research, fellowships and fiscal responsibility, graduate level writing, learning styles, understanding differences between undergraduate studies and graduate school, confident public speaking, preparing for leadership, and tips for completing the thesis or dissertation. The PROMISE Dissertation House offers advanced students a chance to spend several hours writing their dissertations, and offers workshops in time management, overcoming procrastination, preparing for the final defense, and a session from a psychologist from the university's counseling center. Discipline specific seminars or study sessions for Matlab and partial differential equations have also been offered. With an emphasis on preparation for the professoriate, PROMISE has contributed to developing more diverse STEM faculty at large universities, mid-sized and smaller teaching institutions, and community colleges. PROMISE alumni have held post-doctoral fellowships and research associateships at a variety of institutions, including, but not limited to the National Institutes of Health (NIH), the Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), Massachusetts Institute of Technology (MIT), the University of North Carolina Chapel Hill, the University of Pennsylvania, and the University of Rochester Medical Center. Others have tenure-track positions at institutions such as the University of Maryland Eastern Shore, the College of Notre Dame, the University of the District of Columbia, Norfolk State University, Towson University, UCLA, and Mississippi State University. One PROMISE alumna, now an associate professor at Anne Arundel Community College, is the Principal Investigator (PI) of a \$598,000 NSF grant for an Engineering Scholars Program. Approaching its 10th year, the PROMISE program has been recognized for activities that address issues of underrepresented graduate students in STEM (Matthews, 2011; Sowers, Bell, & Kirby, 2010; Bass, Rutledge, Douglass, & Carter, 2007).

Relationship between ADVANCE and the PROMISE AGEP at UMBC

Both ADVANCE and AGEP are in the same directorate and division at the National Science Foundation and nationally share the common mission of broadening the participation of groups that have historically been underrepresented in STEM fields. The connection between ADVANCE and the PROMISE AGEP at UMBC began with two prongs. The first prong was based upon developing personal connections. In 2003, the Director of the newly established PROMISE AGEP began to participate in the campus' Women in Science and Engineering (WISE) group. She had been a faculty member with a lab in an engineering department at another university, and had received a WISE travel fellowship as a graduate student. The second

prong was based upon establishing connections with STEM faculty on campus to facilitate open lines of communication for serving students of the AGEP, including collaborating with women faculty to assist and co-mentor diverse students. In addition, PROMISE and ADVANCE have co-sponsored lunch for women graduate students and women faculty of all races to discuss work/life balance, gender equity, overcoming stereotypes, and achieving excellence. PROMISE and ADVANCE have jointly supported programs sponsored by the Graduate Women in Science and Engineering (G-WISE), and utilized women faculty in STEM as speakers and facilitators for PROMISE seminars. On the administrative side, both the AGEP and the ADVANCE program are housed under the Office of the Provost. The ADVANCE program, now institutionalized, is funded by the Office of the Provost. Although the AGEP program has Co-PIs at each partner institute, the head PI for the PROMISE AGEP has always been UMBC's provost, the Chief Academic Officer. The Office of the Provost has provided administrative and financial support for both programs, and both programs are part of the fabric of the university.

Graduate Horizons: An AGEP Initiative to Expose Undergraduates to Graduate Education
Graduate Horizons, founded in 2002, is a graduate school recruitment initiative aimed toward cultivating underrepresented undergraduate students in STEM to prepare them for graduate programs. Initial, pilot funding for the first program was provided by UMBC and the State of Maryland. Primary funding in subsequent years was provided by the PROMISE AGEP. In the early years, fall and spring visitation programs welcomed undergraduate students from across the nation to explore possibilities for graduate education. The three day program included sessions with current underrepresented graduate students (i.e., in-depth discussions about the reality of graduate school, social concerns, and academic expectations), opportunities to meet with faculty and graduate program staff during tours to departments and discipline-specific roundtable discussions over lunch, social activities to promote community building, graduate school preparation workshops and hands-on writing seminars, and connections with graduate school and university-wide administrators.¹ As national AGEP funding decreased, and as more universities and organizations began to offer summer research programs, the Horizons was restructured such that a summer version is now the primary, annual graduate school preparation program for prospective graduate students. Summer Horizons program is a one day event that provides information on elements that comprise the graduate school application.

The Horizons program was not structured to be a yield event for UMBC, but rather an outreach program, designed to disseminate information about access to graduate education. Horizons sessions feature information about graduate school admissions (e.g., Statement of Purpose, Letters of Recommendation, the new GRE), a graduate student panel, and a panel that includes postdoctoral scholars and faculty. The program also includes information on fellowships, timelines, transitioning from undergraduate to graduate studies, and preparing for graduate level research. UMBC's President, Dr. Freeman Hrabowski, an African-American mathematician, serves as the annual keynote speaker. The program focuses on admission to STEM M.S., Ph.D., and M.D./Ph.D. programs, and shares information from schools across the nation regarding entry to graduate programs in these disciplines. Summer Horizons is now co-sponsored by the NIH Meyerhoff Graduate Biomedical Fellows Program and the PROMISE AGEP.

¹ UMBC's Graduate Horizons developed its program based on some of the best practices of Georgia Tech's FOCUS program, which has been a leader in underrepresented graduate student recruitment since 1992. Similar programs include Berkeley EDGE and MIT's CONVERGE.

Horizons has served 1118 students, from all races who have come from more than 200 institutions across the mainland U.S., including universities in Puerto Rico, the Virgin Islands, and Alaska. Table 1 provides a snapshot of the number of students served, and the numbers of schools represented in each year’s program. Table 2 presents representative samples of students’ perceptions of usefulness of information received at the Horizons programs.

Table 1. Participants who have had access to graduate school information through UMBC’s Horizons Programs²

Year	Colleges & Universities Represented	Number of Student Participants Served
2002	37	94
2003	55	95
2004	147	230
2005	94	199
2006	37	63
2007	30	47
2008	103	220
2009	71	90

Table 2. Sample responses and themes from select years of Horizons

Survey Questions & Responses	Themes
<p>Please share your thoughts on President Hrabowski’s keynote address. (Survey 2008)</p> <p><i>“I hadn’t planned on getting a Ph.D., but I’m rethinking it now.”</i></p> <p><i>“He did an incredible job motivating me, and without a doubt gave me another reason to continue my education beyond a bachelor’s degree.”</i></p> <p><i>“President Hrabowski’s address was extremely inspiring. I feel empowered to embark upon the next phase of my life i.e. graduate school.”</i></p>	<p>The Horizons surveys ask similar questions each year about the president’s involvement each year, and the responses are always overwhelmingly positive. Students have said that they’ve applied to UMBC because of the president. UMBC’s President has a strong influence on the students. The influence of the president has been such a major factor that Horizons programs are now planned around his schedule. President Hrabowski was named as one of Time Magazine’s 10 Best College Presidents in 2009, profiled on CBS’ 60 Minutes in 2011, and named as one the Time 100 “Most Influential People I n the World” in 2012.</p>
<p>Did you learn anything NEW related to the Graduate School application process? (Survey 2009)</p> <p>Yes: 87%, No: 13%, (N= 80)</p>	<p>Students identified the following information as “new”: GRE, funding, fellowships, application timeline, process, organization, choosing a school, choosing a mentor, and advice to contact the school in advance.</p>
<p>Did you have information on preparation for Graduate School prior to coming to Horizons? (Survey 2011)</p> <p>Yes: 60%, No: 40%, (N= 58)</p>	<p>All participants who said “No” were female. The majority were a combination of African-American and Caucasian women, indicating a need to continue outreach to women.</p>
<p>Did you learn anything new related to Graduate School application process? (Survey 2011)</p> <p>Yes: 91%, No: 9%, (N=58)</p>	<p>Sixty-seven percent of the participants in the 2008 program were female and 57% were U.S. citizens from underrepresented groups, indicating the necessity of dissemination.</p>

² Horizons has hosted students from 27 different Historically Black Colleges and Universities (HBCUs) or Hispanic-Serving Institutions (HSIs). Underrepresented students have also come from Tribal Colleges in addition to PWIs.

Summer Horizons annually hosts students from the summer research programs at UMBC, the surrounding universities, and national laboratories. Student participants have come from summer programs hosted by various branches of the National Institutes of Health, NSF Research Experiences for Undergraduates (REU) in math and information systems, McNair programs, Louis Stokes Alliance for Minority Participation (LSAMP) programs, the summer program for the National Institute for Standards and Technology (NIST), the summer research program at NASA, Quality Education for Minorities (QEM) Network, and summer programs at NSF, the Hispanic Association of Colleges and Universities (HACU) internship program, and the Washington Internships for Native Students (WINS) program. Data for 2010 and 2011 were not included in Table 1 because most students registered through their respective summer programs, e.g. UMBC, NSF. Most students' individual institutions were not recorded. In addition, in 2010, the Horizons program went "on the road" and seminars were presented to groups of students at NSF's Virginia headquarters and on the campus of the University of Maryland College Park. Since the sole purpose of Horizons has been to expose students to information about graduate school, the numbers in Table 1 show that the program is meeting the mission of attracting participants and disseminating information about graduate school opportunities.

Faculty Horizons: An ADVANCE Initiative to Prepare Women for Faculty Positions

Building upon the promising practices from Graduate Horizons, the ADVANCE Program developed Faculty Horizons, a workshop for aspiring STEM faculty. Under our ADVANCE grant we were able to run the program on a yearly basis from 2004 to 2008. Faculty Horizons consisted of a two and a half day workshop that provided participants with many of the skills necessary to become successful faculty in the STEM fields. The workshop was targeted at female assistant professors who were entering academia, and postdoctoral fellows and upper-level graduate students who were nearing their entry into the academy within one year. The workshops also focused attention on attracting women from underrepresented groups.

The program itself consisted of workshops and panels on how to secure your first faculty position, successful negotiating techniques, getting your first grant, tenure and promotion, mentoring, effective teaching strategies, balancing work and family, and handling criticism and rejection. The presentations were given by our faculty and other successful scientists from industry, government and academia. As an indicator of the program's success, participants were asked to evaluate the 2008 Faculty Horizons and all workshops were very well received and found to be "Very Helpful" as reflected in Table 3.

During the 5 years that the Faculty Horizons Program was in place, 322 individuals participated. Of that number, 94% were women (N=302) and 44% were from underrepresented groups (N=142). Of all the participants, 32% were Caucasian, 25% were African American, 24% were Asian or Pacific Islander, 13% were Hispanic and 6% classified themselves as Other. Those confirmed included 135 senior-level graduate students, 144 post-doctoral fellows and 26 assistant professors. By discipline, 26% were from Biological Sciences, 15% from Chemistry and Biochemistry, 11% from Computer Science and Electrical Engineering, 10% from Chemical and Biochemical Engineering, 9% from Physics 8% from Civil and Environmental Engineering, 7% from Mathematics and Statistics, 8% from Mechanical Engineering and 5% from Information Systems. In 2012, we were able to locate 272 participants, out of which 119 (44%) were Assistant or Associate Professors.

Table 3. Sample of participants' comments from a Faculty Horizons program

Faculty Horizons Evaluation Summary, July 12-14, 2008	Very Helpful	Somewhat	Not Helpful	Didn't read it yet
How have you found the Faculty Horizons Program? (N=52)	85%	13%	0%	0%
Please evaluate the information given to you in your packets. (N=58)	95%	5%	0%	0%
Please evaluate each session as to whether or not the information presented will be useful during your search for a faculty position.	Very Helpful	Somewhat	Not Helpful	No Answer
Opening Reception	66%	21%	2%	10%
Keynote Address: The Success of Women Scientists in the 21 st Century	75%	15%	3%	7%
Faculty Horizons and ADVANCE Overview	72%	11%	2%	15%
Securing Your First Faculty Position, Part A	89%	8%	0%	3%
Securing Your First Faculty Position, Part B	90%	3%	0%	7%
Lunch with UMBC STEM Department Chairs and Faculty Liaisons	69%	25%	7%	0%
Please evaluate each session as to whether or not the information presented will be useful during your search for a faculty position.	Very Helpful	Somewhat	Not Helpful	No Answer
Getting that First Grant	90%	8%	0%	2%
Getting the Most out of Teaching	79%	18%	2%	2%
Panel Discussion: Tenure, Promotion and Mentoring	84%	11%	0%	5%
Panel Discussion: Surviving and Thriving in STEM	84%	10%	0%	7%
In general, were your questions answered adequately	92%	7%	0%	2%
	YES	NO		
Would you recommend Faculty Horizons to others?	97%	3%		

Expanded Directions: Postdoctoral Fellowship for Faculty Diversity

At the conclusion of our funding from NSF for ADVANCE, our former Provost institutionalized the program by creating an ADVANCE Executive Committee comprised of faculty and campus leadership to continue with the mission of increasing the representation of women faculty STEM. Many of our programs from the ADVANCE grant period are still in place and both women faculty and postdocs attend ADVANCEment workshops. The PROMISE Program also expanded efforts with a new PROMISE Pathways project that includes investigations of professional development for postdoctoral scholars. In addition, the Provost decided to use the best practices learned from ADVANCE to tackle the larger issue of faculty diversity beyond the STEM disciplines. As a result, a parallel Executive Committee on the Recruitment, Retention and Advancement of Underrepresented Minority (URM) Faculty was convened. The following year, the Office of the Provost hired a full-time Program Coordinator for Faculty Diversity Initiatives to support the work of both committees.

In 2010, the Executive Committee on the Recruitment, Retention and Advancement of Underrepresented (URM) Faculty, as part of their commitment to attract, grow and retain a more diverse faculty, proposed the creation of a Postdoctoral Fellows for Faculty Diversity. The purpose of the program is to support promising scholars who are committed to diversity in the academy and to prepare those scholars for possible tenure track appointments at UMBC. The program consists of a two-year appointment, during which the fellow will teach one course a

year in their host department and participate in departmental seminars and related activities. In the remaining time, fellows are expected to pursue their research. In addition to their contributions to the campus, each fellow is provided teaching and research mentors and specialized professional development across the campus. Following the advertisement of the positions, and the receipt of over 100 applications from STEM and non-STEM disciplines, we hired Drs. Arvenita Cherry in Language, Literacy and Culture and Viviana MacManus in Gender and Women Studies as our inaugural postdoctoral fellows. In 2011, the fellows began their appointments and have enriched the campus community through their scholarship and teaching. The PROMISE AGEP provided these early-career scholars with a mentoring and leadership experience by inviting both to participate in the PROMISE Summer Success Institute in 2011. Dr. Cherry, a former biology teacher, was given the opportunity to serve as the moderator for the session of 200 participants and Dr. MacManus led an informal round table discussing international field work in South America. In addition to these leadership opportunities, the postdocs were provided additional training and mentoring at the Institute with sessions such as “How to be a professor, have a balanced life, and impact the world,” “The Imposter Syndrome and how to overcome it,” and “Expanding your reach – Planning for short-term and long-term career success.” The postdoctoral scholars participated in general sessions and breakout groups that were dedicated to faculty, postdoctoral trainees, and career professionals. Postdoctoral scholars will continue to be part of the upcoming PROMISE Summer Success Institutes. In Fall 2011, PROMISE along with UMBC’s new Office for Postdoctoral Affairs, began to have luncheons for women postdocs and research associates of all races on campus. This practice will continue. The PROMISE program has included an increased focus on postdoctoral scholars and is working with other universities in the region to investigate opportunities for collaborative workshops, seminars, and teaching opportunities. As our postdocs finish the first year of their appointment, and having just received approval for funding to continue the initiative, we are currently in the initial stages of evaluating the program. One of the areas we wish to bolster is the recruitment of STEM candidates for the fellowship. As a result, the Executive Committee for URM faculty has decided to update our recruitment material for the postdoc to include an emphasis on what types of benefits are available to STEM applicants in terms of research and lab space. Nevertheless we are all in agreement that the presence of the postdoctoral fellows allows us to build critical mass and heightened internal visibility of URM faculty. The initiative also provides tangible evidence that we are dedicated as a campus to addressing the incongruity between the composition of our student body and our faculty. Further, by sustaining such a program, we are contributing to the diversity of the faculty on a national level and will ultimately hope this program will serve as another successful model for replication.

External Recruitment of Postdoctoral Scholars and Future Faculty

Each year, UMBC sends a delegation of faculty to the Southern Regional Education Board’s (SREB) Compact for Faculty Diversity Conference. This venue is the largest gathering of minority doctoral students in the country and numerous universities from around the country attend to recruit for current faculty openings and to network with the graduate student participants. The “Compact”, also known as the SREB’s Institute for Teaching and Mentoring, is one of the few, if not the only venue, that has an active recruitment activity geared toward broadening participation at the faculty level. Both the PROMISE AGEP (25 graduate students) along with faculty and administrators from our faculty diversity initiative attended in 2011. The faculty recruitment session featured tables from university-wide offices, specific departments,

and NSF initiatives. A few of the universities prominently featured their ADVANCE programs at the conference. Personnel from ADVANCE and PROMISE at UMBC traveled to the SREB conference together and decided to strengthen the resolve to address both race and gender underrepresentation in STEM at the graduate school, postdoctoral trainee, and faculty levels.

Future Vision – Postdoctoral Horizons: A Collaborative ADVANCE-AGEP Initiative

Both the Graduate Horizons program and the Faculty Horizons program were designed to provide participants with exposure to various opportunities within the academy, along with training for admittance. Observations at the SREB Compact and other programs that serve graduate students of color such as that National Society of Black Engineers (NSBE) Graduate School Conference, and the Society of Professional Engineers (SHPE) Graduate Institute, reveal that students who are approaching graduation are having more questions about faculty, postdoctoral, and industrial opportunities. Given the high levels of participation in Graduate Horizons and Faculty Horizons, and a proven track record of being able to attract minorities and women to professional development opportunities, we are investigating an initiative that will serve upcoming postdoctoral scholars: a “Postdoctoral Horizons”. Building upon initiatives and successful activities of the Graduate and Faculty Horizons, as well as promising practices from the PROMISE Professors-in-Training (PROF-it) program and other Preparing Future Faculty (PFF) programs across the nation, Postdoctoral Horizons would provide advanced graduate students with workshops on applying for postdoctoral positions, networking within the discipline, making the most of oral and poster presentations at research conferences, and transitioning from trainee to colleague. The program would include faculty mentors as well as “peer” mentors who are fellow postdocs from around the country. Speakers would include representatives from the National Postdoctoral Association, The National Academies National Research Council (NRC) Research Associateship Programs, Office of Postdoctoral Services for the Office of Intramural Training and Education at the, AAAS Science and Technology Policy Fellowship, ADVANCE programs, as well as center directors and representatives from universities who have postdoctoral recruitment initiatives. Participants for “Postdoctoral Horizons” would be recruited from initiatives such as AGEP, NSF’s Integrative Graduate Education and Research Traineeship (IGERT), NIH’s National Institute for General Medical Sciences (NIGMS) – Initiative for Maximizing Student Development (IMSD) programs, NSF Engineering Research Centers, and graduate women in Science and Engineering programs.

Evidence of connections and collaborations between NSF’s ADVANCE and AGEP programs on a university campus is sparse, and discussions of collaboration between these two NSF programs at UMBC have garnered attention from members of both the national ADVANCE and AGEP communities. These two programs at UMBC now have a history and established track record of attracting women and minorities nationally, and providing them with useful information for the next stages of their careers. The programs plan to collectively work to broaden the participation of women and minorities in STEM. Both ADVANCE at UMBC and the PROMISE AGEP are committed to a growing relationship, and are working together to provide training, community building, and professional development for the previously underserved postdocs at local, regional, and national levels.

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