The Meyerhoff Scholars Program: Changing Minds, Transforming a Campus

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Abstract

Over the last two decades the University of Maryland, Baltimore County (UMBC), has undergone transformation and ignited systemic change across the institution. Its Meyerhoff Scholars Program has made major achievements in recruiting and graduating African American students in science, technology, engineering, and mathematics (STEM) at one of the highest rates among the nation's institutions of higher education. This paper examines the impact of institutional culture, climate, and support systems on underrepresented students' success, and their potential as catalysts for innovative and effective interventions.

The Meyerhoff Scholars Program was established in 1988 and has been at the forefront of efforts to increase diversity among future leaders in science, engineering, and related fields ever since. The first cohort of nineteen African-American males was admitted in 1989, and African American women were admitted in 1990. In 1996 the nomination-based application process was opened to prospective undergraduate students of all backgrounds who planned to pursue doctoral study in the sciences or engineering, and who were interested in the advancement of minorities in those fields. The UMBC Meyerhoff family is now more than 1,200 strong, with eight hundred alumni across the nation and three hundred students enrolled in graduate and professional programs.

The program's success is built on the premise that, among like-minded students who work closely together, positive energy is contagious. By assembling a strong concentration of high-achieving students in a tightly knit learning community, students continually inspire one another to excel. The program takes a strengths-based approach. Underlying this approach is the assumption that every student selected to participate is capable of succeeding in science and engineering when given appropriate opportunities and resources. The program consists of fourteen key research-based components including scholarship support, competitive recruitment of top math and science students, the Summer Bridge Program, faculty involvement, study groups, summer research experiences, structured mentoring, strong programmatic values, personal advising and counseling, program community, administrative involvement, public and family support, and community service. Most of the fourteen components rely heavily on mentoring, and, collectively they help to create an environment that continually challenges and supports students from their pre-freshman summer through graduation and beyond. Students work with several types of mentors, including selected faculty, staff, student peers, alumni, scientists and engineers in the larger community, and their parents throughout the course of the program.

This paper will begin with an explanation of each of these fourteen components of the Meyerhoff Scholars Program, and will also include UMBC's current figures and descriptive statistics on the program. Discussion of the expansion of the program to affiliated students and strategies for transforming UMBC's campus culture also will be presented. The strongest features of the program—its undergraduate research support program, orientation, Summer Bridge Program, and Living-Learning Communities— will follow. Lastly, the paper will examine UMBC's efforts to create new complementary programs for the campus, such as the Center for Women in Technology Scholars and the Sherman STEM Teachers Scholars Program. A brief conclusion is presented at the close of the paper.

The fourteen key components of the program are detailed here:

Financial Support has long been known to impede success of minorities in STEM disciplines (Anderson and Kim 2006; Maton and Hrabowski 2004). Meyerhoff Scholars receive a merit scholarship award ranging from $5,000 to $22,000 per year (toward tuition, room/board, and mandatory fees). Award renewal is contingent upon maintaining at least a 3.0 grade point average and majoring in an approved STEM discipline.

Recruitment and Selection of top math and science students from the mid-Atlantic region and across the nation has been central to the program's success. Participants are selected through a rigorous application process, and finalists are invited to campus for an interview weekend that includes their families, UMBC faculty, staff, and current scholars, and program alumni. We typically receive six hundred applications for fifty to sixty student positions.

Summer Bridge, a six-week residential pre-freshman bridge program, is required of all students selected for the program. During bridge students earn seven college credits in calculus and a humanities course, and participate in non-credit workshops in chemistry, engineering, study skills, time management, professional development, and career advising. Summer Bridge prepares scholars for the rigor of college STEM courses, and helps develop a close-knit cohort of like-minded students.

Study Groups are foundational to scholars' academic success (Fullilove and Treisman 1990). Scholars are coached to effectively form and manage study groups in the bridge program. In this way, they learn to work productively with others.

Program Values are consistently emphasized, including attaining a research-based PhD or MD and the pursuit of excellence in academics, character, and service.

Program Community is an important goal as the Meyerhoff Program provides a family-like, campus-based social and academic support system for students. Students live in the same residence halls during their freshman year and are required to live on campus throughout their undergraduate studies. Family Meetings, consisting of all program participants, and Cohort Meetings are held regularly to share information and promote community and program identity.

Personal Advising and Counseling is provided by professional staff. In addition to department-based academic advising, the program staff advises scholars throughout their undergraduate careers. Sessions covering academic planning, performance, and career advising are tailored to individuals or a small group of students.

Tutoring at UMBC is viewed as a proactive leaning tool and not a remedial activity. All Meyerhoff students are encouraged to take advantage of departmental and university tutoring resources in order to optimize their course performance, as students are expected to excel and encouraged to perform at a high level. Many Meyerhoff Scholars staff tutorial centers across campus, providing support to both Meyerhoff and non-Meyerhoff students.

Summer Research Internships provide experiential learning opportunities for students (Hippel et al. 1998; Zydney et al. 2002). All Meyerhoff Scholars are exposed to research beginning their freshman year in order to gain hands-on experience and develop a clearer understanding of what studying science entails. The program staff uses an extensive network of contacts to promote summer science and engineering internships—opportunities that maintain intrinsic interest in science, math, or engineering careers and create mentoring relationships.

Faculty Involvement permeates all aspects of the program, including recruitment, teaching, research mentorship, and special events and activities. Close contact with faculty promotes an environment with ready access to academic help and encouragement, fosters inter-personal relationships, and raises faculty expectations for minority students' academic performance.

Administrative Involvement and Public Support has proven to be a must for new interventions. The Meyerhoff Program receives high-level campus administrative support and is integrated into the fabric of the university. The program has partnerships with graduate schools, national laboratories, private companies, and government agencies throughout the country that are interested in recruiting Meyerhoff Scholars for summer, graduate, and professional opportunities.

Mentoring is provided by professional scientists and engineers, faculty, and professional staff. Peer and Meyerhoff alumni mentors have been incorporated and further strengthen an extensive network supporting scholars (Maton and Hrabowski 2004).

Community Service is expected of all program participants for each year they are in the program. Service opportunities on the UMBC campus and in Baltimore, especially involving work with at-risk youth, are promoted. Each cohort selects a service project during the academic year and works together to ensure perfect participation. For example, a recent project includes services staffing a campus-sponsored STEM competition for middle school students. Scholars served as timekeepers, facilitators, and carried out various other duties while supporting and inspiring young students interested in STEM.

Family Involvement is invited and families have been actively involved (Anderson and Minke 2007; Maton and Hrabowski 2004). Meyerhoff parents are kept informed of student progress (within legal guidelines), invited to special counseling sessions if problems emerge, and included in various special events. They have formed the Meyerhoff Parent Association that serves as a fundraising and mutual support resource. This mechanism also enables the program to help inform parents about the educational and career path of their son or daughter. They learn the important milestones students must achieve, including success in gateway STEM courses, summer research internships perhaps away from home and family, use of resources thought of as remedial (tutoring), and understanding of the graduate school process, all from admission to completion. The program has attracted considerable national attention. It has been recognized by the New York Times (Marriot 1992) and the National Science Foundation (2009) as a national model. Scores of representatives from federal agencies, campuses, and corporations across the country have visited UMBC's campus to learn more about the program's success. The College Board's National Task Force on Minority High Achievement praised the Meyerhoff Scholars Program as an example that could provide broader educational lessons. UMBC was among the first recipients of the U.S. President's Award for Excellence in Science, Mathematics, and Engineering Mentoring and was presented as one of the blue ribbon reports to Congress October 2003. In summer 2003, the program was featured on NBC's *The Today Show*, and was highlighted in *The College Track*, a three-part documentary television series that presented the stories of students, parents, teachers, and community organizations who are expanding our notion of who is "college material." The third part of the documentary, "Get in Stay, Stay In," highlighted the success of the Meyerhoff Scholarship Program and the methods used to combat issues of race and class that students face in higher education. It was also featured in a segment on CBS' *60 Minutes* in October 2011 (CBS News).

The success of the Meyerhoff program in recruiting and graduating underrepresented minorities, and particularly African Americans, in STEM is noteworthy. Although African-American students represent approximately 11 percent of all students enrolled in the nation's colleges and universities, they earn only 5 percent of all bachelor's degrees, and just 2 percent of the doctoral degrees in sciences and engineering (National Science Foundation 2009). The fact that most academically talented African-American students do not earn degrees in their initially chosen major in the sciences is of particular concern, not only for these youths but also for higher education and the nation.

Meyerhoff by the Numbers

Findings to date indicate the Meyerhoff Program is having a dramatically positive impact (Hrabowski 2011). Meyerhoff students are much more likely to be retained in their majors in science or engineering than comparison samples, and are five times more likely than equivalently talented peers at other institutions to go on to graduate or professional programs in the sciences, engineering, or medicine. If current rates of PhD attainment continue (as data suggest), this program will soon be the leading

predominantly white baccalaureate-origin institution of African-American students achieving PhDs in this country.

Since 1993, the program has graduated over eight hundred students. As of January 2013 nearly 53 percent of alumni from the program have earned graduate and professional degrees, including 114 PhDs, 31 MD/PhDs, and 105 MDs. Meyerhoff graduates have received these degrees from such institutions as Harvard, Stanford, Duke, the University of Pennsylvania, M.I.T., University of Michigan, Georgia Tech, Johns Hopkins, Carnegie Mellon, Rice, NYU, and the University of Maryland, College Park. Over 85 additional alumni have earned graduate degrees in engineering, and nearly three hundred alumni are currently enrolled in graduate and professional degree programs. An additional 270 students are currently enrolled in the program at UMBC for the 2012–2013 academic year of whom 53 percent are African American, 22 percent Caucasian, 18 percent Asian/Pacific Islander, 6 percent Hispanic, and 1 percent Native American. Importantly, we have been able to extend program benefits to other students on campus who are committed to the values, goals, and mission of the Meyerhoff program.

Affiliated Students

During the first decade of the program, Meyerhoff alumni and their parents identified financial support as the key attractor and benefit of the program. Many alumni and parents stated that without the scholarship support of the program, it may not have been possible for the scholars to pursue an undergraduate STEM degree not to mention to be successful in their undergraduate studies.

We later noticed a new trend. As we continued to conduct and analyze exit interviews during the second decade, more parents and alumni identified the importance of Summer Bridge, academic advising, and the "family atmosphere" as key to recruiting the students to UMBC as well as to their success. They placed far less emphasis on financial support. Students who were not selected as Meyerhoff Scholars, but who decided to attend UMBC anyway, were inquiring about how they might connect with the program. More and more students specifically asked about the possibility of participating in Summer Bridge, noting their families were willing to pay for the full cost of participation. During this same time period, students who were selected as Meyerhoff Scholars were willing to take a lower scholarship award in exchange for the guarantee to receive the peer and professional staff support the program provides.

Together these requests provided us with a blueprint for scaling up the number of students we supported without having an overbearing financial impact on the program. We opened key programmatic opportunities of the Meyerhoff Scholars Program to those students who were indeed committed to the values, goals, and mission of the program, and who were willing to take on the same responsibilities for the program and each other as did the scholars. We named these students "affiliates."

Affiliate students receive all of the programmatic supports afforded to the scholars, with the sole exception being receipt of a scholarship award. All of the program's key components are made available to them and they work, study, and conduct community service side-by-side with the scholars. Thus, affiliates are as likely to be as successful as are those students receiving financial support. In large measure this is because affiliate students are truly engaged and take full ownership and responsibility for their own learning and program participation.

In summary, we are proud to say that the Meyerhoff Scholars Program is an exceptional program that has attracted and graduated exceptional students, and therefore reaped exceptional results. It wasn't always easy, however, to convince others that this statement is factual and bragging rights were earned.

Crushing Stereotypes and Changing Minds: Changing Campus Culture

Seldom do we delight in being wrong. It is far more attractive and acceptable to be right. After all, being right is imperative to survival. Nevertheless, being wrong is absolutely an essential and normal part of how we learn and develop. Freeman Hrabowski and Robert Meyerhoff were willing to challenge existing beliefs and popular interpretations, and together created the Meyerhoff Scholars Program As noted, this program was designed to provide experiences and evidence that African-American men and women, when given the chance and sufficient support, would perform as well as the top students from other races in STEM classes and professions. This process required time, social capital, and years of accumulated data demonstrating the success of Meyerhoff Scholars. It also required persons to open their minds and take contradictory evidence seriously. Our lived experiences provided the wedge. A necessary first step toward integrating the Meyerhoff Scholars Program on campus involved confronting doubt and changing minds—minds that did not recognize that they needed to be changed.

Changing minds is difficult, however, especially when we don't recognize a need or feel that there is adequate evidence to support our established conclusions, theories, and beliefs. We use inductive reasoning to create categories, to learn about cause and effect, and to make sense of lived or virtual experiences. Stereotypes are often the result of inductive reasoning. Typically, little evidence is required to create a bias, while equally small amounts of counterevidence fail to convince us to overturn or revise an opinion or let go of a long held "fact." It is easy to dismiss contrary evidence, especially when the new information contradicts theories or positions that have held steady over the course of time and seemingly served us well.

Prior to the Meyerhoff Scholars Program, there were very few African-American students majoring in STEM areas, not to mention succeeding in STEM at UMBC. In fact, UMBC graduated fewer than 18 African-American STEM majors per year with typically fewer than five of these students graduating with a 3.0 or higher grade point

average. Many persons on campus interpreted this data as indicating a lack of interest and/or ability among this population. The numbers alone were used to uphold this biased explanation. Consideration of history, however, provided an alternative explanation. For example, we posited that access to knowledge throughout one's schooling and affordability for higher education might also be reasons for the demographic profile at UMBC and at most historically white institutions.

We set about changing minds. The process of change began with focus-group discussions involving students, faculty, and staff concentrating on the underachievement and underrepresentation of minorities. These inclusive conversations reflected our willingness to ask hard questions, gather data linked to these new questions, and to engage in public discourse focused on examining our findings and interrogating our assumptions. Results of these conversations were pivotal to culture change at UMBC. For example, faculty members who initially raised questions about whether we should, or even could, influence minority achievement eventually were leaders in securing external grants to support the success of all students in undergraduate research (Hirshman and Hrabowski 2011).

Core to our commitment to excellence, innovation, and imagination at UMBC are practices that encourage doubt, that invite and actually privilege questioning, and that cast the familiar as strange. Indeed, these are skills that guide our assessments and that we actively demonstrate and teach in our classes. As noted, we openly engage in difficult dialogues and seek contrary evidence even in the face of well-established ideas and practices. Thus, we have been able to work with skeptics and to provide data when the fundamental assumptions underlying the Meyerhoff Program were called into question.

We also have been quick to interrogate our language, realizing that words direct attitudes and actions. Indeed, we readily engage words that enable us to express doubt. Such words as perhaps, probably, hypothetically, doubtful, debatable, sometimes, occasionally, conceivably, hunch, guess, suspect, and even imagine (Schulz 2010) appear frequently in our discourse.

Recognizing that words matter, we continued to focus our attention on words central to campus discourse and to our linguistic strategies. We were careful to examine our language for obvious discriminatory leanings. For example, we had serious discussions about a person's first impressions of African-American students in class. African-American males wearing clothing heralding their favorite sports team and entering class as a group often came up as a topic for discussion. Negative expectations associated with the entry of these students immediately rose to the forefront. Faculty and students alike expected them to sit in the back, engage in off-task behavior, and refuse to participate in class discussion. They were not expected to sit up front and participate meaningfully and consistently in class. Another topic that frequently sparked discussion related to the increasing numbers of African-American students enrolling in STEM classes. Many persons on campus cited affirmative action and not

academic achievement as the reason for the greater presence. As noted, with years of accumulated data, minds changed.

We also searched for linguistic patterns we later learned are called micro-inequities. Micro-inequities are informal and often interpersonal "little" instances of hostility, aggression, discrimination, and/or prejudiced assumption that are often invisible and unconscious (Rowe 1990, 2008). These negative micro-messages typically come from the environment, rather than from a single individual or event, and when aggregated, negatively influence achievement and generate feelings of alienation, exclusion, and powerlessness among those to whom they are directed. Utterances of micro-inequities are pervasive in institutions. They typically harm individuals from groups identified as different from the mainstream society, including racial and ethnic minorities. Rowe (1990) offers the following statement as an example of a "casual racist remark": "We hired a Hispanic engineer, and he was incompetent; never again." So we worked to delete such micro-inequities from our speech, choosing instead to consistently infuse micro-affirmations in their place.

Micro-affirmations are expressions of positive accountability and encouragement, and they are embedded in individual's subjective experiences. Thus, they are central to mentoring as they entail such practices as giving credit where credit is due, while also encouraging and acknowledging productive work (Rowe 2008). Being embedded in subjectivity, micro-affirmations also entail the ability to listen to, validate, and provide attentiveness to individuals' needs and desires. So we were quick to praise and share positive statements when critiquing performance and highlighted strengths, while simultaneously discussing areas needing improvement. Cognizant of Meyerhoff students' situation, we engaged in open discussions about what it felt like to be one of the few persons of color attending class in a large lecture hall, working in a lab, or presenting at a conference. We were intentional in these efforts in the early days of the program and continue to use this approach today. In fact, these strategies have assisted our efforts whenever we identify the "isms," whether related to gender equity in STEM or our work to assure transfer student success. Examining and then shifting our language in these ways has helped us to change minds on and off campus.

We often relate one story, albeit representative of the lived experiences of many, to narrate the process of changing minds on campus. A professor in STEM had been teaching one of the larger lecture foundation courses for years. He tells of his "aha" experience that occurred in mid-lecture after looking attentively at the faces in the lecture hall. He noted that the black students, as he referred to them, were clustered in the front center of the lecture hall. It seemed to be a pattern, he concluded, especially as more black students enrolled at UMBC. He realized that when he asked questions of the class, those very same black students were not only the first and most likely to raise their hands, with rare exception they responded correctly. He also observed that they were also among the most likely to pose meaningful questions—questions that served as a catalyst for broader class participation. These black students were not in the far back of the lecture hall, invisible from the podium and thus free to be inattentive or unnoticed should they not attend class as he expected. Rather, attendance

was never a problem with these students. They were on time, up front, and visible. The professor recognized that the black students were indeed the brightest and the best not only in his class, but in all of their classes. The evidence has been consistent over the years, it just took time to establish solid trends and allow it to sink in. Closer examination of transcripts revealed that these students were typically Meyerhoff Scholars. The professor began to share his observations with other faculty, and their experiences corroborated his findings. Minds were changing.

Students, too, began to acknowledge the intellectual eminence of the African Americans in class, and, when encouraged to form study groups, eagerly petitioned Meyerhoff Scholars to join their groups. Other academically talented African-American students who were not in the Meyerhoff Scholars or Affiliate programs also were attracted to UMBC, and so the overall numbers of African-American students on campus began to increase. Slowly, the attributes associated with the scholars were transferred to these students. Before long, expectations of academic excellence were conferred on most of our African-American students. As word got out, other underrepresented minorities also enrolled in greater numbers. In the face of new and pervasive evidence, minds were changing and old stereotypes were being shattered.

Those of us who had been on campus during the formation of the Meyerhoff Scholars Program believe we actually heard stereotypes come crashing down. It is hard to ignore these stories and data. We have chosen instead to work to provide all students enrolled at UMBC with essential elements of the Meyerhoff experience.

Representative Innovations and Best Practices

Data on the Meyerhoff Scholars Program provide indisputable evidence that large numbers of high-achieving minority students can attain degrees in STEM and go on to graduate study in the most prestigious universities in the United States where they earn advance degrees. Regular assessments of the program's strengths, weaknesses, and outcomes; disaggregated on such factors as race, gender, major, socioeconomic background, level of high-school preparation, and college performance; have been instrumental in building support for the Meyerhoff Program and for broader institutional change. The evidence is inspiring; indeed it had motivated us to replicate components of the program and make them available for all UMBC students.

Examples of representative programmatic applications and adaptations are provided below.

Undergraduate Research

Central to providing every student a distinctive undergraduate experience is a commitment to research. Meyerhoff Scholars are required to participate in substantive research experiences each summer after their Summer Bridge and are encouraged to pursue sustained research experiences on campus during the academic year (Maton and Hrabowski 2004). Thus, they are both consumers and producers of meaningful

research. We created campus-wide programs that would enable all of undergraduate students to become active researchers and engage in opportunities typically set aside for graduate students. Meyerhoff students are closely connected to research faculty and are expected to participate in every phase of the research process, including proposal writing, conducting disciplined inquiry, and disseminating the results through presentations and publication. Students work with faculty at UMBC and with top researchers across the country and all over the world. By the time they graduate, they are conducting innovative research at a professional level and a large number have presented at professional conferences and published in referred journals. Recognizing the centrality and efficacy of undergraduate research in preparing Meyerhoff Scholars as future leaders in their fields, we developed similar opportunities for all of our undergraduates, both freshmen and transfers. The Office of Undergraduate Education (OUE) developed and administers our campus-wide undergraduate research program. There are five components of our undergraduate research opportunities: Undergraduate Research Awards (URA), Undergraduate Research and Creative Achievement Day (URCAD), UMBC Review, Travel Awards, and Summer Research.

Through the Undergraduate Research Awards (URA) program, every student may conduct original research and earn a small stipend to support their inquiry. It is a competitive process. Students, working with a faculty mentor, prepare a proposal and submit it for review by faculty in the appropriate field. They are expected to conduct their research over the course of the next academic year and are required to submit their final work at our undergraduate research conference, URCAD, and for publication in the UMBC Review.

Undergraduate Research and Creative Achievement Day (URCAD) has been held in the third week of April each of the last sixteen years. Any undergraduate on campus may submit a proposal to present her or his research findings in either a poster or oral paper session, or demonstrate their creative achievements through exhibits, performances, or films. URCAD is run as a professional conference. More than two hundred students present annually in concurrent sessions, sharing their work with more than two thousand attendees. It is an exciting and meaningful day on campus as we gather to learn from our undergraduate researchers and celebrate the life of the mind.

The *UMBC Review*, our undergraduate research journal, is completely edited and designed by undergraduates, although submissions are reviewed by faculty in the appropriate disciplines. In its fifteenth printing, the *UMBC Review* is an archival journal and approximately 1,500 copies are distributed on campus and beyond each year. A similar process exists for *Bartleby*, our creative arts journal. Faculty advisors work with the student editors on both the *UMBC Review* and *Bartleby*.

Travel Awards are provided to students presenting their work at national conferences. Those who apply and are selected receive a stipend to defer the cost of attendance and travel. Presentation at any professional conference is acceptable and students may travel anywhere in the world. Students typically present on a panel or in a session with

their faculty mentor, but on occasion some submit and present on their own with the encouragement of their mentor.

Lastly, support to engage in summer research experiences is provided. The Office of Undergraduate Education (OUE) identifies, promotes and assists non-Meyerhoff students in preparing their applications for summer research experiences. Student placements include labs at universities across the country as well as at federal agencies and corporations. We have found that these experiences are pivotal to their success at UMBC and beyond. Many of the Meyerhoff students who are required to participate in a summer research experience each year they are in the program report that the summer research opportunities shaped their decisions as they entered graduate school and professional practice. We anticipate similar outcomes with our other students as well.

Through these collective efforts, UMBC is shifting both the "who" as well as the "how" of research. Students are taught new ways of approaching problems and asking questions. They are given the opportunity to investigate important questions, solve problems, and share their findings in professional settings.

Orientation to UMBC

While there is a vast difference between the Meyerhoff Selection Weekend and UMBC's general orientation for new students, there are some key features that are shared. Unlike the comprehensive and intensive overnight experience of the Meyerhoff weekend, the typical UMBC student engages in a single day event. In the course of that day, however, students will attend sessions that focus on the UMBC mission, our core values, and our high expectations regarding personal and academic integrity. Thus, they learn about diversity on campus and why we cherish our characterization as a historically diverse university committed to inclusive excellence. They are encouraged to think deeply about what it means to be inclusive and to consider their assumptions and beliefs about the potential for excellence among all students. Like the Meyerhoff scholars, they also will meet with current students, faculty, and staff to discuss campus life and opportunities. Importantly, they will meet with personal advisors who sit with them to assure that they enroll in the appropriate courses based on their interests, aptitude, and identified major. They leave campus with an approved fall schedule and a broad overview of possibilities and expectations. We hope, too, that they leave orientation as a member of a cohesive cohort or at least with the promise of finding paths to community.

Summer Bridge

The Meyerhoff Scholars Program staff and Meyerhoff alumni attribute much of the program's success, and particularly the development of a familial identity and the demystification of academia, to the Summer Bridge experience. UMBC's Collegiate Success Institute (CSI) is patterned after the Meyerhoff Summer Bridge program. CSI is spread over six weeks and offers students the opportunity to take academic courses, live on campus together in the residence halls, become acquainted with UMBC

resources, and participate in co-curricular activities designed to help acquaint them with the Baltimore-Washington corridor as well as with one another. An important and unusual aspect of the Meyerhoff and CSI summer experience is that major component, such as intensive advising, cross-cohort meetings, facilitation of study groups, and service learning, continue through the academic year.

Students who opt for CSI are required to take at least one foundation course and are encouraged to enroll in two academic courses if possible. They may choose English Composition and/or General Algebra, and may also enroll in a First-Year Seminars (FYS). FYS are three-credit general education courses taught by full-time instructional faculty. These courses are limited to twenty newly enrolled UMBC students, employ active learning pedagogy, and are designed specifically for the FYS program; they are not among requirements for the major. The foundation courses are taught by regular faculty over the course of the six weeks. A linked one-credit Introduction to an Honors University Seminar (IHU) is attached to each of the three-credit foundation courses. IHUs are designed to help new students transition to UMBC. The IHU instructors utilize a common curriculum and provide information about campus resources, academic integrity policies, time management, study skills, financial literacy, test preparation, and other key skills. Students in the IHU also write a common paper requiring them to detail each step they take in writing a paper for class. Therefore, regardless of the academic course, students are taught basic study and writing skills while experiencing the power of studying in groups and developing as a community.

The social and co-curricular activities available during CSI are quite varied. They include meals at ethnic restaurants, visits to important historical sites in Baltimore and Washington, and trips to local museums. CSI students and Meyerhoff Scholars do some of these activities together, creating bonds across communities. Another critical feature of CSI is service learning. CSI students are required to give back and frequently hear the Meyerhoff mantra that, "Those to whom much is given, much is expected." We aspire to have all students recognize the privilege of education and service learning, and to adopt this mantra as a guide throughout their lives.

Living Learning Communities

Freshmen Meyerhoff Scholars live together in a UMBC residence hall with a wide cross-section of other scholars. This provides students a rich and academically stimulating environment, abounding with intentional activities for their personal and intellectual growth outside the classroom. These students become like family to one another, meeting one another for meals, studying together, and attending special social or academic events as a group. We have adopted this model and currently have eight Living Learning Communities (LLC) at UMBC. Each LLC is focused on a particular theme or shared interest. For example, students interested in sustained community service share a floor on the Shriver Center LLC, while those interested in women's issues and potential live together in the Women Involved in Learning and Leadership LLC. Still others who are high achieving and perhaps interested in STEM may live together in the Discovery Scholars LLC. A special LLC plans and sponsors joint

events such as theatre or museum trips, karaoke nights, and alternative spring break projects. Data demonstrates that students who participate in an LLC have a higher six-year graduation rate than non-affiliated UMBC students.

Other Scholars Programs

The Meyerhoff Scholars Program also has served as a catalyst for the creation of other scholars programs for high-achieving undergraduates of all races in the arts, humanities, public affairs, technology, and STEM teaching. Two notable examples in the STEM area are the Center for Women in Technology Scholars Program (CWIT) and the Sherman STEM Teacher Scholars Program.

The CWIT and Sherman Scholar programs were created to address the shortage of women in information technology (IT) and the shortage of highly qualified STEM teachers in pre-K–12 respectively. Both CWIT and Sherman scholars participate in key components mirrored after the Meyerhoff program. For example, both include a Summer Bridge program, engage a strong peer and faculty mentoring component, provide academic support and merit-based aid, facilitate self-driven peer study groups, include leadership training, offer intensive advising, and place students in relevant research and/or practicum experiences. These programs all address underrepresentation of Americans in STEM, whether on the basis of race or gender, or in pre-K–12 teaching.

In addition to shared components, there are specific programmatic elements that are unique to the programs. Unlike the Meyerhoff mandate that all its scholars live together in the same residence hall as freshmen and live on campus during their undergraduate career at UMBC, CWIT established a LLC that includes non-scholars and students not majoring in IT, and only encourages its scholars to live together in their first year. CWIT is also co-ed, analogous to the Meyerhoff program that is multi-racial now. CWIT opened the program to all who are committed to gender equity just as Meyerhoff opened its program to all who are committed to addressing the underrepresentation of all races in STEM professions.

When considering the Sherman program, it is important to note that UMBC does not have a major or minor in education; students must major in a discipline while meeting the rigors of a Maryland State Department of Education (MSDE) certificate. Thus, at UMBC, teacher certification is awarded to those who satisfactorily complete both the state requirements for teacher certification and the requirements of the disciplinary major. Thus, Sherman Scholars work side-by-side Meyerhoff students in the STEM majors. With this in mind, the Meyerhoff Program literally shares office, meeting, and conference space, as well as programmatic resources with the Sherman Program.

Conclusion

The actions and experiences of the UMBC community yield clear lessons practitioners can use to influence change that can lead to increased student engagement and success. UMBC leadership, faculty, and staff took time to reflect upon our record of student

achievement and participate in difficult yet productive conversations about what was effective and what needed attention. A resultant lesson was that long-held assumptions needed to be tested with institutional data. From underrepresented student success to pass rates in foundation STEM courses, robust conversations about pedagogy, learning, and course and classroom redesign brought to the forefront new ideas and models for institutional excellence and student success. Success with the Meyerhoff Program spurred broader curricular reform in innovative pedagogy. The UMBC Chemistry Discovery Center (CDC), which has tremendously impacted the pass rate for introductory chemistry courses, is the fruit of such work. As a result, the UMBC Chemistry Department has witnessed an increase in the number of chemistry majors since the integration of the CDC into the chemistry curriculum and the pass rates for introductory courses soared.

Involving a wide cross-section of campus stakeholders in these discussions also is essential as faculty, staff, and students must be made to feel that their view and voice is important in the development of interventions that will impact the academic community. Whether through community forums, working groups, or the creation of virtual communities, the success of new initiatives often rests on community buy-in. This ensures that key constituents throughout the institution feel a sense of ownership and connectivity to these projects, yielding potential collaborators, partners, and participants. From this, the identification of resources, both human and financial, successful initiatives may result and serve as a strong model for scaling and building programs.

The lessons learned over recent decades at UMBC also show that institutions must look within for adaptable best practices. The Meyerhoff Program model has been modified by various UMBC programs to reflect their mission, budget, participant and demographics (Hrabowski 2011). Indeed, when considering participant demographics several factors besides personal background are addressed, including level of academic preparation, comfort level identifying a major, the major selected, research interests, graduate degree goals, and career goals. The outcome at UMBC is an array of programs providing the essentials of the Meyerhoff model, including community engagement and commitment to excellence, along with novel programming designed to provide a new dimension of support, experience, and/or training.

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