CGS Doctoral Initiative on Minority Attrition and Completion

Implications for Practice:
A Case Study of UMBC and the PROMISE AGEP

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UMBC: An Honors University in Maryland

Graduate Diversity Initiatives at UMBC

- NIH: Meyerhoff Graduate Fellows Program
- NSF: PROMISE AGEP-T
- NSF: LSAMP-BD

Fall 2014

- Total Student Enrollment: 13,979
- Graduate students: 2600
- URM (not including 2 or more): 426 (16%)
- STEM URM (College of Natural & Mathematical Sciences, College of Engineering & IT): 210 (8%)
About AGEP

AGEP is committed to the national goal of increasing the numbers of underrepresented minorities (URMs), including those with disabilities, entering and completing science, technology, engineering, and mathematics (STEM) graduate education and postdoctoral training to levels representative of the available pool. URMs include African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians and other Pacific Islanders.
About PROMISE: Maryland’s AGEP

1. 2013: Collaborative Research: AGEP - T: PROMISE AGEP Maryland Transformation ($1.75M)
2. 2011: PROMISE Pathways ($150K)
3. 2008: PROMISE: Maryland’s AGEP ($1.5M)
4. 2002: Maryland Alliance for Graduate Education and the Professoriate ($3.15M)
1. **Psychological Sense of Community (PSOC, McMillan & Chavis, 1986)**
   
   1. **Membership**: the feeling of belonging or of sharing a sense of personal relatedness.
   
   2. **Influence**: A sense of mattering, of making a difference to a group, and of the group mattering to its members
   
   3. **Reinforcement: integration and fulfillment of needs**: The feeling that members’ needs will be met by the resources received through their membership in the group
   
   4. **Shared emotional connection**: The commitment and belief that members have shared and will share history, common places, time together, and similar experiences

2. **Counter-Spaces (LatCrit via CRT, Solórzano, Ceja, & Yosso, 2000; Solórzano & Yosso, 2002)**
   
   1. **Counter-spaces**: fostering learning, nurturing a supportive environment, validating the experiences of the participant, and viewing experiences as important knowledge
   
   2. **Cultural Capital**: aspirational, linguistic, familial, social, navigational, and resistant

3. **Intersectionality and STEM Identity** (Crenshaw, 1986; Hill Collins, 1998; Carlone & Johnson, 2007)
What we learned from DIMAC

1. All DIMAC Institutions were involved in some sort of activity for URM graduate student success

2. UMBC’s overall graduate enrollment = 1.9% of total for DIMAC Institutions

3. UMBC’s URM STEM enrollment = 3.5% of total for DIMAC Institutions (over 10 yr. period)

4. UMBC STEM Earned PhDs = 3.5% of total for DIMAC Institutions (10 yr. period)

5. Some years, graduation rates are higher than others, e.g., 2010-2011 = 5.5%

What we’ve learned at UMBC:

Students can persist when they know that they are invited to continue to engage, regardless of enrollment status – perception of “loyalty.”

Some students take longer due to family obligations, full-time jobs, change in research interest (they wait for new faculty to be hired, or take time to develop new relationships with existing faculty.

Attrition isn’t always due to “failure.” Cases: Different research, unique fellowship, Supportive environment + skill-building = new competencies/opportunities.
Interventions

Through PROMISE and other initiatives, UMBC developed continuous interventions to:

- **Combat challenges of new/rigorous program**
- **Combat isolation**

**Some key activities:**
- PhD Candidacy Ceremony
- Dissertation House
- Summer Success Institute
- Holistic Professional Development

**Creating a Culture of Inclusion**
- *Focus on URM STEM*
- *Invite all to participate*
- *Include/invite faculty*
- *Share data* (President’s Council, VP & Deans, GPDs)

**LESSONS LEARNED**

1. Professional development is critical for graduate students
2. Participants needed information in areas outside of traditional academic seminars, outside of academic departments
3. People were attending the seminars for both the information and the connections (other disciplines, similar cultural backgrounds, spaces for support and encouragement)
The Dissertation House

3-4 days, mentor-coach, meals, blogging, goal-setting, research elevator pitch, mini-lectures, wellness session, faculty buy-in, encouragement lectures by administration/alumni/postdocs (alternative space, identity, PSOC)
Third weekend in August, Mentors-in-Residence, Three tracks: first year, continuing student, PP&P (Postdoc/professor/professional), Alumni speakers [“Alternative space,” STEM identity, PSOC – Sense of Belonging]
Suite of Activities: Seminars & Workshops

- Advanced Statistics - meta-analysis and structural equation modeling
- PROF-it: Professors in Training
- Responsible Conduct of Research/IRB
- Discussions with faculty panel, “When Faculty Say ‘x’...”
- Dissertation House: Employees & Non-Traditional Students
- Financial Literacy (CGS EFL)
- Addressing Graduate Students’ Feelings of Stress
- Keys to Public Speaking
- Career Opportunity Hiring Roundtables and Sessions
- Scientific Publishing Workshop (Co-sponsor: NIH Meyerhoff Grad Fellows)
- Career-Life Balance Seminar – Portfolios (NSF CLB)
- A talk with President Hrabowski
Professional Development Seminars & Workshops: AY 2014-2015

- Saturday September 6, 2014: How to fund your graduate education
- Friday, September 19, 2014: PROF-it: Professors in Training: Develop a syllabus
- Wednesday, September 24, 2014: Responsible Conduct of Research/IRB
- Friday, October 3, 2014: PROF-it: Professors in Training seminar
- Friday, October 10, 2014: When Faculty Say ‘x’...
- Friday, October 10 and Saturday, October 11 2014: Dissertation House: Employees & Non-Traditional Students
- Friday, October 24, 2014: PROF-it: Professors in Training seminar
- Friday, November 7, 2014: PROF-it: Professors in Training seminar
- Wednesday, November 19, 2014: Financial Literacy – Credit Scores
- Friday, December 5, 2014: PROF-it: Professors in Training seminar
- Friday, December 5, 2014: Addressing Graduate Students’ Feelings of Stress
- Tuesday January 20- Friday January 23, 2015: Dissertation House: UMBC Students
- Saturday, January 31, 2015: Keys to Public Speaking: Prepare for Your Upcoming Presentation
- Friday, February 6, 2015: Scientific Publishing Workshop (Co-sponsor: Meyerhoff Grad Fellows)
- Wednesday, February 25, 2015: Postdoctoral Morning Coffee
- Wednesday, February 25, 2015: Career-Life Balance Seminar
- Wednesday, March 11, 2015: A talk with President Hrabowski
- Friday, April 1, 2015: Part 5: Latent Mean Difference Models.
- Friday, April 3, 2015: Postdoctoral Morning Coffee
- Wednesday, April 8, 2015: Career Paths for Graduate Students
- Wednesday, April 22, 2015: Financial Literacy Seminar

• Involve academic programs in activities
• Data is critical to track performance
The “Jessica Effect,” relies upon professional development, community building, and the development of an “extended family” as factors necessary for mentoring and facilitating increases in retention, graduation, and transition to advanced STEM careers for underrepresented minorities in STEM disciplines.
Values – (FAMILY STRUCTURE)

- Shape graduate students’ performance and socialization into their departments and their graduate communities.
- Different emphasis/structure among diverse groups.

Graduate students from “collectivist cultures” (e.g., Latino, African American) place strong emphasis on personal relationships in school, which may interfere with internally focused and task-driven characteristics that are needed for graduate school success. This is different from students from an individualist culture who may instead place more focus on traditional activities associated with advanced graduate work, and less focus on relationships to others in the program (Taylor and Antony 2000; Davidson and Foster-Johnson, 2001).

“In Latin culture, family is more important than anything, even education...Ties in the family, especially among the women, are tight.”

—Latina biology Ph.D.
“The Jessica Effect”

• Differences in “Culture” (Mazzula, 2011)
Lessons Learned

* It’s not just one program (departmental collaboration, critical mass and shared resources among alliance campuses)

* It’s more than one person: Mentoring Extensions
Pipeline Mentoring, Multi-level Mentoring, (University as Mentor)
Life-long mentoring, Mediator, Advocate, Constant

* Develop a supportive environment: Identify elements that are important and develop a suite of formal support mechanisms, including activities to address academic and holistic competencies.

Emerging Themes from 15 respondents for Question 7:

**SOURCES OF MENTORING**

- Professors from undergraduate institutions
- PROMISE: Maryland’s AGEP
- Meyerhoff Graduate Fellows Program
- Department
- LSAMP Bridge to the Doctorate Program
- United Students of African Descent – USAD (at UMB)
- Southern Regional Education Board (SREB)
- Women in Business, outside of academia
- MARC U*STAR (Sponsored by NIH)
- Family
- Other African-American women
- Other graduate students

(Rutledge, Carter-Veale, & Tull, 2011)
HISTORICALLY, the United States has owed a disproportionate minority of its doctorate degrees in graduate school to African Americans. In 1865, only 5% of those earning a degree were African American. By the 1970s, only 10% of all African American graduates had an advanced degree. In 1985, only 15% of African American students were enrolled in graduate school. This situation has continued to the present day, with African Americans making up only 10% of the total student body at most major universities.

In response to this situation, the PROMISE program was established in 1986 by the National Science Foundation and the Department of Education. The program provides financial support to African American students pursuing graduate degrees in STEM fields. The program's goals are to increase the number of African American students earning advanced degrees in STEM fields, and to increase the representation of African Americans in STEM fields in general.

The PROMISE program is designed to provide financial support to African American students pursuing graduate degrees in STEM fields. The program provides stipends, tuition support, and other forms of assistance to students enrolled in graduate programs. The program is designed to help students overcome the financial barriers that often prevent them from pursuing advanced degrees. The program is also designed to provide students with the support and guidance they need to succeed in graduate school.

The PROMISE program is open to students who are U.S. citizens or permanent residents of the United States and who have demonstrated academic excellence. Students must have a strong academic record and be enrolled in a graduate program in a STEM field. The program is designed to support students throughout their graduate studies, from the time they enter graduate school until they complete their degrees.

Since its establishment, the PROMISE program has had a significant impact on the number of African American students pursuing advanced degrees in STEM fields. The program has helped to increase the number of African American students enrolled in graduate programs, and has helped to improve the overall representation of African Americans in STEM fields.

In summary, the PROMISE program is an important initiative designed to support African American students pursuing advanced degrees in STEM fields. The program is designed to provide financial support and other forms of assistance to students, and is intended to help students overcome the financial barriers that often prevent them from pursuing advanced degrees. The program has had a significant impact on the number of African American students pursuing advanced degrees in STEM fields, and has helped to improve the overall representation of African Americans in STEM fields.
Replication at other schools

**An AGEP Program Analysis: Minority Graduate Student Diversity in STEM Disciplines at Three Maryland Universities**

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**I. INTRODUCTION AND BACKGROUND**

"We must look for opportunities in the field of education to replicate the successes of this program in other settings. The replication of this program is critical to the advancement of underrepresented minority students in STEM fields.

United States Congresswoman Eshoo's statement emphasizes the importance of replication and the need to promote diversity in STEM fields.

As America continues to expand its workforce in the STEM field, it is essential to create opportunities for underrepresented minorities to succeed. The PROMISE-AGEP program is a promising initiative that can provide a foundation for replication at other institutions.

Keywords: graduate education; underrepresentation; replication at other schools

[https://promiseagep.wordpress.com/publications/](https://promiseagep.wordpress.com/publications/)
• The CGS DIMAC project
• The Graduate School at UMBC
• The PROMISE AGEP: NSF Directorate for Education and Human Resources (EHR), Division of Human Resource Development (HRD). Current projects are supported by: Collaborative Research: AGEP T: PROMISE AGEP Maryland Transformation # 1309290. Foundational projects were developed and implemented under HRD grant #0202169 "AGEP: Maryland's Alliance for Graduate Education and the Professoriate," HRD grant #0639698 "PROMISE: Maryland's AGEP"; and HRD grant #1111217 "PROMISE Pathways."

Acknowledgments & Contact Information

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