

Work in Progress: The Bridge to the Doctorate Experience: A Reflection on Best Practices and Project Outcomes

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Abstract - Since 1992 the University of Texas (UT) System Louis Stokes Alliance for Minority Participation (LSAMP) has promoted the participation of underrepresented minorities (URM) in STEM with funding from the National Science Foundation (NSF). In 2003 the NSF initiated the Bridge-to-the-Doctorate (BD) project to support LSAMP alumni during their first two years of graduate studies. The expectation was that financial support, effective mentoring, and developmental activities would significantly increase the six-year completion rate for a Ph.D. degree. Consequently the UT LSAMP has developed effective strategies to recruit, retain, and advance these students and to ensure completion of their advanced degrees. Recruitment strategies include nationwide solicitation, faculty nominations, intensive interviews, and competitive admissions. Retention activities consist of seminars, personalized advising, team building, and workshops for achieving milestones in graduate studies. Advancing efforts include personalized academic advising and semester review of research progress to keep students focused and on track. To date, the Alliance has supported 70 students at three UT institutions. From this group, 40 have earned their MS, eight have earned their Ph.D. and 30 are currently pursuing the doctorate. Best practices will be discussed along with important outcomes seen since the inception of the BD program in the UT System.

Index Terms – Bridge to the Doctorate, graduate student, LSAMP, NSF

PROJECT DESCRIPTION

In 2002-2003 the National Science Foundation (NSF) began the Bridge-to-the-Doctorate project to provide support to LSAMP alumni entering STEM graduate programs. According to the NSF, the project was established to address minority students' hesitancy to enter graduate school and their fear of assuming the additional financial debt associated with graduate education. Since 2003 the UT System LSAMP has hosted six cohorts of 12 students each; four at UT El Paso, one each at UT Pan American and UT

Arlington. Table I includes a summary of selected student demographics for all UT System BD cohorts.

TABLE I
UT SYSTEM BD FELLOW DEMOGRAPHICS

Campus	Females	Males	URMs	Non-URMs
UTEP	20	26	41	5
UTPA	10	2	9	3
UTA	6	6	8	4
TOTAL	36	34	58	12

The two-year BD fellowship includes the following annual student benefits: a \$30,000 annual stipend, full payment of tuition and fees, a book allowance, funding for professional travel, and lab supply funding. Funding is also provided for fellows to participate in workshops that will benefit them during their two-year tenure.

LOGISTICS

During the first three cohorts, UT El Paso – the lead campus of the LSAMP grant – devised an intensive recruitment strategy for future cohorts to ensure a high success rate for future UT LSAMP BD groups. First and foremost, the application process became very similar to that of the NSF's Graduate Research Fellowship Program: interested students must answer a national call for applications and complete a comprehensive application packet. The packet includes a cover letter, resume, official transcript(s), statement of purpose, two faculty recommendation letters (including one from the prospective research mentor), and an in-depth proposal of research work to be completed during the program. Once applications are received, the selection committee reviews them and selects 20-25 applicants to interview in person (or by phone if the student is not in the host city). Each student is granted a 30-minute interview and the committee interviews 4 or 5 students per day during a five-day period. Once the interviews are completed, the committee discusses final selections and those students are asked to attend an initial meeting which covers all rules, regulations, stipulations, and expectations of the program. Each student is then asked to sign a binding contract for the first year of funding. Provided they meet all the expectations and obligations for the first year, the students are required to sign an identical contract at the start of their second fellowship year.

BD fellow obligations are: enrollment in the BD Seminar for fall and spring semesters, a minimum 3.5/4.0 GPA (semester and overall), full-time graduate student status, enrollment in at least 2 major courses for each fall and spring semester, satisfactory progress on research projects and toward graduation, participation in at least one NSF Joint Annual Meeting (JAM), and research presentation in at least one professional conference.

RESULTS

After hosting five cohorts and currently working with the sixth, the UT LSAMP has developed a cadre of best practices for the success of graduate students participating in the program. The most important aspect of program success is student selection, and the best practices noted have been the demanding application process and in-person interviews. The interviews are paramount in judging a student's determination and intentions toward completing the Ph.D. degree. Interviews also allow the committee to judge whether the student has the emotional maturity to cope with the high expectations and accountability requirements of the program.

The best indicators for student success at this point are the applicants' proposed research plan and their prospective faculty mentor's recommendation. The research plan allows the committee to get a glimpse into the students' minds regarding their approach and timeline to complete their MS or Ph.D. projects. Students with brief and generic research plans are those who have yet to pick a mentor and who only have a general idea of a research interest but no specific project. Since the fellowship lasts only two years, the committee must focus on those students whose plans are clear and who have already established a relationship with a mentor who has approved of their research plan and agreed to serve as their committee chair. Thus, the recommendation letter by the proposed research mentor is crucial for a successful application. Selected students should have also been formally accepted in a faculty lab or research group by the time they apply for the fellowship. This ensures the maximum progress on research projects during the two-year tenure.

Once the fellowship begins, the most important aspect of the fellows' experience is the weekly BD seminar during the fall and spring semesters. The seminars are student-focused and include team-building activities, guest lectures, research progress presentations, grant writing series, specific tips on successful MS or Ph.D. thesis defenses, lectures on future funding opportunities, and information and tips for tenure preparation in academia. The seminar also offers a valuable opportunity for the fellows to become a cohesive group and integrate with each other. A bonding experience with a big impact is the students' participation in the NSF's JAM where each cohort is required to attend at least once during their BD tenure. Attendance in the first year is preferable so that student

bonding on the trip can strengthen the cohort during the final year of the fellowship.

These best practices have led to some impressive results thus far. One of the most impressive outcomes we have seen since 2003 has been the accelerated completion of the Ph.D. program by several fellows. One student in Cohort III and another in Cohort VI completed their Ph.D. degrees in Materials Science and Chemistry, respectively, within three years, thanks to the BD funding and guidance while in the program. The national data by the NSF shows that the median time from the BS to the Ph.D. in 2009 was 7.7 years, which is drastically higher than our student trends. Many fellows have published research articles and presented research papers or posters at a myriad of scientific conferences. All of our students have made exceptional research progress and maintained near perfect GPAs. Most students who have graduated with the MS degrees have then continued to Ph.D. programs at various institutions including Rice University, University of Michigan, Texas A&M University, and University of North Carolina Chapel Hill.

CONCLUDING REMARKS

Although the UT LSAMP has successfully hosted six cohorts, more experience and evidence are needed to determine the impact of this type of project on graduate minority student success at the national level. The data collected from self-report surveys and anecdotal evidence demonstrates that our fellows excel at a higher level than their peers who were not in the program. Our fellows also seem to be better prepared academically and professionally based on opportunities provided by BD funds to travel to scientific conferences and give presentations. The UT LSAMP expects that the NSF will continue to provide future funding for this project to support promising graduate students and to uphold the NSF's mission to promote graduate education for underrepresented minority students, especially those in need of financial assistance.

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