

**Conceptual Framework for Evaluation & Assessment of the
National Science Foundation (NSF)
Alliance for Graduate Education & the Professoriate (AGEP) Program
Developed by
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With input from the AGEP Community**

The primary goal of the AGEP Program evaluation capacity building project is to help graduate schools that are awardees of the National Science Foundation (NSF) Alliances for Graduate Education and the Professoriate (AGEP) Programs to build a comprehensive evaluation and assessment infrastructure to examine their graduate education enterprise in terms of creating a diverse science & engineering PhD workforce. The AGEP Program objectives are to:

- “Increase the number of minority students pursuing advanced study, obtaining doctoral degrees, and entering the professoriate in science, technology, engineering and mathematics (STEM) disciplines.” Underrepresented minority (UM) students include students who are African American, Hispanic American, and American Indian/Alaskan Native/Pacific Islander.
- Establish “alliances engaged in comprehensive institutional cultural changes that will lead to sustained increases in the conferral of STEM doctoral degrees, significantly exceeding historic levels of performance” as related to UM graduate students.

The Framework

The AGEP Program conceptual framework can be used to guide evaluation and program development of AGEP Alliances. The "framework" presents a general model for institutional cultural changes as related to graduate school and S&E departmental policies, practices, and programs for graduate student:

- Recruitment, particularly recruitment into S&E PhD Programs.
- Admissions and selection.
- Advising and retention.
- Degree completion, including Masters and PhD degrees.
- Post-PhD employment plans.

The evaluation framework and model for change are focused on graduate student affairs, including:

- Recruitment and talent spotting strategies.
- Admissions and selection processes.
- Financial aid, particularly as it affects new graduate student enrollment and retention.
- Student support programs, particularly during the early course-taking years.
- Advising, mentoring, and retention.

- Workforce preparation.
- PhD career counseling and employment placement.

This AGEF conceptual framework and model for evaluation and assessment are intended to:

- Provide specific information, indicators, and data collection concerns related to evaluating graduate school policies, practices, programs, culture and climate for both student and faculty.
- Contribute to decisions about data collection and analysis as well as to provide a context for understanding results.

The model for change is presented in Figure 1.

At the core of the framework is the assumption that an effective institutional culture should include the collection and use of disaggregated student data by all decision-makers involved in the entry and progression of graduate students to degree completion, particularly PhD completion.

Both quantitative and qualitative student data are needed. To better interpret results from the quantitative student data, qualitative studies should be conducted to examine policies, practices, and programs related to graduate student affairs. These studies should include interviews and focus groups with key decision makers in the graduate school and S&E departments and a sample of all graduate students. Findings from the quantitative and qualitative studies about policies should be used to determine what is working and not working in terms of increasing the number of UM graduate students that enter graduate school and complete a PhD in S&E disciplines.

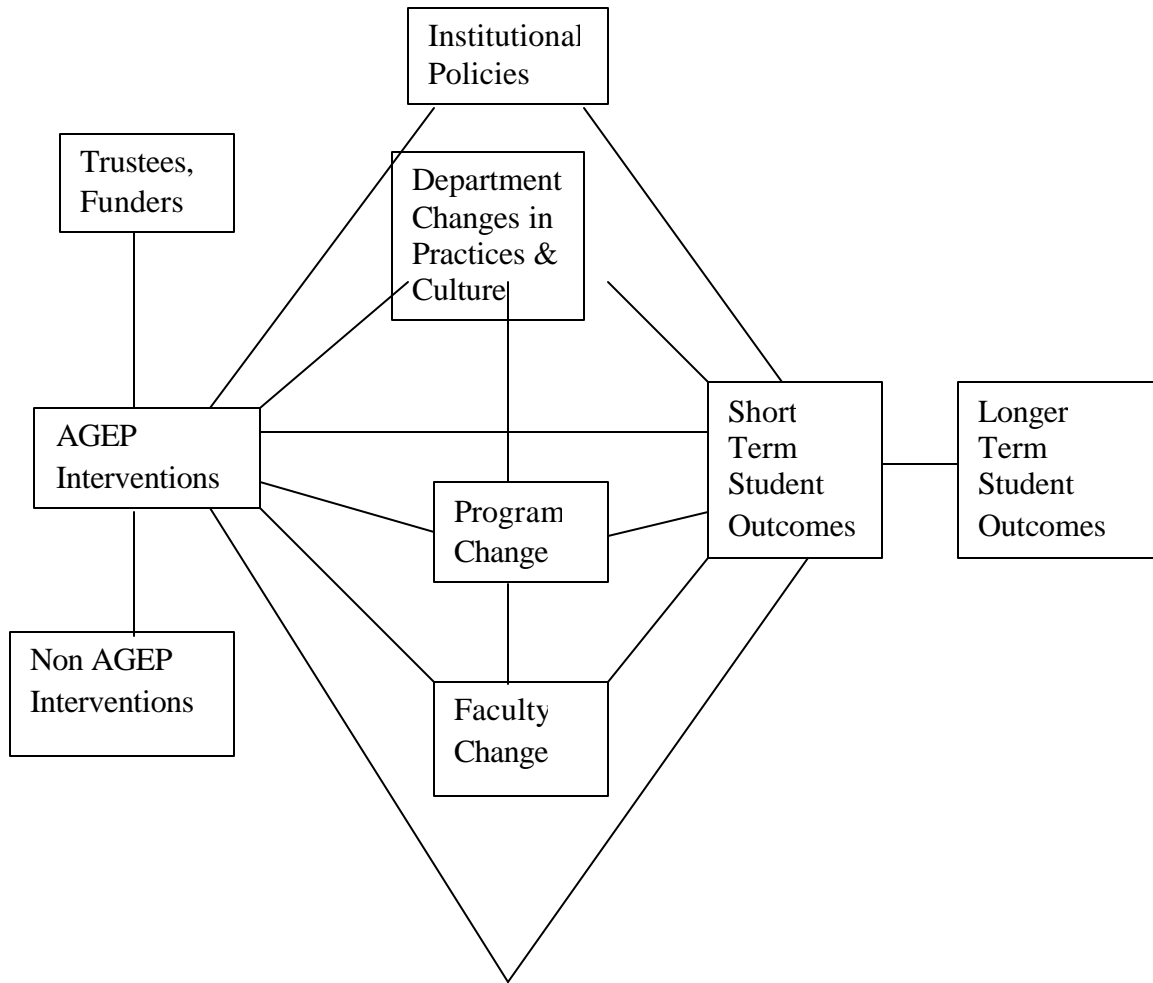
These data, disaggregated by race/ethnicity, sex, citizenship, and departments should be assessable to and used by all decision-makers involved in the entry and progression of graduate students to degree completion, particularly PhD completion. These graduate school decision-makers include:

- Graduate school and Academic Deans, Provosts and other administrators.
- STEM Departmental Chairs.
- STEM Departmental Admissions and Selection Committees.
- STEM Departmental Graduate Program Directors or Advisors.
- STEM Faculty.

In addition, the use of disaggregated student data should be a part of regular management practices at the graduate school and departmental level and not viewed as added work. Disaggregated quantitative and qualitative student data and other information, can help administrators to determine “what works for whom”, to set appropriate goals for their committee work or student advising and to be more reflective about the decision-making process for all graduate students. For example, data showing a decrease in the percentage

of admitted URM applicants may be an indicant that recruitment strategies are effective in attracting applicants that are viable candidates for admission.

Figure 1 --- Model for Change for AGEP Institutions



From the perspective of graduate student entry to PhD degree completion, the AGEP evaluation should include examining patterns and trends in number and percentage of:

- UM applicants;
- UM admits;
- New or first time UM enrollees;
- Overall UM enrollment;
- UM students advancing to doctoral candidacy;
- UM students completing degrees (Master's or PhD).

In addition, post PhD employment, particularly as related to the Professoriate, including post doctoral fellowships, should be examined.

From the perspective of institutional cultural change, the AGEP Program comprehensive evaluation and assessment should include examining changes in graduate school or departments' policies, practices, programs, culture or climate, and faculty behavior. Examples of evidence of changes in institutional culture include examining changes in:

- Number and percentage of S&E departments involved in initiatives related to UM.
- Number of S&E faculty involved in initiatives related to UM.
- Number of S&E faculty involved in graduate student recruitment.
- S&E departmental practices related to graduate student admissions and selection.
- S&E departmental practices related to graduate student advising.
- S&E departmental practices related to faculty evaluation and incentives.
- Family leave policies and practices within the graduate school or departments. As related to graduate students.
- Data collection practices, particularly use of disaggregated data, at the graduate school or department level in decision-making.

Also, data and information need to be collected on

:

- The quality of the implementation including participants' and/or external reviewers' perceptions about the intended objectives of a workshop or program component. The basis for judging the quality of program components is more difficult to describe; however, criteria could include participant attendance (time on task) and participant response and/or outside reviewers' perception.
- The effectiveness of the interventions or to what extent did the intervention achieve its intended objectives.

The Process

This draft AGEP conceptual framework for evaluation and assessment and model was developed through a community process with administrators and faculty at AGEP institutions and graduate schools, including:

- A meeting with evaluators and selected recipients of AGEP cooperative agreements, including faculty and deans, which was held in November 2002.
- Site visits to selected AGEP campuses from March to June 2003. Teams of site visitors included selected participants from the November 2002 meeting. Appendix A contains the site visit protocol.
- A focus group held at the AGEP EMERGE Meeting in Atlanta, GA in April 2003.

The site visit to AGEP campuses included meetings with Principal Investigators/Project Directors (PI/PDs), AGEP staff, evaluators, institutional research representatives,

graduate school administrators and staff, department chairs and faculty, institutional researchers in centers, recruitment and admissions staff and others who might be involved in data collection, analysis, or reporting. S&E faculty members were ones who were involved in graduate student recruitment or departmental admissions committee or were serving in the capacity of graduate program director for the department. Meetings were held with individuals or focus groups were conducted.

The objectives of the site visits were to gain a better understanding about S&E data collection, uses, and evaluation management and practices at the graduate school and department level, including:

- How the graduate schools collect and use data to make decisions about graduate student recruitment, admissions, advising and retention, and faculty evaluation.
- How STEM graduate departments collect and use data for graduate student recruitment, admissions, advising and retention, and faculty evaluation.
- The evaluation challenges and needs of graduate school administrators and STEM department chairs.
- How to smooth the path for AGEP institutions in terms of quantitative and qualitative data collection and reporting.

AGEP Institutions visited included:

- University of California Campuses, including Berkeley, Irvine, Riverside and Santa Barbara and a focus group with the representatives from all the UC campuses.
- Howard University, Washington, DC.
- University of Missouri, Columbia, including representatives from the University of Missouri at Rolla and Kansas City.
- University of North Carolina, Chapel Hill, including representatives from North Carolina State.
- State University of New York (SUNY) at Stony Brook, including representatives from Buffalo, Albany, and Binghamton.

Also, in 2005 visits were made to:

- Georgia Institute of Technology, including Emory University, Morehouse and Spelman Colleges.
- University of California AGEP Alliance.

In addition, NSF Reverse Site Visits were conducted with:

- Midwest Crossroads AGEP, including Purdue, Indiana University, and Northwestern University,

- Rice-Houston AGEP, including Rice University, University of Houston-Downtown, University of Houston
- Michigan AGEP, including University of Michigan-Ann Arbor, Michigan State, Wayne State, and Western Michigan University

In summary, the AGEP Program is embarking on an exploration of its impact and of the lessons it can provide itself and others. This is not an easy journey, neither is it one that can be completed quickly. It is however a journey with the potential to provide us all with much needed information. All involved are to be commended for having the vision and courage to begin such a journey.