# Creating Continuous Change: Adapting an NSF ADVANCE Approach to the Development of the AGEP-NC Model of Institutional Transformation

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**Abstract**

Lessons learned through the National Science Foundation's ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE) program continue to pay dividends long after the ADVANCE grant period concludes. This article details how strategies implemented in an ADVANCE Partnerships for Adaptation, Implementation and Dissemination (PAID) project at one institution in 2008-2012, which were themselves adapted from earlier ADVANCE projects, have been applied to address issues of equity and inclusion for doctoral students in science, technology, engineering and mathematical sciences (STEM) graduate programs at three institutions. We detail the successful elements of the ADVANCE PAID project; the steps taken to evaluate, adapt and integrate them into a comprehensive model of change for an Alliances for Graduate Education and the Professoriate (AGEP) project; and the impact of the AGEP project to date. We then generalize this process to provide recommendations for scholar-practitioners wishing to integrate elements of past ADVANCE and AGEP projects into current and future initiatives for lasting institutional change.

*Keywords:* transformation, change, diversity, inclusion, AGEP, ADVANCE, doctoral, STEM

# Creating Continuous Change: Adapting an NSF ADVANCE Approach to the Development of the AGEP-NC Model of Institutional Transformation

Diversity initiatives are often stand-alone projects resulting in change that may be limited in scope or duration (Kezar, 2019). Two National Science Foundation (NSF) programs that aim to make broad and lasting change are the ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE) program, which promoted institutional change from its inception (Laursen & Austin, 2020; Bilimoria & Liang, 2012), and the Alliances for Graduate Education and the Professoriate (AGEP) program, which aims to increase the number of racial minorities completing doctoral degrees and serving as faculty in science, technology, engineering and mathematics (NSF AGEP, n.d.). In this paper, we describe how lessons learned in implementing an ADVANCE project have been adapted and amplified in an AGEP project to enhance diversity and inclusion in the faculty and in graduate education at three institutions.

From 2008 to 2012, North Carolina State University (NC State) ran an NSF-funded ADVANCE project called Developing Diverse Departments (D3). While the NSF ADVANCE program at that time was explicitly focused on women in STEM, the D3 project addressed faculty diversity more generally (i.e., not just women and not just in STEM disciplines). The D3 project aimed to increase the number of women and faculty of color in the professoriate, create a climate that promotes the success of all faculty, and eliminate factors that elevate the risk that women and ethnic minorities will leave faculty positions at NC State.

The conclusion of grant funding for D3 did not mean that the work to be done at NC State was completed. Elements of D3 that proved successful were carried forward into other diversity-related initiatives. Most recently, the approaches and lessons learned from D3 were applied in the development and implementation of the NSF-funded AGEP-NC Alliance

project. The AGEP-NC Alliance project is a collaboration between three, very different, North Carolina universities (NC State, North Carolina A&T State University [NC A&T], and the University of North Carolina at Charlotte [UNCC]). The purpose of the Alliance is to develop, implement, study, and disseminate the AGEP-NC Alliance model for creating institutional, department-level and faculty change to promote historically underrepresented minority U.S. citizens who are completing their STEM doctoral degrees and progressing into faculty positions.

In this paper, we discuss elements of the work done previously by the ADVANCE D3 program that were important to the success of building the AGEP-NC model. Specifically, we address:

1. how the D3 ADVANCE project created spaces for the advancement of diversity-related institutional transformation
2. successes, challenges, and lessons learned from the development and implementation of D3
3. how the successful elements of D3 were integrated into future projects, with specific attention to the AGEP-NC project
4. a recommended process through which scholar-practitioners can integrate successful elements of past ADVANCE and AGEP projects to continue building and refining our understanding of how to create lasting institutional change

**The D3 ADVANCE Project and Diversity-Related Institutional Transformation**

The D3 project was an ADVANCE Partnerships for Adaptation, Implementation and Dissemination (PAID) project, and so D3 combined and adapted elements from other ADVANCE institutions, including a) the University of Michigan's STRIDE program for introducing faculty search committees to the impact of unconscious bias in faculty searches (Stewart et al., 2004), b) the University of Wisconsin's WISELI climate workshops for

department chairs, c) leadership development workshops through the Center for Institutional Change at the University of Washington (Yen et al., 2004), and d) the ADVANCE Professors' Network at Georgia Tech (Rosser, 2007).

D3 relied on two primary drivers of change: faculty change agents who would transmit ideas through their circles of influence; and institutional leaders committed to diversity and skilled in promoting inclusion (Gumpertz, 2012). D3 used three platforms to develop faculty change agents and leaders:

1. A faculty Fellows program called ADVANCE Scholars.
2. A leadership workshop series for women and minority faculty interested in investigating academic leadership roles such as department head and dean.
3. Climate workshops for department heads.

The ADVANCE Scholars were a primary engine through which change was to be realized. D3 sought to promote institutional change by focusing efforts within academic departments. Because departments are the units where faculty members concentrate their attention and efforts, it made sense that the departments would be the appropriate avenues to create space for dialogue around critical diversity issues. The goal was for the ADVANCE Scholars to first become familiar with unconscious bias literature from Women's Studies, the effects of bias on group decision-making, and the effects of stereotypes on hiring, performance evaluations and career trajectories. Scholars would then bring their new knowledge and awareness into their daily interactions with colleagues within their departments. By developing faculty awareness of gender and STEM issues and giving faculty the language to discuss these issues, ADVANCE Scholars served as catalysts for expanding how faculty members think about their institutional change roles. The D3 project developed two cohorts of ADVANCE Scholars, each serving three-year terms. The Senior Leaders cohort consisted of eight full professors and department heads, while the Emerging Scholars

cohort consisted of nine assistant and associate professors. In addition to increasing knowledge and awareness, each ADVANCE Scholar was charged with developing a project to promote diversity within their discipline. The ADVANCE Scholars brought their own interests and backgrounds to their roles. The D3 project did not explicitly address or focus on intersectionality, in keeping with the NSF ADVANCE goals of that time; however, the Scholars included eight White women, three Black women, three Latinas, two White men, and one Black man whose passions and projects covered a range of topics: GLBT equality, higher education for Latino/a students, increasing faculty diversity, supporting and encouraging Black women engineering faculty, and improving conditions for faculty with families.

## Successes, Challenges, and Lessons Learned from D3

### *Successes*

The Scholars bonded over monthly discussions about research on women and underrepresented faculty and annual celebrations and retreats. The women Scholars reported, in project assessment surveys, that the opportunity to establish close ties and community with other faculty, which was important in combating isolation, was the most significant aspect of the ADVANCE Scholars program (ADVANCE D3, 2012). Leaders with expertise in Psychology and Women's and Gender Studies facilitated discussions. In the project assessment survey at the end of their three-year term, the ADVANCE Scholars reported higher confidence in their group's ability to be a force for change on campus than they did at the beginning of their term.

The D3 project played an important role in developing several new policies, products, and processes related to parental leave, the tenure clock, and faculty search procedures including:

- Parental leave for graduate students.

- Tenure clock extension allowed for domestic partners.
- Guidelines focusing on diversity and unconscious bias for search committees for cluster hires.
- Faculty search toolkit.

One notable success of the D3 project was the increased number of women and Black, Hispanic and Indigenous department heads. In 2006, 18% (11/60) of department heads across all NC State disciplines were women and 3% (2/60) were Black, American Indian[1], or Hispanic. Those numbers had risen to 23% (15/64) women and 9% (6/64) Black, American Indian or Hispanic by 2012. In 2020, 30% of the department heads are women. During the 2006 to 2012 time period, the number of women and Black, American Indian or Hispanic faculty holding named professorships in STEM disciplines increased substantially from 7 to 12 women and 4 to 10 Black, Hispanic and American Indian faculty.

***Challenges with Institutionalization***

In hindsight, there were some challenges with institutionalization of the D3 structures.

**Personnel changes can be fatal.** The climate workshops for department heads and the leadership development workshop series were continued under the Office of Faculty Affairs for several years after the grant period ended, but discontinued after the vice provost for faculty affairs, who had been a member of the D3 leadership team, retired. The faculty search toolbox did not survive changes to the diversity office's website and changes in personnel.

**Budget pressures can be fatal.** The Advance Scholars program inspired a program called the Faculty Liaisons to the Office for Institutional Equity and Diversity (OIED), and several previous ADVANCE Scholars became OIED Faculty Liaisons. That program lasted for three years but did not survive budget pressures.

[1] The terms American Indian or Indigenous American are preferred to Native American by many Native people. (National Museum of the American Indian website https://americanindian.si.edu/nk360/faq/did-you-know).

### *Lessons Learned*

**Involve key supportive leaders who can assist with lasting change by providing a significant voice to the project or initiative.** Hiring tells an important story about the impact that deans can have. The percentage of tenured and tenure track women faculty hired increased from 17% in 2006-08 to 34% in 2009-12 in the College of Physical and Mathematical Sciences, but the hiring rates stayed steady in the Colleges of Engineering and Agriculture and Life Sciences (15-16% and 34-36%, respectively). The dean in the College of Physical and Mathematical Sciences was a co-PI on the ADVANCE grant and was committed to increasing women's representation in STEM. This dean was instrumental in developing the D3 unconscious bias training for faculty search committees, personally charged every search committee in the College and many search committees outside the College with instructions focusing on the importance of faculty diversity and created a template for incorporating diversity in position descriptions.

**Passionate and committed faculty can make change.** The ADVANCE D3 unconscious bias training survives today as an independent university-wide group of faculty volunteers called the Recruiting Diverse Faculty Committee because a committed leader and group of volunteers refused to let it die.

**Document change with written policy. Materials and policies need a permanent home to allow for institutionalization and shared collective knowledge beyond a project or initiative.** We also learned that changes written into formal plans and policies persist after a program is over. This is in contrast to informal policies and plans, particularly those for which documentation is posted on websites, which are less likely to survive changes in personnel or website administration. NC State's Regulation on Parental Leave for Graduate Students (NC State REG 02.15.08., n.d.) still stands. NC State's regulation on tenure clock

extensions (NC State REG 05.20.31, n.d.) covers faculty with a new child in the family or for a family member, including domestic partners, with serious health conditions.

**Use a process evaluator to ensure that the project keeps working toward its goals.** During the course of the D3 project, we learned the importance of having a process evaluator (Brent, 2012), the importance of honing our skills to enhance meeting facilitation and collaboration across disciplines, and the importance of working on our own unconscious biases about the relative merits of various academic disciplines as well as racial and ethnic groups (Trammel & Gumpertz, 2012). The members of the leadership team were all passionate about the goals of the D3 project. The team members came from disciplines ranging from Women's Studies to Chemical Engineering so the experiences, perspectives and opinions about how to most effectively proceed diverged widely within the leadership team. The process evaluator attended the leadership team meetings and intervened when necessary to keep the team moving toward the goals of the project (Brent, 2012).

## Integration of Successful Elements of D3 in Future Projects

While the ADVANCE D3 project funding ended in 2012, and despite the challenges noted above with respect to institutionalization, the impact of the project's work continued in numerous ways. The following sections describe ways in which the work accomplished through D3 laid the foundation for future institutional transformation initiatives.

### *ADVANCE Scholars*

One of the great successes of D3 was the continued commitment of the ADVANCE Scholars to advancing diversity and enhancing the climate and policies for inclusion. The accomplishments listed below were developed or implemented from 2012-2018, after the grant period ended.

- NC State's current Recruiting Diverse Faculty Committee was a direct descendent of the unconscious bias training for search committees developed by the ADVANCE Scholars.
- ADVANCE Scholars who subsequently served as OIED Faculty Liaisons implemented several high-impact initiatives:
    - Created the first Annual Statewide Hispanic/Latino Faculty Forum.
    - Established a statistics department modified duties policy for faculty with family obligations.
    - Created a mentoring program for engineering undergraduates at Historically Black Colleges and Universities (HBCUs).

In addition, about half of the ADVANCE Scholars went on to leadership roles where they have a larger platform for effecting change. These roles include two associate deans, two department heads, two graduate program directors, one interim dean, one assistant director of the State Agricultural Research Service, one NSF program director, and one university president.

***The Doctoral Mentoring Fellows Program***

In 2015, NC State's Office for Institutional Equity and Diversity and the Graduate School joined forces to create a small program called the Doctoral Mentoring Fellows Program, modeled on the ADVANCE Scholars. This program aimed to develop faculty advocates for diversity in graduate education. The idea was to seed the participating departments with a faculty member who would serve as an advocate and launch some initiative to enhance inclusion in graduate programs. Each year from 2015-2016 to 2017-2018, six to nine faculty Fellows were assembled, representing a total of 19 different departments. The Fellows served one-year terms and met monthly to read and discuss literature on unconscious bias, the experiences of underrepresented minority graduate

students, and the types of mentoring experienced by students who went on to faculty careers. Each fellow designed and implemented an initiative to advance diversity among doctoral students in their department or discipline and was provided a budget of $1000 to implement their initiative.

### *The AGEP-NC Alliance Project*

When the request for proposals for the NSF AGEP Program was announced, it was natural to consider if NC State's ADVANCE D3 approaches could help increase rates of degree completion and movement into faculty careers for the AGEP target populations, Black, Latino/a and Indigenous students in doctoral programs. The Doctoral Mentoring Fellows program provided a proof of concept. It showed that the idea of developing faculty Fellows and providing them a platform to conceive and implement initiatives tailored to their department's needs could work for promoting diversity in graduate programs as well as for promoting gender diversity among STEM faculty. Thus, one could consider it a pilot program for building an AGEP project.

**Alliance Development.** The AGEP-NC project was planned as a collaboration among three North Carolina universities: NC State, a predominantly White land grant doctoral university with very high research activity (R1); NC A&T, a historically Black land grant doctoral university with high research activity (R2); and UNCC, a predominantly White doctoral university with high research activity (R2). The purpose of the project was to develop an Alliance that would be a model to develop, implement, and study how the institutions work together to create institutional, department-level and faculty change to promote historically underrepresented minority U.S. citizens who are completing their STEM doctoral degrees and progressing into faculty positions.

To create an AGEP project, we needed to think on a larger scale, that of an Alliance, that included:

1. Working across three different institutions.
2. Expanding the leadership team to include faculty from three institutions.
3. Expanding the number of participating departments.
4. Thinking on a longer time frame of at least five years, rather than working one year at a time.

In this section we describe our experience in developing the AGEP-NC project, and in the next section, titled "Process for Integrating Past ADVANCE and AGEP Work into Future Initiatives," we generalize the process. Links between the two sections are indicated in parentheses in the subheaders of this section.

***Build trust and open communication through meeting in person to understand all points of view, to build a shared vision, and to develop and maintain the quality of the relationship among the leadership team as well as with project participants. (Leadership Team Development; Identify Allies).*** The first large task was for the three institutions' leadership teams to get to know each other and build trust. Although the Doctoral Mentoring Fellows program was an NC State program, the AGEP-NC project needed collaboration and true alliances with equal input from all three institutions. Over a two-year period, we began by discussing ideas about how things would work, developed the AGEP-NC model, wrote the grant proposal, and wrote the project budget. It was important to meet in person periodically to understand everyone's points of view and build a shared vision. All three institutions are within an hour and a half drive of one of the other institutions, so it is possible to meet in person every few months. Meetings continue to be an important element of our Alliance. The leadership team meets virtually via video conferencing every two weeks and in-person for an annual retreat, semi-annual Alliance meetings, and semi-annual leadership team meetings.

The three institutions involved have different missions. NC State is a large, predominantly White research extensive land grant university; NC A&T is a STEM-focused historically Black land grant university and a national leader in graduating Black STEM PhD students; and UNCC is an urban research university where many STEM PhD programs are young and developing. As a consequence, the culture, expectations of faculty and experiences and attitudes toward diversity differ. Having leadership teams at each institution allows the flexibility to develop appropriate curricula for the faculty Fellows and appropriate campus leadership approaches. The cultures and openness to diversity differ among disciplines as well, even among the STEM fields. As one indication of the differences in cultures and attitudes among disciplines, Black, Hispanic, and Indigenous students made up 13.6% of PhDs awarded in life sciences, 10.7% in engineering, 8.5% in physical sciences and earth sciences, and only 7.4% in mathematical sciences and computer science across the U.S. in 2016-17 (NCES, 2018).

Working on a 5-year time frame allowed us to think differently about evaluating the effects of the project. Five years is long enough for a cohort of doctoral students to complete their degrees. It may be long enough to capture changes in faculty attitudes, department climate, degree completion rates and placement of graduates.

**Guiding Framework for the AGEP-NC Model of Institutional Transformation (Conceptualize Project and Review Past Projects).** In studying what made other institutional transformation projects successful, we chose to develop a generalizable, evidence-based transformation model to be tested within diverse disciplines at three diverse universities. This model is built upon five core strategies of institutional transformation (Kezar & Eckel, 2002):

1. Senior administrative support (via value statements, resources, or new administrative structures),

2. Collaborative leadership (collaborative involvement throughout campus),
3. Robust design (flexible approach to reaching a desirable picture of the future; Nohria & Eccles, 1992),
4. Faculty development (opportunities for change-related learning), and
5. Visible action (visible and promoted activities that build momentum).

These strategies establish avenues for organizational sensemaking to occur (Kezar & Eckel, 2002). Sensemaking in the context of institutional change refers to the process of seeking information related to the proposed change, assigning meaning to the newly obtained information, and acting upon this information (Thomas et al., 1993).

The AGEP-NC Model follows a high-level process that resembles the D3 project approach. AGEP-NC faculty Fellows act as departmental change agents. They create various spaces or opportunities within their departments for sensemaking activities to occur (e.g., seminars, workshops, and mentoring programs). These activities help departmental faculty make meaning of changing landscapes within their disciplines and current diversity-related affairs. Laursen and Austin (2020) summarized successful strategies employed by ADVANCE institutions for interrupting biased processes, changing formal policies and procedures and informal cultural norms, and supporting individuals within academic departments and disciplines. Many of these are adapted and used by AGEP-NC Fellows to change the conditions for diverse doctoral students in their disciplines. Together, Fellows, department heads, and graduate directors lead their department faculty through the process of goal setting, policy refinement/development, and programmatic planning for the purpose of improving the pipeline of Black, Hispanic and Indigenous doctoral students to the professoriate.

**Similarities and Differences between D3 Scholars and AGEP-NC Fellows.** The AGEP-NC Fellows program was born conceptually from the D3 ADVANCE Scholars program and tested through the Doctoral Mentoring Fellows Program. The aim for the ADVANCE Scholars was to understand and improve the position of women faculty in STEM disciplines; whereas the aim of the AGEP-NC project is to involve department faculty in making change in their doctoral programs to promote success of Black, Hispanic and Indigenous doctoral students. Though there are many similarities between D3 and the AGEP-NC program, the explicit focus on making departmental change in the AGEP-NC project required some modifications to the original D3 strategies.

In both programs, the faculty Fellows meet regularly with PIs to discuss culture, exclusion, institutional barriers and racism. In both the D3 Scholars and the AGEP-NC Fellows programs, the participating faculty openly reflect on what they are learning and discuss how their department may function. Fellows hear how other individuals from different STEM disciplines view these topics, which leads to learning and development, not only for the Scholars but also for chairs, graduate program directors and other faculty in the participating departments. In the case of AGEP-NC, learning occurs across the Alliance institutions and expands the possibilities and allows for more robust discussions around what and why certain things happen in each department at each institution.

The AGEP-NC Fellows are explicitly charged to work with their department heads, directors of graduate programs and faculty colleagues to develop department plans for enhancing diversity and inclusion in the doctoral program. On the other hand, in the ADVANCE Scholars program, the Scholars' orientation was toward personal learning and development. The D3 model focused on individual change, which is imperative for change to happen, but spreading ideas outward from the group of ADVANCE Scholars depended more on the Scholars' own personal and professional networks. This explicit focus on external

group change, with involvement of the department head and the graduate program director, was adopted by AGEP-NC to heighten the probability of creating a sustainable change in department climate and to engage the department faculty in designing and adopting department operations changes.

Selection of the faculty Fellows or Scholars is a critical step for the success of either project. It is difficult to give a prescription that will result in a group that will be committed, active and effective. The D3 call for applications emphasized that ADVANCE Scholars would be committed to "actively engage their colleagues in discussions about research on social biases, to cultivate action plans in their colleges and departments and facilitate their implementation, to be a resource to the colleges and their faculty, and to articulate the issues in on-the-ground deliberation about hiring, promotion and tenure." The following criteria were used to evaluate each applicant: (1) a record of commitment to addressing social inequality, (2) demonstrated investment in lifelong learning, (3) demonstrated interest in intellectual growth outside of their academic specialty, and (4) experience and interest in the leadership themes of the project. The AGEP-NC call for Fellows indicates that the aims of the AGEP-NC project are to build infrastructure in doctoral programs and culture among dissertation advisors that successfully prepare underrepresented minority dissertation students for faculty careers. The criteria for selection are modeled on the D3 criteria, but somewhat more utilitarian. In addition, we required a statement of commitment from the department head and the graduate program director, because they were to be actively involved in implementing the AGEP-NC project.

**AGEP-NC Fellow Activities.** Putting the model of change together with what we have learned from implementation of the D3 project resulted in the following program for the AGEP-NC Fellows. The Fellows meet monthly and attend two workshops per year to read, discuss, and develop knowledge about cross-cultural mentoring, promoting diversity in doctoral programs, and facilitating departmental dialog. The Fellows are responsible for developing and implementing a sensemaking initiative in their department or discipline to share information with faculty, provide department faculty opportunities to learn about building an inclusive doctoral program or develop strategies to improve the climate, practices and policies that positively impact Black, Hispanic and Indigenous graduate students and faculty. Together with their department head and director of graduate programs, the Fellows are also responsible for leading the department faculty in developing a plan for promoting Black, Hispanic and Indigenous doctoral student success in the program and progressing to faculty careers.

Five faculty participated in the first cohort of AGEP-NC Fellows, representing five STEM departments. Table 1 contains a compilation of concrete actions included in the Fellows' departments' sensemaking initiatives and department plans. Each department's initiative and plan contained several actions and several of the actions appear in more than one department's plan. The concrete actions are grouped into seven categories.

**Table 1**

*Concrete Actions Included in Cohort 1 AGEP-NC Sensemaking Initiatives and Department Plans*

| **Advising graduate students, mentoring resources and mentor training** |
| --- |
| • Mentor-mentee work/communication styles learning module for first year graduate students and their advisors<br>• Improve graduate program handbook<br>• Early guidance and selection of faculty advisor |

| |
|---|
| • Assess incoming students' preparation and tailor first year course advising to student background<br>• Faculty training on culturally responsive mentoring |
| **Professional development for graduate students** |
| • Individual development plans<br>• Workshop on public speaking and networking<br>• Workshop on writing and evaluating a job application diversity statement<br>• Informal discussion series on research and science communication<br>• First year course and/or seminar series on professional development |
| **Workshops and seminars for faculty** |
| • Creating an inclusive classroom environment<br>• Creating an inclusive department climate |
| **Building community** |
| • Peer mentoring program for graduate students<br>• Diverse seminar and graduation speakers<br>• Minority Alumni Mentorship program<br>• Develop national network of Black, Hispanic and Indigenous graduate students and faculty in peer departments |
| **Developing inclusive department climate** |
| • Establish departmental diversity committee<br>• Diversity and inclusion emphasis in department Strategic Plan<br>• Support for graduate students and faculty to attend a conference diversity program<br>• Require faculty candidates to provide a diversity statement<br>• Departmental diversity website and outreach videos<br>• Faculty participation in organizations such as the Math Alliance, the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS), and Minorities in Agriculture, Natural Resources and Related Sciences (MANNRS) |

| **Recognition and accountability** |
| --- |
| • Diversity and inclusion in annual Faculty Activity Reports<br>• Diversity and inclusion in Statements of Faculty Responsibility<br>• Diversity and inclusion in Reappointment, Promotion and Tenure guidelines |
| **Tracking climate and student progress** |
| 1. Annual climate survey<br>2. Exit interviews<br>3. Graduate student review of curriculum and rubric for evaluating student progress<br>4. Faculty review of Black, Hispanic and Indigenous students' progress each semester |

***Assessment and Flexible design (Brainstorming and Refining; Implement the Project along with Sustainability Efforts and Assess Project Outcomes; Document Processes and Outcomes).*** As the AGEP-NC project develops, we continue to learn about what works and what should be modified. The project process evaluator surveys the faculty Fellows, their departments' faculty and doctoral students during the first semester of their service as a fellow and again two years later. In addition, the evaluators survey and interview the project leadership team each year. We collect reports on the implementation and impact of the departmental sensemaking initiatives and department plans yearly after adoption. We have recently created an online toolbox of resources and templates (https://agep-nc.org/index.php/agep-nc-toolkit/) that is already proving very useful for the project leadership, Fellows, department heads and deans. Based on the experience of the first cohort of faculty Fellows we have made adjustments and identified three lessons that are useful for others looking to lead similar projects.

***A departmental diversity committee and outside facilitators can help engage wider departmental participation in discussions about diversity and inclusion.*** First, we found through the monthly fellow meetings that engaging faculty colleagues in discussions about

diversity was not easy for many of the Fellows. We now advise the departments to involve a departmental diversity committee in this process. Having discussions within a diversity committee and then moving recommendations from the committee out to the department faculty provides a structured process for bringing initiatives up for faculty consideration. Hiring an experienced facilitator to lead these discussions can help ensure that the process of developing a plan comes to a successful conclusion. Engaging faculty colleagues was particularly difficult for AGEP-NC Fellows who were new assistant professors. Thus, we added the requirement that Fellows must be either tenured or must have applied for tenure. We have also learned that department heads and directors of graduate programs can make very effective AGEP-NC Fellows. Engaging the department faculty around diversity and inclusion issues may be seen as a natural part of their responsibilities and they have a platform to advocate for changes in program requirements, advising and mentoring processes, and reappointment, promotion, and tenure guidelines. Several Fellows have moved into graduate program director positions during or after their service as an AGEP-NC Fellow.

***Identify key change agents within the department; choose faculty Fellows who are passionate and motivated for the long term***. Secondly, faculty Fellows were nominated by their department head in the first cohort. For the most part, the results have been excellent, but the group of Fellows did not have the experience of bonding over a shared passion. Thus, in subsequent cohorts, we have moved to a model based more on self-nominations than department heads' nominations to welcome faculty who are intrinsically motivated to do the difficult work of a faculty fellow.

***Provide hands-on leadership and concrete, practical examples to the faculty Fellows.*** Lastly, the leadership team has learned to take a more active role in helping the Fellows engage their faculty colleagues. Fellows are looking for existing models of sensemaking initiatives and department plans that they can adapt. Fellows want to see a

model or template of initiatives, so they better understand the final product. This is especially important if the fellow is not in a position of authority. It is also important to meet with the department head, director of graduate programs, and faculty Fellows regularly to explain the roles and responsibilities of each party, to provide examples of sensemaking initiatives and elements of department plans, and to ask if there are ways that the leadership team can assist or facilitate their change process.

**Process for Integrating Past ADVANCE and AGEP Work into Future Initiatives**

In this section, we propose a model for the integration of successful elements of past programs and initiatives (with specific attention to ADVANCE and AGEP projects) into future work. This model helps scholar-practitioners develop long-term projects to be funded within their institution or via an ADVANCE or AGEP grant. It is also useful for one-time, grant-funded intervention type projects.

This model is based on the process undertaken to integrate elements of D3 and the Doctoral Mentoring Fellows Program into the AGEP-NC Model of Institutional Transformation. The purposes of this model are to:

1. encourage collaboration across higher education to advance diversity and inclusion-related institutional transformation.
2. increase the likelihood of successful diversity and inclusion-related projects by encouraging integration of successful elements of past projects.
3. put forth a method that encourages systematic advancement of our knowledge of successful institutional transformation across the field.

Note that this model is specific to integrating previous AGEP and ADVANCE project elements into future projects. It is beyond the scope of this model to include every detail of what is required to develop and implement a successful project. Interested scholar-practitioners should consult with additional resources to cover all topics and considerations.

The following subsections represent the model's phases in the order we believe to be most effective for achieving a well-integrated project. While there is a general order proposed, no change process is linear (Burke, 2018) so we incorporate feedback loops in our model. Indeed, one of the pillars of our AGEP-NC model of change is robust or flexible design, which means that we continually gather new information and expect to return to previous phases when we gather new information.

### *Conceptualize Project and Review Past ADVANCE / AGEP Projects*

The first phase requires one or more scholar-practitioners to have conceptualized the program, the major components of the project and the aims of the project. In this process, it is invaluable to conduct a thorough review of past related ADVANCE and/or AGEP projects. Bilimoria and Liang (2012) and Laursen and Austin (2020) provide summaries of insights from the ADVANCE Institutional Transformation institutions. We recommend both implementation and outcomes assessment to identify successful elements of past projects that can be implemented into the proposed project. If the proposed project adapts elements from the scholar-practitioner's own past projects, critically assess the impacts of the past projects and the most appropriate ways to integrate their elements into the current project. If the proposed project adapts elements from external projects, we recommend contacting the leaders of those projects to gain their wisdom and a fuller understanding of the intricacies, pitfalls, and best practices of the projects. Areas of inquiry might include time from idea creation to implementation, key stakeholders, challenges, things they wish they had known, and general advice they would share. Finally, put this all together into a basic model of the project that sets out the components and the desired outcomes of the project (see Kellogg Foundation [2001] for an in-depth guide to developing project models).

### *Identify Internal and External Allies*

A key feature of a successful program designed to create lasting change is to find and build relationships with key internal and external stakeholders. Internal stakeholders may serve various purposes including formal leadership, funding sources, or holders of social and political capital. These internal relationships built at the outset of the project will aid in championing the project within their spheres of influence and mitigating inevitable resistance to change (Burke, 2018). External allies who can provide expertise and guidance should be considered and might include NSF officials, an external advisory board, and other ADVANCE or AGEP groups (both current and past).

### *Brainstorming and Refining*

Once the review process is completed, we recommend a series of brainstorming sessions be conducted that are devoted to the critical assessment of the most appropriate ways to integrate and implement the elements of the project. Questions that guide these discussions might include:

1. Where in our base project model do various elements fit?
2. What outcome(s) are associated with each element?
3. How would we objectively assess our identified outcome(s)?
4. Do we already have the resources available for robust implementation of these elements? If not, where might we obtain such resources?
5. Who might we involve in the implementation of these elements for them to be successful?
6. What differences exist between our institutional context and the institutional context of the corresponding past projects (e.g., size, locale, Carnegie class, faculty/student makeup) that might lead to diverging results? How might we adjust accordingly?

7. Would it be possible to test elements of the project or conduct a pilot project before launching the entire project?

Allowing for sufficient time to answer these questions (some may require extended conversations outside of the primary leadership team) will enhance the leaders' understanding of model elements before the project is funded and implemented.

### *Implement the Project along with Sustainability Efforts and Assess Project Outcomes*

The decisions made in the implementation phase directly impact the outcomes of the project (Durlak & DuPre, 2008). A robust assessment of project outcomes is valuable for understanding program strengths, areas for improvement, and limitations (Posavac, 2015). Chapters four through nine of Rossi's et al. (2018) book on systematic program evaluation provide in-depth information about this process.

We recommend that scholar-practitioners put substantial effort into developing and implementing project elements to ensure that the outcomes of the project are sustained beyond the duration of project funding. These elements might include formal policies, unit handbooks, or adding project-relevant outcome measures to annual activity reports. Additionally, we recommend continuously assessing how well the implementation is going with respect to how it was planned (i.e., implementation fidelity) and allowing flexibility to adjust the implementation accordingly to maximize the likelihood of success.

### *Document Process and Outcomes*

As data are gathered throughout and after the project, we encourage scholar-practitioners to dedicate time to sufficiently document their process and results. We recommend capturing the project background, the logic model, program implementation details, key stakeholders, the outcomes assessment procedure, results of outcomes assessment, and recommendations for future scholar-practitioners. This documentation will be useful for continuity at the project leaders' home institutions and for other scholar-

practitioners looking to integrate successful projects into their work. The latter point requires project leaders to disseminate information so that other scholar-practitioners can benefit from the findings. See work by Bell et al. (2005) or Blau et al. (2010) for examples of well-documented NSF ADVANCE projects.

### *Post-project Sustainability and Assessment Efforts*

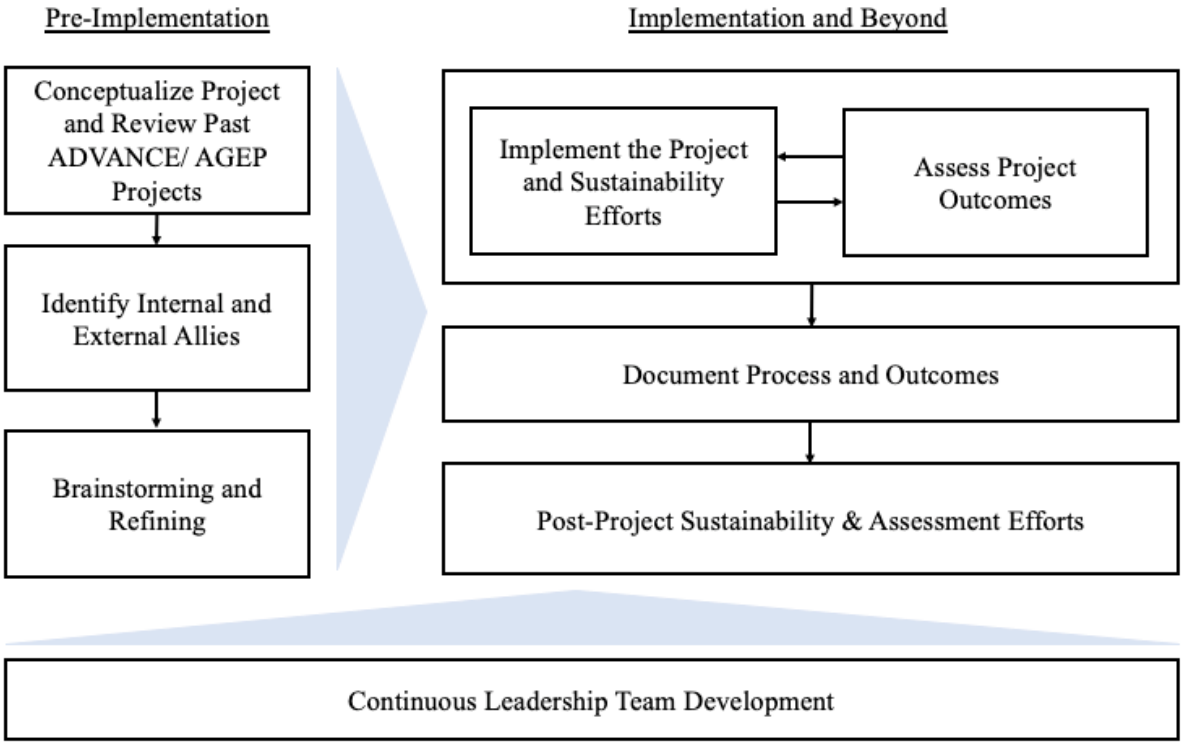
Ensuring sustainability is critical for projects designed to bring lasting institutional change. Burke (2018) suggests one of the keys to a successful institutional change initiative is to make sure "people see how their day-to-day actions relate to and support the organization's mission and strategy" (p. 354). This might look like having deans and department heads promote the project activities and goals. It may also include recognizing these activities in evaluation criteria such as annual activity reports and promotion and tenure guidelines. These highly visible steps show faculty that their actions are in line with the institution's mission. In addition to these efforts, projects that are designed to function as a newly integrated, long-term aspect of an institution should (a) build in deep-rooted alliances with key stakeholders across the institution and (b) create a succession plan that outlines who (division, department, and role/person) is responsible for the continuation of the project should structural changes occur in the future.

### *Continuous Leadership Team Development*

We have found that it is important to continuously develop and maintain the relationship quality of the project leadership team throughout the process. The leadership team is responsible for directing the project toward goal achievement. Figure 1 depicts this element as flowing throughout the process with special attention paid at the front end. We define leadership team relationship quality in terms of mutual understanding and robust communication.

**Figure 1**

*Model for Integrating Past AGEP/ADVANCE Project Elements into Future Work*




At the outset of the project, even before phase one, project leadership teams should spend time gaining clarity among themselves about the purpose(s) of the project to ensure that all members are working from a single point of reference from the beginning, continuing as the project becomes more complex and dynamic. Further, we recommend establishing communication norms among the group (e.g., communication frequency, modes of communication, etc.) early. As the project moves into more dynamic and complex phases, having established communication expectations for the leadership team will maintain the group's alignment on important milestones and project needs.

**Concluding Thoughts**

The experience gained through the ADVANCE program increased our awareness of issues and conditions needed for successfully making change. This is true for the ADVANCE

D3 program at NC State, and also for ADVANCE programming at UNCC and NC A&T. UNCC and NC A&T have had ADVANCE Institutional Transformation programming since 2006 and 2014, respectively. Though the UNCC and the NC A&T ADVANCE projects differed from D3, the focus on equity in STEM has shifted the lens at all three AGEP-NC institutions. Even after many were calling the Obama election evidence of a post-racial America, the awareness in the United States of ongoing racism continues to grow. #BlackLivesMatter, now at the forefront of BIPOC and White Americans' minds, has provided increased momentum for change.

The institutions that make up the AGEP-NC Alliance have recognized that change requires a collective approach to diversity and inclusion that involves investment by faculty, department heads, and campus leaders. Removing barriers to success on campuses requires working across the silos that usually exist in higher education institutions. Although the AGEP program focuses on the dissertation stage and above, improving graduate education outcomes also requires understanding of barriers that are in place in the recruiting of graduate students. Focusing solely on doctoral student completion may result in change in an individual unit's graduate student demographics for a time. For sustained change, however, we also need to improve undergraduate education outcomes so there is continuity in the pool of minoritized graduate students. This requires improving the hiring, retention, and success of diverse faculty. Thus, all three institutions have recognized that previous and currently funded NSF ADVANCE programs have important links with and consequences for the AGEP-NC Alliance and other programs aimed at institutional change.

This paper shows how the ADVANCE program implemented at one institution has had effects far beyond the initial grant-funded project, both in time and spheres of impact. The original ADVANCE project at NC State focused on promoting the careers of women

faculty. The model for that project developed platforms for faculty to become knowledgeable leaders of change.

This core idea of creating platforms for faculty to study social issues affecting higher education and effect change from within their departments is at the heart of the current AGEP-NC model of change. Over time, through the study of successes and challenges of the ADVANCE D3 project, in combination with study of the research on effecting change in higher education and input from evaluators, participants and stakeholders, we have added important elements to that core idea and have demonstrated how a model that was developed under ADVANCE has been adapted to a different set of goals.

Bilimoria and Liang (2012) found that institutional change was facilitated by having "senior administrative support and involvement, a transformation champion, collaborative leadership, widespread and synergistic participation, and visibility of actions and outcomes" (p. 200). Our experience agrees. We have learned that having the provost and deans seriously involved in the project can make the difference between making real progress and minimal impact. We have learned the importance of a solid leadership team continuously working together to incorporate all members' perspectives. We have learned the importance of proactive and regular communication with all the participants and stakeholders affected by the project. In the current AGEP-NC Alliance we have learned that in addition to broadening the impact to more institutions, working with multiple institutions immeasurably enriches the discussions, perspectives, and resources that participants bring to the endeavor.

Finally, we describe the steps in a process for building an initiative based on previous work for the continued advancement of knowledge regarding diversity-related institutional transformation. The process is not necessarily linear, and it is necessary to cycle back and forth among the elements. The process involves developing the basic project model; reviewing past ADVANCE and/or AGEP projects; identifying internal and external allies;

integrating successful elements of past projects into the current project; implementing the project and sustainability efforts; continuously assessing project outcomes; documenting the process and outcomes; and engaging in continuous leadership development throughout the project. The steps are not necessarily sequential but are integrated and need continuous attention once the project is underway.

Overall, this paper provides details on how the work done previously by an ADVANCE program was used to build a successful model for an AGEP Alliance and provides a model to guide the process through which scholar-practitioners can build projects that can create lasting institutional change.

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