



# Progression Toward the PhD Lessons from The Leadership Alliance

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**THE LEADERSHIP ALLIANCE**



# The Leadership Alliance

[www.theleadershipalliance.org](http://www.theleadershipalliance.org)

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- **A Consortium of 32 Outstanding Academic Institutions**
- **Shared Vision:** Greater diversity in the nation's institutions of higher learning
- **Shared Commitment:** Assist underrepresented minority students become future educators and leaders for our academic, public and government organizations

## Member Institutions

Brooklyn College  
Brown University  
Claflin University  
Columbia University  
Cornell University  
Dartmouth College  
Delaware State University  
Dillard University  
Harvard University  
Howard University  
Hunter College  
Johns Hopkins University  
Montana State University-Bozeman  
Morehouse College  
Morgan State University  
New York University  
Prairie View A&M University  
Princeton University  
Southern University-Baton Rouge  
Spelman College  
Stanford University  
Tougaloo College  
Tufts University  
University of Colorado at Boulder  
University of Maryland, Baltimore County  
University of Miami  
University of Pennsylvania  
University of Puerto Rico  
University of Virginia  
Vanderbilt University  
Xavier University of Louisiana  
Yale University



**THE LEADERSHIP ALLIANCE**



# Programs of The Leadership Alliance

Activities & Programs conducted at four levels that span the academic career training pathway

Alliance Programs focus on critical transitions by providing:

- Mentoring and advice before each transition, and
- Access
- to 'early identification' opportunities along the way

## Program Area

1. Undergraduate Summer Research
2. Graduate & Postdoctoral Workshops
3. Faculty Programs\*
4. Symposium & Networking Among all Alliance Partners

## Goals/Outcome

1. Better Decision Making & Increased Numbers Enrolling in Graduate Programs
2. Skills Training and Visibility to Obtain Postdoc and 1<sup>st</sup> Career Position
3. Exposure to Curriculum & Context of Academia
4. Access to Academic Policy, People & Resources

\* Lead Partner is the Faculty Resource Network



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# Progression Towards the PhD

What have we learned?

- To assess the longitudinal outcomes of the summer program, it is important to:
  - Gather critical data in as complete a form as possible
  - Use the data to provide answers to meaningful questions
  
- What are the Questions?
  - Question #1 – What is the Intended Impact of the Program?
  - Question #2 – What are the Origins of the Participants?
  - Question #3 – Which Data to Collect?
  - Question #4 – How Long is Longitudinal Tracking?
  - Questions #5 – What are our Linkages to Resources?



Progression Towards the PhD

Question #1:

**What are the Intended Program Outcomes ?**

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What is PhD Training?

What is an Academic Career?



# What is PhD Training?

Should I pursue a PhD?

## Research Outcomes Goal

A Quality Research Experience for Each Participant.

- Better Graduate Training Decision-Making by Program Participants
- Increased Acceptance of Program Participants into Graduate Schools of Choice
- Reduced Opportunity Costs to Graduate Program

Result?

Greater Retention in the 1<sup>st</sup> 2 years of Graduate Training

## Social Outcomes Goal

Envisioning Themselves in the Role of Researcher

- Connection to a Network: Interacting with a group of students who are like-minded and academically focused
- Peer support from Graduate Students and Postdocs who look like them
- Confidence in their research abilities

Result?

Increased Persistence by Students



# What is An Academic Career?

- **What PhD training is about:** Better understanding of the nature of graduate training and the goals of a research career.
- **Differences Among Career Options:** Enhance students' ability to make an informed career choice.
- **Understanding Expectations:** Both Requirements for the Application process and Expectations of Programs in initial years.

Question: Did the summer research experience help you to:	% saying "very useful" or "totally useful"			
	02	03	04	05
<b>Summer Cohort</b> ⇒				
More clearly understand what it takes to do a PhD	87	87	84	84
Decide whether to pursue graduate school	82	76	73	75
Gain specific knowledge about selecting and applying to graduate school	71	77	76	77
Learn more about forms of financial support	47	57	42	57
Make career choices and set career goals	66	70	60	65
Decide what to do with the balance of their undergraduate careers	65	65	59	64

Students' Assessment of Usefulness:  
The SR-EIP's Impact on Future Plans



## Progression Towards the PhD

Question #2:

### **What are the Origins of the Students?**

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Who are the Program Participants?

Where are Their Institutional Origins?

Are Participants Oriented Toward PhD Training?





# Who Are the Program Participants?

Data from 2001-2005

## Total Students

- 768 students in 807 summer experiences
- 39 students participated twice
- Program size - 145 to 168 students/summer

## Gender

- 67% of the students are female;
- 2:1 female to male constant since 1997

## Academic Level - Classification

- 62.7% Seniors
- 31% Juniors
- 5.4% Sophomores
- 0.9% other (mid-year grads or 5-year programs)

## Race/Ethnicity

- 52.1% African American
- 34.5% Hispanic
- 4.3% Multi-racial/Biracial
- 1.0% Pacific islander
- 2.0% Asian
- 1.4 % White
- 1.7% Other
- 0.7 Not Reported

## Academic Majors:

- 50.5% biological sciences, broadly defined;
- 11.5 % physical sciences.
- 8.3% engineering
- 3.0% computer sciences
- 17.1% behavioral & social sciences,
- 9.6% humanities





# Institutional Sources of Participants

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## **Institutional Diversity**

- 60% of participants were from the 32 Alliance Institutions;
- 40% of the participants were from 154 unique undergraduate institutions.

## **Institutional Classification\***

- 46.7% - Doctoral/Research
- 29.5% - Master's
- 20.9% - Baccalaureate
- 1.0% - Associates
- 1.0% from Specialized Institutions, Tribal colleges
- 0.5% - Unclassified

\* 2006 Modification of the Revised Carnegie Classification



# Are Participants Oriented Towards Graduate Training?

Do the program selection criteria reflect this aspiration?

- Review of Data: A review of outcomes of participants in program before 2000 determined that the largest number of students entering graduate training enrolled in MD and other clinical training programs
- Why?
  - Selection criteria principally based on GPA and not necessarily career aspiration
- Remedy
- Change/revise selection procedure
  1. Revise selection criteria to reflect program intent
  2. Advertise this intent to prospective candidates for program
  3. Institute a screening process to prioritize applications from those intending PhD or MD/PHD degrees
- Result?



# Are Participants Oriented Towards Graduate Training?

While not an exclusive criterion, external research experience is a factor in admissions decisions to competitive graduate training programs

**Our Data:** 1 of every 3 students in our program was a rising senior without prior undergraduate research experience. Students were:

- From campuses without funded undergrad research programs; and
- Otherwise qualified students who are not enrolled in undergrad research programs on their campuses

**Interpretation:** The LA program serves the important role of providing these very capable, yet inexperienced, students with an opportunity to:

- gain critical research and professional development skills important for graduate training decisions; and,
- Raise their 'competitiveness" in terms of participate in research programs as an undergraduate.

Classification	% of Cohort
Seniors With Research Experience	30.9
Seniors Without Research Experience	29.7
Underclassmen with Research Experience	13.1
Underclassmen without research experience	26.3



Progression Towards the PhD  
Question #3:  
**Which Data to Measure?**

What Core Data are Required?  
Measures that Change Definitions?  
Incorporating New Measures Mid-Stream?



# Which Data Are Required

Tell me all about yourself...

## Usual Data Collected

- Demographic: race, ethnicity, gender
- Institutional Origin
- Scholastic: GPA, GRE, specialized test scores
- Undergrad Academic discipline
- Permanent Contact Information
- Financial history: federal financial aid; McNair eligible; etc.

## Other Parameters with Utility

- Family educational history:
  - i.e., first generation
  - Legacy Issues: sibling affiliation; parental affiliation
- Prior Research Experience: honors research programs; external research experiences.
- Prior Educational Experience: MS degrees; Other professional degrees; Resumed Undergraduate
- High School Attended: possible secondary school linkages





# Measures with Changed Definitions

We used to be called ...

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- Definitions of Underrepresented
  - Census 2000 uses race and ethnicity – Hispanic data confounded
  - Slow adoption of uniform definitions across institutional data collection mechanisms at many schools – BNCP data still collected.
  - Self defined URM populations for many federal programs
- Definitions of underserved?
- Emergence of “Diversity” vs. URM



# Incorporating New Measures

Is there a metric conversion for this?

- Emergence of new measures or 'indicators' can:
  - Inform analyses of outcomes, yet
  - Affect comparability of prior data
- Example: 1st generation
- Example: new disciplines





Progression Towards the PhD  
Question #4  
**Longitudinal Tracking**

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How to Define a Cohort?  
When/Where Did Students Matriculate?  
Time to Degree and Degree Completion?



# How to Define a Cohort?

Are you in my friends circle?

For the purpose of measuring outcomes, it is important to define the cohort to compare the appropriate students across program years.

Cohort	SR-EIP Year	Year																Unique*
	Cohort #	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	Students Cohort
	2005/13														86	55	8	149
	2004 / 12													107	48	8		163
	2003 / 11											1	103	45	3			152
	2002 / 10										2	97	45	6				150
	2001 / 9									3	96	38	14	3				154
	2000 / 8								12	68	30	5	3					118
	1999 / 7							19	79	35	10	1	2					146
	1998 / 6						12	54	29	14	1							110
	1997 / 5				2	19	56	40	3	1								121
	1996 / 4				10	38	37	4	1									90
	1995 / 3			1	23	67	9	1	2									103
	1994 / 2			12	37	1	1											51
	1993 / 1	9	30	30	14													83
	Graduates/ Academic Year	9	30	43	86	125	115	118	126	121	139	142	167	161	137	(63)	(8)	1590

\* - Students who have participated in the SR-EIP on more than one occasion have been included only once

Figure



# When/Where Did Students Matriculate?

What's the Plan?

## Confounders

- Highly mobile
- 1-3 years since summer program.
- Break Before Beginning Graduate School
- Enrolled in Master's or Postbac Programs
- Multiple Program Participation

## Tracking Mechanism for gathering information.

- Yearly surveys for three years of all students to permanent address:
  - Year 1
    - 4 months after summer
    - 8 months after summer
    - In Dec for 2 additional years
- Social networks for information gathering
- Alliance intranet site
- Conferences and Meeting



# When & Where Did Students Matriculate?

Students enrolled in Graduate Programs after BS Degree							
Graduate Program	2001	2002	2003	2004	2005	01-05	93-00
PhD, MD/PhD	38	40	42	46	52	218	145
Postbac	0	3	5	5	5	18	0
MD, PharmD, DO, DDS, MD/MPH	17	25	18	23	21	104	161
MS, MA, MPH, MEd, MSN	14	12	17	20	16	79	30
JD, JD/MA	2	4	2	4	1	13	25
MBA	1	1	0	0	0	2	1
Not Indicated	0	0	0	1	0	1	0
<b>Total Graduate Program Enrollment</b>	<b>71</b>	<b>87</b>	<b>83</b>	<b>92</b>	<b>90</b>	<b>435</b>	<b>362</b>
<b>Total Students Receiving BS</b>	<b>121</b>	<b>139</b>	<b>142</b>	<b>167</b>	<b>161</b>	<b>733</b>	<b>653</b>
<b>Percent in Graduate Programs</b>	<b>59%</b>	<b>61%</b>	<b>60%</b>	<b>59%</b>	<b>58%</b>	<b>59%</b>	<b>55%</b>
<b>Percent in PhD &amp; MD/PhD Programs</b>	<b>31%</b>	<b>29%</b>	<b>30%</b>	<b>28%</b>	<b>32%</b>	<b>30%</b>	<b>22%</b>



# Where Did You Enroll?

Field of Study & Institution

Need to Analyze Outcomes with an Eye on Program Intent

- Are STEM Enrollments Increasing?
  - Greater Proportion in STEM
  - Constant proportion Medical/Clinical
  - Larger Number overall
- Where are Enrollments Increasing?
  - SR-EIP alum is three times more likely to attend a Leadership Alliance Institution

Research Doctoral Enrollment ►	2001-2005		1993-2000	
	#	%	#	%
STEM	134	62	58	40
MD/PhD	26	12	19	13
Non-STEM	57	26	26	47
Total	218	100	145	100

Graduate Institution	Alliance	Non-Alliance	Total/Avg
# Students Enrolled	92	126	218
# of Institution	16	65	81
Avg # per Institution	6	2	2.66



# Time to Degree & Completion

How Long is Longitudinal?

## An Individual History of a PhD?

- Time to degree
  - Defense date vs. graduation date
- MS before PhD or direct to PhD route
- 'Stopping out'

## We may also need to know

- Sources of funding
- Plans for post PhD activity

## How to Get the Data? Multiple tracking modes

- Program Based
  - e-mails to all available addresses
  - Snail mail to permanent addresses
- Network Based
  - Intranet Site
  - JustGarciaHill website
- External sources
  - Google search by name and by putative graduate institutions
  - JustGarciaHill website
  - Zaba search
  - Data tracker sources



Progression Toward PhD

Question #5:

## Linkage to Other Career Path Resources

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Linkages to Resources in Our Networks?

Linkages Among Networks?



# Linkages to Resources In Our Networks?

## Goal of Linkages:

1. Share Knowledge and Access to Resources
  2. Transfer Students to Next Successive Levels
  3. Shared methods and interventions
- Linkages within the Alliance
    - Resources on individual Alliance Campuses
    - Resources within the Alliance Networks







# Linkages Among Networks?

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- Linkages with Other Networks

- Linkages with AGEP network members
- Foundations, and other funding sources

- Key Challenges

- Sharing of Information – Students provide the same info to every program in which they participate
- Programs, however don't share info.





# Data Sharing Among Networks

## Achieving National Goals Through Partnerships

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Woodrow Wilson Report  
'Diversity & The PhD'  
(MAY 2005) reached  
the following  
conclusions:

1. The diversity record is poor
2. It's getting worse
3. No significant coalition
4. Little data and partial assessments

- Key recommendation: More *Communication Among Networks*
- Alliance Meeting April 2006
- Participants:
  - HHMI
  - CIC
  - Mellon
  - AGEP
  - LA
- Result: Points to consider about data sharing and outcomes





# Progression Towards the PhD Conclusions

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Consideration About Outcomes  
Factoring Variables & Their Locus of Control



# Considerations About Outcomes

Thus Far

## Outcomes

- Number of students in PhD programs
- Number completed
- Number in Postdocs
- Number in Faculty Positions

## Questions

- Degree of Ascertainment:
- # Produced by Alliance
- Potential Needs:
  - National Data Tracking system
  - National Study on Training History and Support



# Variables to Consider in the Context of PhD Training

## ***Variables Under Control of Market Forces***

- Funds available to support graduate trainees
- Competition from international or other students
- The draw of the job market

## **Variables Under Control by Institutions**

- Time to degree varies by institution
- Time to degree varies by discipline
- Time to degree varies by mentor

## ***Variables Control by Socio-Economic Circumstances***

- Social Acceptance of PhD training
  - Race/ethnicity
  - Lifestyle Choices – e.g. gender
- Economic Consequences of pursuing PhD

