

Assessment of PREP: Longitudinal Survey Analysis

January 2016

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Prepared for the University of New Mexico Postbaccalaureate Research and Education Program

Introduction

The University of New Mexico's Institute for Social Research (ISR) has been contracted by PREP to provide annual assessments of the program through the duration of the current grant. In addition to the annual assessments, ISR staff and PREP staff, working in collaboration, continue to assess the long-term effects of attending PREP has had on former PREP scholars. This is the second report of the longitudinal study. Scholars were considered former scholars if they had participated in PREP since PREP's inception to UNM in 2006 to the end of the 2014-2015 academic year. This sample includes some second year scholars who are currently participating in the PREP program for the 2015-2016 academic year. In order to assess the effect attending PREP has had on former PREP scholars a web based survey was created in the online survey database, Opinio. The survey, entitled the PREP Longitudinal Survey, was created with the intention of gathering information from former PREP scholars on if they are attending or have attended graduate school and how PREP affected their graduate tenure. A paper based copy of the survey is provided as Appendix A. The search for former PREP scholars was facilitated by records kept by PREP which included the names of the scholars who have participated in PREP, their last known emails upon leaving PREP and the graduate school where it was presumed the scholar is/was attending. The scholars' current contact information was found through university directories and through the online social network Facebook©. The former scholars were contacted via email by ISR staff, and provided a link to the PREP longitudinal survey on Opinio. PREP provided an incentive of a \$50 gift card to Amazon.com to scholars who chose to participate in the survey. Data collected through the survey was analyzed by ISR staff.

The on-line longitudinal survey was opened on September 22, 2015 and closed on October 31, 2015. Invitations to the survey were sent via email to 69 scholars, one scholar indicated in an earlier phase of this study in mid-2011 that they did not wish to participate in future surveys related to the PREP program. Of the 69 invitations, 62 scholars responded to the invitations and completed the survey.

This is the second survey of former PREP scholars. The first survey was conducted in mid-2011 and the report completed in November 2011 of former scholars from PREP's inception in 2006 to the end of the 2010-2011 academic year. In that study we were able to locate and survey 25 of 28 former scholars.

This report is divided into a number of sections. First, we provide some demographic information on all 69 respondents and their responses to several questions regarding the experiences while they were a Scholar. This is followed by a section applying to graduate school, a section on those who have completed graduate school, a section on respondents still in graduate school,

Former PREP Scholars

This section provides results for all the scholar respondents. This includes a demographics sections and a section on PREP.

Demographic Information

Seventy scholars have participated in PREP since its inception at UNM between 2006 and the end of the 2015-2016 academic year. Fourteen scholars (20%) attended PREP for a second academic year, four are currently still a PREP scholar and were included in the survey. We were unable to locate two former scholars' (both from 2006-2007). One former scholar indicated in the previous longitudinal survey they did not want to participate in future surveys. For this study we were able to locate and survey 62 (90%) of the

69 former PREP scholars from 2006-2015. The table below shows which year scholars who responded to the survey attended PREP. Fourteen scholars participated in PREP for an additional academic year and the table counts them in the first year they were a PREP Scholar. Therefore, the total number listed in the table is equivalent to the number of responses received by scholars.

Table 1: Academic and Calendar Year Scholar Attended PREP

	Number of
	Scholars
	Surveyed
2006-2007	4
2007-2008	6
2008-2009	0
2009-2010	6
2010-2011	8
2011-2012	6
2012-2013	9
2013-2014	12
2014-2015	11

A slight majority of the scholars who completed the survey were female (57.3%) and a small minority were White (18.0%) The majority of scholars were racial/ethnic minorities including Hispanic (52.4%), Black (9.8%), American Indian (8.1%), and Asian or Pacific Islanders (6.5%). This is not surprising considering the program targets racial/ethnic minorities. The average age of respondents was 28.9 years of age. The data displayed in the table only accounts for sixty-one scholars, considering one scholar did not complete this portion of the survey.

Table 2: Demographics of the Scholars

Demographics		
Variable	Count	Percent
Gender		
Female	35	57.3%
Male	26	42.6%
Ethnicity		
White	11	18.0%
Black	6	9.8%
American Indian	5	8.1%
Alaskan Native	1	1.6%
Asian or Pacific	4	6.5%
Islander		
Hispanic	32	52.4%
Other	2	3.2%
Average Age	28.9	

The table below displays scholar's current living arrangements in regards to whether or not they live with a spouse or partner, or live with any dependent children. Over 50% of the scholars indicated they did not live with a spouse or partner. A majority of scholars specified they do not live with any dependent children.

Table 3: Living Arrangements

Variable	Count	Percent	
Living with a Spouse	/partner		
Yes	27	44.2%	
No	34	55.7%	
Living with Depende	nt Children		
Yes	13	21.3%	
No	48	78.6%	

Table 4 displays scholars reported employment status. The majority of scholars reported their employment status as full-time (40 hrs/week), only three scholars reported their employment status as part-time, and 39.3% reported they were students. This table includes scholars who graduated (12) and are now employed, scholars who are not in graduate school and have not graduated (9), and the 40 scholars who are still in graduate school.

Table 4: Employment Status of Scholars

Status	Count	Percent
Full-time (40	35	57.3%
hrs/week)		
Part-time	2	3.2%
Student	24	39.3%

Effectiveness of being Mentored

The majority of scholars reported PREP helped define their career goals by giving them experience in a research environment, and evaluating different career fields to pursue. The complete list of responses from scholars is provided in Appendix C. This is an important finding and should be further explored. As shown below in Table 8 and Table 9 there are a number of scholars who did not attend graduate school, two who dropped out of graduate school, and 14 scholars who attended a second year. It would be useful to better understand why 20% of the 70 scholars have attended PREP for a second year and a small minority of scholars did not attend graduate school or dropped out of graduate school.

Scholars were asked to rank the 4 PREP activities most beneficial to their educational and career goals. The top 4 most beneficial PREP activities out of a list of 11 possible activities were: hands on laboratory experience, one on one meetings with faculty mentors, research training activities, and professional conferences. Scholars found weekly meetings with other PREP scholars, math and/or science class taken during their PREP year, and making individualized career plans least useful.

In order to tabulate a numerical score for the scholars' rankings: a ranking of one was given 4 points, a ranking of two was given 3 points, a ranking of three was given 2 points and a ranking of four was given 1 point. Table 5 shows the 10 PREP activities with the highest ranking scores.

Table 5: Ranking of 11 PREP Activities by Scholars

Activities	Ranking
	Scores
One on one meetings with faculty	112
mentor	
One on one meetings with laboratory	11
supervisor (only choose if different	
than faculty mentor)	
Weekly PREP meetings with other	26
PREP scholars	
Hands on laboratory experience	160
Math and/or science courses taken	16
while attending PREP	
Research training activities	77
Professional training activities	7
GRE preparation activities	56
Professional conferences	61
Making an individualized career plan	10

Scholars were asked to rate the helpfulness of 8 PREP activities on a scale of 1 to 6, 1 representing not helpful at all and 5 representing extremely helpful. The scholars were given the option 'does not apply' if they did not participate in a specific PREP activity. Scholars who selected 'does not apply' were excluded from the rating of that PREP activity when averaging the ratings by the scholars. The PREP activity 'Meetings with Laboratory Supervisor' was rated as 'Does not apply' by 40 scholars who responded to the survey. The highest rated PREP activities were research training activities, and meetings with faculty mentors. The lowest rated PREP activities were meetings with laboratory supervisors (this activity did not apply to every scholar) and weekly PREP group meetings. Table 6 displays the average rating of the helpfulness of 8 PREP activities.

Table 6: Average Rating of Helpfulness of 8 PREP Activities

	Average Rating	
Meetings with Faculty Mentor		4.1
Meetings with Laboratory Supervisor		1.2
(Check 'Does not apply' if same as		
faculty mentor)		
Meetings with PREP Staff		3.3
Weekly PREP group meetings		2.9
GRE/Graduate School Preparation		3.6
Activities		
Research Training activities		4.2
Professional Training Activities		3.4
Math and Science courses		3.6

Fifty-one scholars reported that attending PREP helped them define their career goals, while ten reported it did not. The majority of scholars indicated their current career goals were to obtain a research/industry scientist position or a faculty position. One scholar reported wanting a career as a program administrator, and one scholar reported wanting to pursue a career as a medical doctor. The totals displayed in Table 7 are exclusive to scholars who are currently enrolled in a graduate program. The career types shown in the table were constructed by ISR to create a catalogued list of types of careers scholars were seeking. The total number exceeds the number of scholars who are currently enrolled in graduate school, because two scholars selected two career types for current career goals.

Table 7: Scholars Current Career Goals by Type

Career Type	Count	Percent
Faculty Position	12	28.5%
Research/Industry Scientist	18	42.8%
Faculty Position or Research/Industry	9	21.4%
Scientist		
Academic Advisor/Coordinator in University	1	2.3%
Setting		
Medical Doctor	1	2.3%
Undecided	1	2.3%

Graduate School Application

Table 8 describes the scholars and whether they applied to graduate school, if they were accepted into graduate school and if they attended. Fifty of the 62 scholars, who completed the survey, indicated they gained acceptance into graduate school while attending PREP and 48 reported they began attending graduate school after completing PREP. At the time of the survey 40 reported they were currently attending graduate school.

Two scholars reported they did not apply for graduate school or gain acceptance into graduate school following PREP.

Scholars who indicated they did not attend graduate school or did not finish graduate school were asked to describe why they did not attend or complete graduate school. Most scholars reported they did not attend graduate school because they were not accepted or realized their educational/career goals had changed after completed PREP. The four scholars currently participating in PREP for a second year are not included in Table 8. For a complete list of responses please see Appendix A.

Table 8: Graduate School

	Count	Percent
Applied and Accepted	54	87.0%
Applied and Not Accepted	2	9.6%
Never Applied	2	3.2%

Table 9 reports on the 54 scholars who applied for and were accepted to graduate school. At the time of this survey 12 reported they had graduated, 40 reported they were still currently in graduate school and 2 scholars reported they dropped out of graduate school.

Table 9: Applied and Accepted

	Count	Percent
Currently Attending	40	74.0%
Graduated	12	22.2%
Dropped Out	2	3.7%

The next section of the report is divided into two parts. First, we report on the 12 scholars who have completed graduate school and second, we report on the 40 students who are still in graduate school. As noted earlier 2 scholars applied and were not accepted into graduate school, 2 never applied, and 2 attended and dropped out of graduate school.

Graduates

This section reports on scholars who reported graduating. As noted earlier 12 (19.4%) of the 62 scholars in the study have graduated or 22.2% of the 54 scholars who applied and were accepted into a graduate program. As noted in Table 8, 4 scholars either were not accepted or did not apply to graduate school.

Table 10 reports on scholars who attended and finished graduate school. A total of 12 scholars completed either a M.A./M.S. or Ph.D.. All of the graduates are currently employed full-time.

Table 10: Graduates

	Count	Percent
Graduated with a M.A/M.S	4	33.3%
Graduated with a Ph.D.	8	66.6%

Attending Graduate School

Of the forty scholars who indicated they were currently attending graduate school, the majority reported currently working on a doctoral degree (Ph.D). Table 11 displays the type of degrees scholars reported they were currently completing.

Table 11: Currently Attending Graduate School

	Count		Percent
Master's Degree (M.A/M.S)	!	5	12.5%
Doctoral Degree (M.D.)		5	12.5%
Doctoral Degree (Ph.D.)	30	0	75%

Table 12 displays the semester and year the scholars currently attending graduate school began.

Table 12: Year Admitted into Graduate School

	All Scholars	
	Count	Percent
Fall 2008	1	2.5%
Summer 2010	1	2.5%
Fall 2010	2	5%
Summer 2011	0	0
Fall 2011	2	5%
Summer 2012	2	5%
Fall 2012	3	7.5%
Summer 2013	2	5%
Fall 2013	4	10%
Summer 2014	1	2.5%
Fall 2014	10	25%
Summer 2015	3	7.5%
Fall 2015	9	22.5%

Of the forty scholars who reported they are currently attending graduate school, 5 reported they were completing a master's degree, and 35 were completing a doctoral degree. Table 13 shows which universities scholars were currently attending. The table also includes information regarding the graduate department, and college rankings, provided by U.S. News, based on an assessment of academic quality and reputation of over 1,500 regionally accredited U.S. institutions.

Table 13: Graduate Department

ty of California, Irvine ty of California, Davis ty of California San Diego	30 19
<u>, , , , , , , , , , , , , , , , , , , </u>	19
ty of California San Diego	
	17
ty of California-Santa Cruz	16
State University	75
ty of Idaho	139
University- Bloomington	26
ty of Miami	45
ty of Michigan	10
ty of New Mexico	82
ty of New Mexico	92
ty of New Mexico	85
ty of New Mexico	93
ty of New Mexico	48
ty of New Mexico	83
ty of North Carolina, Chapel Hill	26
stern University	19
ty of Pittsburgh	16
ty of Rochester NY	34
ty of South Carolina	131
uthern University	80
ty of Texas, El Paso	Rank not published
ty of Texas, El Paso	Rank not published
	84
	48
-	6
	22
	27
ty of Wisconsin-Madison	28 13
	ty of Pittsburgh ty of Rochester NY ty of South Carolina outhern University ty of Texas, El Paso ty of Texas, El Paso ty of Texas Health Science t San Antonio ty of Utah gton University in St. Louis ty of Washington ty of Washington ty of Wisconsin-Madison ty of Wisconsin-Madison

Table 14 displays the name of the graduate degree program scholars reported they are currently attending. Some scholars are enrolled in the same degree program, but at different universities.

Table 14: Degree Program

	All Scholars
Alternative Teaching Certification Program	1
Bioengineering	1
Bioinformatics and computational biology	1
Biology	2
Biomedical Engineering	1
Biomedical Sciences	5
Botany	1
Cellular and Molecular Pathology	1
Cellular and Molecular Biology	2
Chemical Engineering	1
Computer Science focus Machine Learning	1
Driscoll Graduate Program	1
Electrical and Computer Engineering Medical	1
Devices and Systems	
Genetics and Molecular Biology	1
Individual, Family, and Community Education	1
MCIP	1
Medicine	4
Molecular Biology	1
Molecular genetics and developmental	1
biology	
Neuroscience	5
Ocean Science	1
Parasitology	1
Pharmacology	2
Psychology and Social Behavior- Health	1
Psychology	
Translational Biomedical Science	1
Zoology	1

Table 15 reports the semester and year the scholars estimated as their graduation date in the graduate program in which they are currently enrolled.

Table 15: Anticipated Graduation Year

Anticipated	Count	Percent
Graduation Date		
Spring 2015	2	5%
Fall 2015	3	7.5%
Spring 2016	4	10%
Fall 2016	5	12.5%
Spring 2017	4	10%
Fall 2017	2	5%
Spring 2018	3	7.5%
Fall 2018	2	5%
Spring 2019	6	15%
Fall 2019	2	5%
Spring 2020	5	12.5%
Fall 2020	1	2.5%
Spring 2021	1	2.5%

Table 16 reports scholar's graduate program status at the time of the survey. The scholars were allowed to select multiple answers for the following options as their graduate program may allow them to be in more than one stage at a time. Majority of the scholars indicated that their current status is taking classes and course work". Followed by completed comprehensive examination and written proposal of planned thesis/dissertation work. The total number include in the table exceeds the number of scholars who are currently attending graduate school, because several scholars selected more than one stage.

Table 16: Current Stage within Graduate Program

Current Status	Count	Percent
Taking classes and course work	26	38.2%
Recently completed classes and	4	5.8%
coursework		
Studying for comprehensive	9	13.2%
examination		
Completed comprehensive	10	14.7%
examination		
Written proposal of planned	10	14.7%
thesis/dissertation work		
Oral defense of planned	3	4.4%
thesis/dissertation work		
Advancement to candidacy (all	6	8.8%
but dissertation)		

The table below (Table 17) reports the employment status of scholars, who are currently attending graduate school. The majority of the scholars indicated their employment status is student, while a minority indicated their employment status is part-time. The total count of scholar's employment status is

less than the total of scholars, who previously indicated they are currently attending graduate school, due to the fact that one scholar did not complete the survey.

Table 17: Employment Status of Scholars currently attending graduate school

Employment Status	Count	Percent
Full-time (40 hrs/week)	13	33.3%
Part-time	2	5.1%
Student	24	61.5%

The data displayed in Table 18 below shows the employment status of scholars, who responded that they are currently not attending graduate school and have not graduated. These ten scholars specified they either applied to graduate school, but were not accepted or they never applied to graduate school.

Table 18: Employment status of scholars who are currently not attending graduate school

Employment Status	Count	Percent
Full-time (40hrs/week)	6	60.0%
Part-time	4	40.0%
Student	0	

The scholars were asked their reasons for selecting the graduate program they attended and were allowed to select multiple reasons. The 3 most important reasons scholars selected were: faculty/program reputation, location/region, and financial support. Table 10 lists the reasons why scholars chose specific programs. Below are the comments from scholars who selected "other" for their main reasons for specific programs:

- Best option for keeping my education moving forward.
- Chance to study biology in ocean ecosystem.
- Only Acceptance
- Outreach offerings

Table 19: Reasons for Selecting Graduate Program

	U	U
Main Reasons	Count	Percent
Faculty/Program	26	41.9%
reputation		
University reputation	17	27.4%
Financial support	21	33.9%
Program requirements	10	16.1%
Job placement	8	12.9%
Location/region	24	38.7%
Course	12	19.4%
offerings/curricula		
Other	6	9.7%

Only three scholars indicated they have taken a single break from attending graduate school, which lasted between 2-4 semesters.

Education and Career Goals

Scholars were asked to indicated what their current educational goal was pertaining to attaining a master's degree, doctoral degree, if they were done with school, or other. Regardless of the scholar's current employment or educational status, a majority of scholars specified their current educational goal was to attain a master's degree or doctoral degree.

Interestingly 3 of the 4 scholars who graduated with a M.A./M.S. reported they were interested in going back to school to attain a Ph.D./M.D., the 2 scholars who applied and were not accepted, the 2 scholars who dropped out and the 2 scholars who never applied all expressed they still wanted to attain a graduate degree of some type. This deserves further study. These 6 scholars represent 8.6% of the 70 scholars.

Table 20: Current Educational Goals

	Count	Percent		
Currently enrolled in graduate prog	ram			
 To attain a M.A./M.S. 	1	2.5%		
 To attain a Ph.D./M.D. 	38	95%		
• Other	1	2.5%		
Graduated with a M.A./M.S.				
 To attain a Ph.D./M.D. 	3	75%		
• Other	1	25%		
Applied, but not accepted to graduate school				
 To attain a M.A./M.S. 	2	33.3%		
 To attain a Ph.D./M.D. 	4	66.6%		
Attended graduate school, but did n	ot finish			
 To attain a Ph.D./M.D. 	2	100%		
Never applied to graduate school				
 To attain a M.A./M.S. 	1	50%		
 To attain a Ph.D./M.D. 	1	50%		

Ten scholars reported their educational goals had changed since completing PREP. The majority of scholars who completed the survey reported that attending PREP helped define their educational goals. Most of the responses from scholars, centered on how PREP helped them decide on an area of study and how to widen their expectations of graduate school. For the complete list of responses see Appendix B.

PREP National Goals

This section briefly provides some information related to the recently released *Analysis of Scholar Outcomes for the NIGMS Postbaccalaureate Research Education Program* (August 2015). According to this report the specific objective of PREP is to prepare eligible individuals to successfully enter and complete rigorous Ph.D. training programs and the purpose of the study was to identify the subsequent educational and career outcomes of PREP scholars. The study focused on PREP awards between 2001 and 2014, and included 41 institutional programs.

The report noted:

"Analysis of both competing renewal applications and student educational outcomes suggests that 65 percent of PREP scholars matriculate into Ph.D. programs. Among scholars who entered a Ph.D. program in the first cohort, about 63 percent completed the degree, while many in the second cohort were still in graduate training at the time of this analysis."

Findings from our longitudinal study can be used to directly report on the specific objective noted in the study of the 41 PREP programs.

The information reported below is from 66 of 66 scholars who attended and completed PREP between 2006 and 2015. We noted earlier there have been a total of 70 scholars. Four scholars are excluded from the table below because they are currently enrolled in a second year.

Forty-three (65.2%) of the 66 scholars who completed PREP have either completed a Ph.D. (8) or are currently enrolled in a Ph.D. program (30) or M.D. program (5).

Of some importance for the study, 4 scholars have graduated with a M.A. or M.S. and have expressed an interest in attaining a Ph.D. It appears all 4 are currently employed full-time. We also found the 6 scholars who did not apply for graduate school, applied and were not accepted, or dropped out of graduate school all expressed an attention to attend and complete a graduate degree in the future.

Table 21: Ph.D. Matriculation Rate

Enrolled PREP	Completed PREP	Attrition Rate	Enrolled Ph.D. *	Ph.D. Good Standing	Ph.D. Completed	Ph.D. Attrition Rate
	66	0%	43	35	8	

^{*} This includes 5 scholars who reported they are in a M.D. program

As noted in Table 7 earlier scholars in graduate school career goals varied but focused on becoming faculty, research in academia, and industry research. Only one scholar noted they were undecided. All 12 of the scholars who had graduated reported working full time. Our survey did not ask about their current occupation. This will be included in the next round of surveys.

Summary

For this study we were able to survey 62 of 70 scholars. This represents 88.6% of the total scholars. One scholar declined to participate and we were unable to locate 7 scholars. Of the 62 scholars completing the survey 4 were scholars who had just begun a second year in the PREP program. Their responses to the survey were reported where appropriate. We did not include their responses when reporting on scholars who applied to graduate school and related questions. Interestingly, 20% of the scholars have participated in a second year. This deserves further study. A quick review of a limited amount of data from other interviews we have conducted suggests one reason scholars apply for a second year in PREP is that they do not feel fully prepared to apply for and attend graduate school.

We also found scholars reported PREP was useful in helping define their career goals by giving them experience in a research environment, and evaluating different career fields to pursue. It might be useful to better understand what was most useful and why. We found through responses to a small number of questions scholars generally found some activities more helpful than others. The top 4 most beneficial PREP activities out of a list of 11 possible activities were: hands on laboratory experience, one on one meetings with faculty mentors, research training activities, and professional conferences. Scholars found weekly meetings with other PREP scholars, math and/or science class taken during their PREP year, and making individualized career plans least useful. This finding deserves further attention. Broadly it appears scholars have found more hands on learning experiences more helpful.

The majority of scholars who completed the survey indicated PREP helped them in regards to educational and career goals. Many scholars reported that by participating in the PREP program they were able to better define their educational goals. By having firsthand experience working in laboratory settings, positive interactions with mentors, clarifying expectations of graduate school, narrowing research interests, and insight into what it is like to work in academia. Only a few scholars indicated their interests had changed after attending the PREP program.

Overall, 80.6% of scholars gained acceptance into a graduate program while attending PREP, and 77.4% began attending graduate school immediately after completing PREP. Two scholars indicated they never applied, two applied but did not finish, and two applied but were not accepted. At the time of the survey, four scholars had earned a master's degree, and eight had received a doctoral degree. For scholars who are currently enrolled in a graduate program, their expected graduate date is between Spring 2015 and Spring 2021.

Overall, a majority of scholars indicated in some aspect that PREP was beneficial in helping define their career goals. The responses were primarily centered on the impact of working in a laboratory/research environment and networking with representatives with academia and industry backgrounds. For instance, one scholar noted the experience helped them realize they were more interested in research than clinical work. More than half of the scholars indicated their career goals had changed after completing the PREP program. A majority of the scholars indicated their career goals prior to PREP were related to academia, and after PREP shifted towards industry positions. For example, one scholar reported that prior to PREP their career goal was to obtain a faculty position, and after completing PREP their career goal was to be an industry scientist or entrepreneur. This is an interesting finding. If PREP is designed to move scholars to academia further insight into this finding is important. Overall, the majority of scholars reported their current career goal was to become a research/industry scientist (40.3%), or obtain a faculty position in academia (30.6%).

Scholars indicated hands on laboratory experience, meetings with their faculty mentor, research training activities, and professional conferences were the most beneficial PREP activities to their educational and career goals. PREP activities such as professional training activities, and making an individualized career plan scored low. In comparison to the previous longitudinal study that was conducted in November 2011, scholar's preferences for PREP activities did not significantly change.

Forty-three (65.2%) of the 66 scholars who completed PREP have either completed a Ph.D. (8) or are currently enrolled in a Ph.D. program (30) or M.D. program (5). A total of 12 scholars have completed graduate school and all 4 scholars who have graduated with a M.A. or M.S. and have expressed an interest in attaining a Ph.D. It appears all 4 are currently employed full-time.

In the future we intend to administer this survey again and we intend to expand the survey slightly. This includes asking a few additional questions about their PREP experiences to more completely understand their reasons for applying and their experiences. We also intend to expand the set of questions for graduates. This is particularly important given that we expect a larger number of scholars will graduate in the coming years. This includes more information about their employment, occupation and future career goals. We would also like to slightly expand the section for scholars who did not apply, enter or dropped out of graduate school. It is important to understand what could potentially be done to ensure a smooth and uninterrupted admission to graduate school. This is especially important considering all the scholars in this situation expressed an interest in obtaining a graduate degree.

Appendix A: Listings from scholars on why they did not attend graduate school or did not finish graduate school

- I had personal issues arise that affected my schooling and was unable to perform optimally and had to leave to reorganize and regroup.
- I was not accepted into any graduate programs
- While attending graduate school for my Master's program, I eventually lost interest in the work I was doing. I think the reason I lost interest was because cost of school was an issue and loans were high. My laboratory environment could have been better also.
- Attending prep I realized that graduate school was not for me, I need to make a difference, to help people therefore I chose a different path.
- PREP was very helpful and significantly increased my likelihood into graduate school. However, I didn't get into a PhD program that I wanted and lost a lot of confidence about my ability to get into a program at a later date. Three wetter multiple reasons why I lost confidence: my mentor, my personal life and custody battle, my poor results on the GRE, and the lack of satisfaction of my graduate prospects.
- I believe I am not and did not attend graduate school due to not being accepted multiple years in a row. I applied the year before I attended the PREP program and the year after. At that point i didn't believe it was possible to gain acceptance into graduate school. I believe it was the best because even the year after I spent in the PREP program I felt ill prepared to attend graduate school. I do believe my situation was unique in that my advisors in the PREP program did the best job they could but it didn't seem like the best fit.
- I completed graduate school in May 2015, obtaining my PhD.
- Prior to attending prep I had already applied to graduate school twice. After applying a third time to graduate school during prep and not gaining admission I decided to take a break from applying. I decided to pursue a new career path in research for the interim. I don't believe I would go back to school after having worked at my current career for so long.
- I was not a strong applicant for Graduate School yet. I am a better candidate now
- Received a MS in Developmental Biology and decided to take a break to focus on my newborn. Will potentially begin applying for PhD programs in the near future.
- Before I started PREP, I had my heart set on doing research as a career and getting my PhD. After
 doing research every day, my focus changed and I became unsure of what I wanted to pursue. I did
 not apply to graduate school because I didn't know what I wanted to study and the passion for
 graduate school decreased.
- Applied to graduate schools, but was not accepted by any of the schools.
- I wanted to have a first author publication before applying to graduate school. I have one now and plan to apply this year.

Appendix B - Listings from scholars on how PREP helped them define their educational goals

- PREP allowed me to make a major career transition, from a purely experimental biologist to a computational biologist.
- Helped me to see what I did NOT want out of my graduate education/advisor. Gave me insight into how much work grad school is and how competitive academia really is.
- It solidified my interest in computational neuroscience
- Helped me narrow down my options for the possible programs I would want to continue my education in, and has also helped me communicate my research to other fellow scientists.
- PREP helped me narrow down my options so that I focused on applying to schools where Health Psychology research is being done.
- Narrowed my interests to neuroscience, then helped me find interdisciplinary graduate programs where I could combine my knowledge of chemistry and molecular biology into neuroscience
- Gave me a better sense of what research is really like, allowed me to take science classes and attend talks in my areas of interest.
- My time in PREP helped reassured me that attaining a PhD in a biomedical science was a career path that would be interesting and rewarding.
- The program as clarified the expectations of graduate school and what would be required to successful in a competitive academic environment. It also allowed me to take the appropriate curricula to strengthen my knowledge of the field I was entering. The career and professional guidance from my mentor (Dr. Kevin Caldwell) and PREP administrators (Dr. Richard Cripps and Antonio Banuelos) was extremely valuable in shaping career perspective and long term goals.
- PREP helped me in many ways. It allowed me to work in a lab and gain more research experience. It gave me an idea of what grad school would be like as far as doing research and being in class. I was able to network with other grad students. It opened my eyes to see what it would be like as a research scientist and helped me make the decision of realizing that is not what I wanted. It was a necessary experience that opened up other doors and helped define my long term goals.
- Provided me with the time to focus on classes that better suited my research interests
- Helped me to focus on a specific academic research. My mentor provided me with insight into the
 opportunities available to me after I completed a doctoral degree. PREP also helped in educating me
 about ethics and networking.
- It provided an opportunity to obtain firsthand experience in research as a career. I realized I prefer patient interaction as opposed to just research.
- During my time at the PREP program, my mentors gave me insight into what life would be like in academia and opportunities that would arise AFTER receiving a PhD, which reinforced my own goals of attaining a doctorate degree.
- Opened my eyes to another field that I am interested in.
- PREP allowed me to work in a lab as an undergraduate at UNM. During this time, I found that I loved research, and I also found out what type of research i would like to pursue.
- PREP helped define the field and model that I would like to concentrate on during my graduate studies.
- It helped me realize the type of work involved in getting a PhD as well as gain a better understanding of my field of choice.

- Give me research experience and help me narrow down what I wanted to do.
- I was pretty certain that I wanted to attend graduate school but I was not certain about the field or the ultimate goal. The PREP program allowed me to test research in the area of biophysics which I ultimately loved and confirmed my desire to pursue a PhD.
- PREP enabled me to get a bit of experience and familiarity with the language of neurology and physiology. It provided a way for me to learn a bit about what I thought I wanted to do in graduate school and also to really decide if it was necessary or not for my career goals.
- It helped me focus on a research based career whereas before PREP I considered going into the MD route.
- With the options that were available during PREP through UNM, I had the opportunity to network and solidify that biomedical science with emphasis in immunology and microbiology was what I want to do. Although currently I am not working towards a degree in that, I know that is what I will want to accomplish in the near future.
- It helped me learn new research techniques as well as get coursework done that helped me identify what type of research I was interested in pursuing for my PhD degree.
- It allowed me to do research in a field I enjoy but also pursue related but different fields of study that were of interest to me. In addition it allowed me the possibility to network with in the science community at UNM.
- It helped me specify research areas and career preferences.
- Joining PREP allowed me to get a sense of the different type of mentors that are out there. It also allowed me to realize and narrow my research interests.
- It provided me with tools and background information to be used in grad school and in a research setting
- It helped me pick the research area I wanted to pursue in grad school
- PREP helped me define my educational goals by allowing me to look at all of my options. My mentor's insight and advice helped me to look at different areas of basic and clinical science.
- Helped my refine my objectives and goals
- Helped me focus on the research areas i am currently working in.
- Switched my research area from astrophysics to chemistry due mostly to positive interaction with mentors.
- PREP helped me redefine my goals by exposing me to other fields of research I had not previously been exposed to.
- helped narrow options and get experience with lab research
- My mentor's guidance helped me realize my best career path and helped me reach my goals and be accepted into grad school.
- It allowed me to attend national conferences and gave me GRE prep courses. Also allowed me to visit grad programs around the nation.
- I got to experience firsthand the state of Research funding in the country, as well as an insight into the field, by direct exposure and by collaterals form people back then working in the field
- It made me realize what path I wanted to take in life and prep helped me figure that out
- PREP presented different options for goals
- PREP helped in showing me available resources I wasn't aware I had.

- The research I took part in helped me to define how and what area of Aging research I wanted to focus on.
- Helped define my interests
- PREP ensured my interest in scientific research was genuine, which allowed me to pursue a doctorate. I received the guidance and mentorship from PREP mentors that have served me very well throughout my graduate school career.
- My educational goals were definitely reinforced since joining PREP. I appreciated the research experience, faculty mentoring, and overall guidance and insight provided by PREP.
- It helped me refine my interests
- It helped me to decide what field I want to continue in.
- PREP helped me to narrow down my goals.
- Helped narrow down options, guided my interest in graduate school, provided insight into needs for career goals.
- Attending PREP helped me decide that I definitely wanted to go to graduate school because I enjoyed the classes I was taking and the research that I was doing.
- helped me realize that I enjoy research
- Helped me obtain research experience and do better not he GRE
- During PREP I focused my interests and narrowed down degree programs. My mentor guided me on my search for programs, connected me to people and helped me ask the right questions. My mentor helped to review my applications. Spending in a field where I had no previous experience helped build my resume and create a stronger application for a degree in Public Health, when all my previous undergraduate experience was in basic research sciences.
- It gave me the time to gain experience working in the lab setting and set expectations for what graduate school would be like.
- Helped me determine my areas of interest and narrow down a specific area of specialization that
 encompasses most of my interests, as well as providing me it a mentor to help me throughout the
 process.

Appendix C - Listing of scholars' response as to how PREP helped them to define their career goals

- I discovered my passion for conducting research at the interface of biology and computation within an academic research setting and gained important skills.
- Through PREP I realized that I may not want to work in as research faculty at a university. I would rather work for a lab.
- It helped me learn what I enjoyed researching.
- I found out through the program that there is more than one field to work on what I am passionate about.
- PREP helped me to realize I was more interested in research than clinical work. So when I received offers from PhD programs for Clinical and Non-clinical health psychology, I decided to go with the non-clinical route so that I could focus on what I love-- research, research, research!
- Providing the opportunity to work full time in an active research lab helped me know what I was getting into, and what I wanted.
- Gave me experience at a research institution, gave me the chance to attend science conferences.
- My goals weren't necessarily define during my time in PREP; rather the mentorship I received at UNM was eye-opening to the breadth of career options for a PhD graduate. My goals would become clearer during graduate school, but it was important to know there were alternatives to the traditional academic scientist route especially given the scarcity of positions for tenured-track professorships.
- It helped me realize that I do not want to be a research scientist; however I still want to use my science background with my career choice.
- Encouraged me to look into several graduate programs and allowed me to attend conferences where people from different fields talked about their experiences in college and beyond.
- My mentor explained to me the careers possible after obtaining a PhD. Also, the fact that during the program I was able to meet people in various careers, which helped me define my career goals.
- I realized I wanted patient interaction as opposed to strict research.
- I originally thought I wanted to go into academia but through my mentors, watching their work, and understanding what being in academia included, I decided that research for a government lab or industry fits my interests.
- Showed me that academia was not the only avenue for a PH.D.
- It helped me determine what kind of education I would need to accomplish my goals
- PREP helped define my career goals by having guest speakers come into our meetings and talk to us
 about the possible careers available to those interested in research. PREP also provided the
 opportunity to attend a research conference, where there were many resources available in terms
 of graduate programs and companies.
- It helped me by allowing me to go to different conferences as well as interacting with an array of people in different fields giving me a better understanding of what a PhD can do.
- By giving me firsthand experience
- It allowed me to form realistic expectations about the possibility of a career in academia.
- PREP helped me define my career goals by giving me the opportunity to work in a lab, talk about academic and career goals during meetings, and by introducing me to the SACNAS conference.

 These experiences exposed me to researchers in my field at different stages (ie: undergraduates,

graduate students, post-docs, and faculty). Those who were in earlier stages of their career reminded me of how far I have gotten. In addition, working and talking with those in higher positions helped to inspire more confidence in me and define my career goals of becoming a professor.

- I got a bit of experience with brain imaging software and terminology as well as the neuroscience/neurology culture and it gave me a better sense of possible trajectories.
- It helped me have a greater understanding of all the possible research positions and therefore allowed me to focus on an academic research career
- At first, I wasn't sure if I was mentally prepared to take on a venture in research. However, seeing how I was able to do it and that there is continued support both faculty and staff; I knew that it was possible to work towards my career goals in research science.
- Allowing me to experience research in different fields from what I had already done.
- It allowed me to observe my mentor who is a clinical research as well as a faculty of the UNM Medical School. I was able to see firsthand what it means to hold a position of faculty and being a researcher.
- It helped me realize that a career in outreach, whether alongside a scientific career or not, is a viable option.
- PREP gave me the opportunity to see what it is like to be a PhD in the academic setting.
- By gaining exposure to different research fields
- It helped me get a sense on what I can do after I graduate.
- It gave me the time, opportunities, and resources to evaluate all of my career options. It allowed me to experience what each of those options might be like long term, and allowed me the time and resources to present the best application possible to my desired programs.
- Helped me refine goals and apply to graduate school.
- Exposed me to more faculties and allowed me to see what their responsibilities are.
- Changed my career area to chemistry.
- career can be based on lab research and there are many options with the type of research
- Helped me realize my best career path that was different from what I first thought I wanted. I was very happy with PREP.
- Once I finished with PREP I realized I didn't know if I wanted to attend graduate school to obtain a PhD. Many careers a PhD is not necessary or makes you over qualified. I questioned whether I should continue to pursue a PhD. I don't need a PhD right now for my position; but I believe eventually I would like to obtain a masters.
- It helped me form an idea of how I can practice translational research as a physician
- By allowing me to live what doing research is, its opportunities, pros cons, and overall picture for a vear.
- By using the year to figure out and define my goals
- We were exposed to discussions and workshops aimed at education about the numerous careers with a doctorate degree. I was able to learn about career paths I didn't know were out there. We were encouraged to ask questions and Dr. Cripps and Antonio were very informative and always available

- PREP research allowed me to collaborate with researchers from many departments around campus
 and the nearby government research facility. These collaborations showed me other facets of
 research careers.
- PREP gave me the opportunity to explore a vast field of research that I had not been exposed to before the program. This opportunity strengthens my interest and currently, I still think about pursuing this goal every day of my life.
- professional development
- It helped in the decision to be in a join position between university and government
- PREP allowed me to travel to conferences that discussed many PhD options and I became aware of the fact that Academia is overwhelmed with PhDs.
- Introduced me into various careers that could be obtained with a PhD.
- Mentoring helped me understand the requirements to be a researcher in academics
- Paid for classes in computer programing
- The time in PREP helped me to make a transition from basic research sciences to public health. It may have taken much more time and effort for me to define those goals without PREP.
- It allowed me to visit university faculty I applied to and see firsthand what work they were doing. By allowing this opportunity, it gave me ideas on what I wanted to study.
- I realized that even though public speaking was frightening to me, once overcoming it I actually enjoy talking to and teaching others on what I do, study and I am satisfied when I know I have helped them in learning something new

Appendix D - PREP Longitudinal Scholar Study

Welcome!

Sometime in the last several years you spent a year as a PREP scholar and research assistant at the University of New Mexico. The University of New Mexico PREP program would like to ask you about what you are doing now, what you remember about your experience as a PREP scholar, and how this may have helped you since you left the program. Thank you for completing this survey. For completing this survey you will be given a \$50 gift certificate to Amazon.com. We expect the survey will take approximately 20 minutes.

The results of this survey will be used to help make changes to PREP in New Mexico and to better serve the needs of Scholars. Any information you may provide in this survey that can be identified with you will remain confidential and will not be disclosed. If you have any questions you may contact Antonio Banuelos, PREP Coordinator UNM, at prep@unm.edu.

By clicking the 'Begin' button below you are consenting to participate in this survey.

Note: Pressing the 'Save' button at anytime will allow you to exit the survey while saving what you have completed thus far. You will be asked to provide your email address so a new link to the survey with your saved answers can be provided to you.

Welco	ome!
1.	Today's Date:/
2.	Your name:
1)	Did you attend PREP for an academic or calendar year? Academic Calendar
	If you attended PREP during an academic year, what academic year did you attend PREP? (If you attended PREP for more than one year, please mark each year you attended) 2006-2007 2007-2008 2009-2010 2010-2011
	If you attended PREP during a calendar year, what calendar year did you attend PREP? (If you attended PREP for more than one year, please mark each year you attended) 2006 2007
Gradı	uate School
1)	Did you gain acceptance into graduate school while attending PREP? Yes No

	Did you begin attending graduate school right after completing PREP? Yes No
	Are you currently attending graduate school? Yes No
•	answered 'No' to question #8 please answer questions #9 & 10 and proceed to the next of 'Education and Career Goals.'
•	answered 'Yes' to question #8 please skip questions #9 & 10 and answer the remaining ons in this section before proceeding to the following sections.
1) 2) 3) 4) 5) 6)	Why are you currently not attending graduate school? Graduated with a M.A./M.S. Graduated with a Ph.D./M.D. Applied, but was not accepted to graduate school Applied, was accepted, but did not attend graduate school Attended graduate school but did not finish Never applied to graduate school I have taken a break from graduate school but plan on finishing
	Please describe in your own words why you are currently not attending graduate school (Please be as specific and candid as possible. Example: While attending PREP I found that I no longer wanted to attend graduate school because further schooling would take too long, cost too much money, and I would not enjoy the a career as a research scientist).
1)	Are you currently completing your master's or doctoral degree? Master's Degree (M.A./M.S.) Doctoral Degree (Ph.D./M.D.)
12.	What university are you attending?
	What is your current departmental affiliation (i.e. biology, chemistry, etc.)?
	What is the name of your graduate degree program (i.e. neurology, microbiology, chemical engineering, genetics, etc.)?
	

15	.When did you begin your current graduate program? (If you are in a program where you first did a master's and then continued in the Ph.D. program at the same institution list the start of the master's years.) Month/Year:/
1) 2) 3) 4) 5) 6)	. What is your current status in your graduate program? (Select all that apply) Taking classes and coursework Recently completed classes and coursework Studying for comprehensive examination Completed comprehensive examination Written proposal of planned thesis/dissertation work Oral defense of planned thesis/dissertation work Advancement to candidacy (all but dissertation).
17	. What is your anticipated completion date? (Month/Year)?/
1)	.Have you taken any breaks from attending graduate school? Yes No
19	. If yes, how many breaks have you taken?
1) 2) 3) 4) 5)	If yes to question 18, on average, how long were the breaks that you took from graduate school? One semester Two semesters Three semesters Four semesters Five semesters Six semesters
1)	During academic years I have primarily enrolled in graduate school: Part-time Full-time
1) 2)	During summers I have primarily spent my time: Enrolled Not enrolled, primarily doing work related to my graduate program Not enrolled, primarily doing work not related to my graduate program

	What were the main reasons you selected this graduate degree program (check all that apply): Faculty/Program reputation University reputation Financial support Program requirements Job placement Location/region Course offerings/curricula Other (please briefly explain):
24 1) 2) 3)	ation and Career Goals .What is your current highest educational degree earned? B.A/B.S M.A/M.S. Ph.D./M.D. Other; specify:
25	.What is your current highest educational degree in (i.e. biology, microbiology, chemistry chemical engineering, genetics, etc.)?
1) 2) 3) 4)	What are your current educational goals? To attain another B.A/B.S. To attain a M.A./M.S. To attain a Ph.D./M.D. I am done with school Other; specify:
1)	Have your educational goals changed since completing PREP? Yes No
1) 2) 3) 4) 5)	If yes, what were your educational goals while attending PREP? To attain another B.A/B.S. To attain a M.A./M.S. To attain a Ph.D./M.D. To help me decide if I want to pursue a graduate degree To gain research work experience Other; specify:

1)	Did attending PREP help you to define your educational goals? Yes No
30.	If yes, how did PREP help you define your educational goals? (i.e. helped narrow down options, helped focus on specific academic or research area(s), mentor's guidance provided insight to education needed for career goal, etc.)
31.	What are your current career goals? (i.e. Medical Doctor, Faculty Position in Genetics, Industry Scientist, etc.)
1)	Did attending PREP help you to define your career goals? Yes No
33.	If yes, how did PREP help you define your career goals?
	
1)	Have your career goals changed since completing PREP? Yes No
35.	If yes, what were your career goals while attending PREP? ((i.e. Medical Doctor, Faculty Position in Genetics, Industry Scientist, etc.)

For the remaining questions think back to your time while attending PREP. Answer the questions to the best of your memory.

Effectiveness of being Mentored

36. Which four PREP activities were beneficial to your educational and career goals?

Rank your top four activities in order from your number 1 most beneficial activity to your number 4 most beneficial activity. (Only one answer per column and per row is allowed)

	(1)	(2)	(3)	(4)
One on One Meetings with faculty mentor				
One on One Meetings with laboratory supervisor (only choose this if different than faculty mentor)				
One on One Meetings with PREP directors				
Weekly PREP meetings with other PREP scholars				
Hands on laboratory experience				
Math and/or science courses taken while attending PREP				
Research training activities (NOTE: includes oral presentations of your research, campus forums, posters or talks, and professional meetings)				
Professional training activities (NOTE: includes professional meetings with participants of MARC, Bridges, IMSD, etc, Responsible Conduct in Research trainings)				
GRE preparation activities				
Professional conferences				
Making an individualized career plan				

37. How helpful did you find the following activities during your time with PREP to be?

	Not helpful at all	Somewhat helpful	Helpful	Very helpful	Extremely helpful	Does not apply
Meetings with Faculty Mentor						
Meetings with Laboratory Supervisor (Check 'Does not apply' if same as faculty mentor)						
Meetings with PREP Staff						
Weekly PREP Group Meetings						
GRE/Graduate School Preparative Activities						
Research Training Activities (NOTE: includes oral						
presentations of your						
research, campus forums,						
posters or talks, and professional meetings)						
Professional Training Activities (NOTE: includes						
professional meetings with participants of MARC,						
Bridges, IMSD, etc,						
Responsible Conduct in						
Research trainings)						
Math and Science Courses (Taken as part of PREP)						

	

- 40. What is your race/ethnicity? (Choose only one of the following)_____
- 1) White (Not of Hispanic origin)

39. What is your year of birth (YYYY): _____

- 2) Black (Not of Hispanic origin)
- 3) American Indian

Demographic Information

- 4) Alaskan Native
- 5) Asian or Pacific Islander
- 6) Hispanic
- 7) Other (specify)
- 41. What is your current employment status? _____

2) 3) 4)	Full-time (40 hrs./week) Part-time Student Stay at home parent Unemployed
42	.What is your primary job:
1)	Do you have a spouse or partner who lives with you: Yes No
1)	Do you have any dependent children who live with you: Yes No
45	. If yes, how many dependent children live with you:
This c	oncludes the survey. Thank you for your participation!
	ection that follows asks if you are willing to be participant in future studies regarding and for your contact information if you are willing.
We ho greate Would	pe to conduct focus groups and/or interviews with a subset of survey respondents in er depth. I you be willing to be part of a focus group or be interviewed? Yes, you may contact me to discuss an interview. Yes, you may contact me to discuss a focus group. Maybe, I need more information; you may contact me to talk further. No, I am not interested in participating in focus groups or being interviewed. answered Yes or Maybe, please tell us how best to reach you: Please provide us with your current email address: Please provide us with your current phone number:
partici survey Would	esearch being conducted for PREP is ongoing and we would like to invite you to pate in these surveys until you complete graduate school. We hope to conduct the annually. I you be willing to participate in future PREP surveys? Yes, I am willing to participate in future surveys regarding PREP. Maybe, I need more information; you may contact me to talk further. No, I am not interested in participating in any future surveys regarding PREP. answered Yes or Maybe, please provide us with the following contact information so we

can reach you in the future: - Personal Email Address: School Email Address: Phone Number: Address (street, city, state,	
- Do you have a Facebook© of Facebook© friends? ☐ Yes ☐ No	account, and are you willing to add UNM PREP to your list
PREP contact information: PREP Email: prep@unm.edu Facebook© page: PREP at UNM	MSC03 2020 1 University of New Mexico Albuquerque, NM 87131-0001

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