Helping Students at the Margins Get Into Graduate School: Evaluating a Multifaceted Mentoring Program

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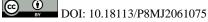
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> Abstract: In order to address persistent challenges that underrepresented minority students face in entering and succeeding in graduate school, University of California, Berkeley, academic advisers and concerned graduate students partnered to develop the Getting into Graduate School (GiGS) mentoring program. Unlike similar programs, GiGS was unique in that it did not select students on the basis of GPA or academic achievement. Program participants included 151 ethnically diverse undergraduates with average major and cumulative GPAs of 3.15 and 3.29, respectively. Participants were paired with 55 graduate student mentors based on academic interests. Mentees met regularly with mentors, attended informational workshops led by academic advisers, and participated in networking events. After program participation, students gained more knowledge related to graduate school preparation, demystification of graduate school, the graduate school application process, and post-graduation planning. 73% of mentees reported that participating in GiGS positively changed their post-graduation perception and plans, and 13 out of the 14 students who applied to graduate school in the study year were accepted. GiGS can serve as a model for institutions wishing to support underrepresented minority students, including those whose credentials are considered less competitive for graduate school admission.

Keywords: GPA; higher education; mentoring; academic advising; program evaluation; underrepresented minority students; academic pipeline

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Obtaining a postgraduate degree has been well-known to provide stronger career opportunities, greater financial stability, and positive health outcomes (Levin, Belfield, Muennig, & Rouse, 2007). Despite the benefits of postgraduate education, differences persist in degrees earned by underrepresented minority students (URMs). While progress has been made in terms of master's degrees awarded to some URMs, in 2013-2014 only 9% of master's degrees were awarded to Hispanic students, even though Hispanic or Latino people comprised 16.9% of the total U.S. population in 2014 (U.S. Census Bureau, 2014; Snyder et al., 2016). Minority students have fared even worse in terms of earning doctoral degrees. In 2013-2014, Black students were awarded 8% of doctoral degrees and Hispanic students were awarded 7% of doctoral degrees, despite comprising 13.7% and 16.9% of the total U.S. population in 2014, respectively.

URMs continue to lag behind on the academic attainment ladder because they do not receive the academic guidance they need (Johnson-Bailey, Valentine, Cervero, & Bowles, 2009) and because they are not appropriately socialized to the norms of their academic environments (McCoy & Winkle-Wagner, 2015). However, this socialization process can be effectively accomplished through mentoring (Davis, 2007; Luna & Prieto, 2009) or with deliberate interventions (Adler & Adler, 2005; Eby, Allen, Evans, Ng, & DuBois, 2008; Ovink & Veazey, 2011). Mentoring programs have been established to increase success in postgraduate education among URMs. One prominent example is the McNair Program, a federally funded program offered in over 200 campuses nationwide that helps URMs apply to graduate school. Available data suggests that over 11,000 students have participated in the program since it was founded in 1989, and over one third of those students have entered graduate school (Humphrey, Carey, & Mansfield, 2002).

However, prestigious mentoring programs like McNair and Mellon Mays primarily target students with high GPAs and bypass students who have a "compromised GPA" (i.e., below the academic threshold of what is generally considered acceptable for graduate school admission). At the University of California, Berkeley, a minimum cumulative GPA of 3.0 is required to apply to McNair and a GPA of 3.4 or above is preferred for admission to the Mellon Mays program. Yet, other universities require a higher cumulative GPA (i.e., 3.5 or above) to be considered for these programs. We believe that not only URMs and first-generation college students with high GPAs, but also underrepresented groups with lower GPAs are "falling through the cracks" in the pipeline towards graduate school. These students are typically discouraged from applying to graduate school and led to believe that graduate school is unobtainable. Since there is evidence that mentoring interventions can help URMs with lower GPAs in other areas of academic achievement (Gregerman et al., 1998; Salinitri, 2005), it is crucial that mentoring programs aimed at getting into graduate school also include such students.

To address the historical disparities and inequities that URMs experience when pursuing postsecondary education, the Office for Graduate Diversity at the University of California, Berkeley launched the Getting into Graduate School (GiGS) program, a multifaceted mentoring program that matched undergraduates with graduate student mentors. This program welcomed all students that applied, including those who knew little about the graduate application process and those with lower GPAs.

CONCEPTUAL FRAMEWORK FOR DEVELOPING GiGS

In developing GiGS at the initial stages, a team of faculty, diversity program directors, graduate students, and professional academic advisers at UC Berkeley met regularly to discuss both previous mentoring programs for URMs with promising results and empirically based mentoring models. These conversations influenced the program design. One key feature of successful mentoring programs is that they are often multifaceted. Evaluations of mentoring programs suggest that effects can be enhanced when programs have multiple components (Girves, Zepeda, & Gwathmey, 2005). For example, a mentoring program aimed at retaining physician-scientists in one institution found that integrating one-on-one mentoring plus didactic workshops bolstered satisfaction and retention of junior faculty (Chen et al., 2016). The McNair Program is another example of a multifaceted program, offering multiple resources to its students, including mentoring, academic counseling, seminars, and research opportunities.

The team also drew on Rhodes and colleagues (2006) to elucidate a model for developing effective mentoring programs. Rhodes and colleagues suggest that we need to carefully consider five key concepts: (1) context, (2) structure, (3) goals, (4) infrastructure, and (5) dosage. Briefly, context is the setting in which the mentoring takes place and can be described as site-based or field based. There is strong support for site-based mentoring programs (i.e., on university campuses) for URMs because they often foster social connections with university staff and other students (Bordes & Arredondo, 2005). Structure of the mentoring relationship can include cross-age mentoring, group mentoring, e-mentoring, or intergenerational mentoring, and each provides unique promises and challenges. In particular, crossage peer mentoring (i.e., a more advanced graduate student mentoring an undergraduate student) shows promise for youth who are falling through the cracks, a marked point of concern for the mentees in our study (Karcher, 2005). It is also possible that cross-age peer mentoring programs have the potential to benefit both the mentors and mentees (Hansen, 2003). Cross-age peer mentoring programs can also capitalize on the advantages of school-based mentoring by simplifying recruitment and the training of graduate mentors (Karcher & Lindwall, 2003).

Additionally, program goals, whether they are developmental or instrumental, shape program outcomes. The instrumental approach usually targets the achievement of skills to facilitate long-term social, academic, and emotional growth while the developmental approach focuses on creating a trusting relationship as the mechanism that promotes skill development. Developmental and instrumental approaches are not mutually exclusive, as some developmental outcomes facilitate

instrumental outcomes and vice-versa (Karcher et al., 2006). Many mentoring programs available for URMs primarily target instrumental goals and often neglect developmental goals. The GiGS program was unique in this approach because it included both developmental and instrumental goals, which we purposely implemented as key components in our model.

Lastly, infrastructure and dosage are critical factors that can enhance program outcomes. Infrastructure refers to the training and matching of the mentors, plus the support given to them. Dosage, on the other hand, has to do with the frequency and duration of interactions between mentees-mentors. When developing our mentoring program, we paid careful attention to the matching process (based on intended field), training of mentors (one full day of training from experienced academic advisers, along with a mentoring guide developed by program staff), and the frequency of interactions (a minimum of three meetings between mentors and mentees per semester).

MENTORING PROGRAM EVALUATION

Mentoring is an important part of applying to graduate school, particularly for URMs who often have been discouraged to apply because they have a "compromised GPA" or because they lack knowledge about the application process. In many cases, they are the first in their families to apply to graduate school. Despite the need to mentor URMs interested in graduate school, relatively few programs target these students, and few publications exist to document or evaluate mentoring programs for this group. Therefore, the primary aim of this study is to evaluate if GiGS was successful at: (1) demystifying graduate school for student mentees (instrumental goal), (2) enhancing socialization for graduate study (developmental goal), (3) increasing knowledge of the application process (instrumental goal), and (4) providing better support for post-graduation planning (developmental goal). It is our hope that the multifaceted mentoring model with both instrumental and developmental goals that we propose might assist those who seek to improve the academic pipeline for URMs that are falling through the cracks.

METHODS

Program Description

The program goals were fourfold: (1) increase the number of Berkeley URMs who enter graduate school, (2) create a sustainable model providing long-term information on the graduate school application process for use by students in subsequent years, (3) help URMs with their post-graduation plans and (4) train graduate students to mentor and advise undergraduates.

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¹ We have created a comprehensive graduate application informational brochure, as well as instructional videos on the graduate application process, which are available to all students on our

After strategically designing the program, mentees and mentors were recruited via a wide distribution of program fliers across departments and to advising offices (i.e., the Equal Opportunity Program and multicultural student support groups). Then all applications were reviewed and undergraduate mentees were carefully matched with an appropriate graduate student mentor who shared similar discipline/sub-discipline, career interest, or research interest. Graduate student mentors were paid a \$500 stipend per semester for participating in the two-semester program. Additionally, graduate mentors participated in a mandatory one-day training facilitated by experienced college advisers that reviewed scenarios mentors might encounter, reviewed campus resources available for their student mentees, and discussed effective strategies for mentoring URMs (see Nora & Crisp, 2007). Advisers aimed to train our mentors on how to effectively address both the academic and developmental needs of their students (see Pfund, et al., 2006). For the first mentor-mentee meeting, all mentees were required to complete a "goals sheet" in where they clearly discussed with their mentor what they wanted to learn and focus on throughout the academic year. Mentors were also encouraged to seek support and consultation from program advisers throughout the year.

Undergraduate students were not paid to participate and were required to: (1) meet with their graduate student mentor at least three times a semester, (2) attend informational workshops and networking events and (3) work on their graduate school application materials (personal statement, curriculum vitae/resume, and/or post-graduation plan). In addition to ongoing mentoring, the GiGS program provided a number of graduate school informational workshops led by academic advisers from partnering campus departments. Mentees were required to attend at least two workshops per semester. The informational workshops were comprehensively designed to teach specific knowledge about graduate school. Workshop topics included: (1) getting into the program of their choice, (2) how to write strong personal statements and/or statements of purpose, (3) preparing for the graduate record examination (GRE), (4) faculty admissions panel that discussed how to be a competitive applicant, (5) financing options for graduate school, and (6) strategies for creating a post-graduation plan.

Participants

The treatment of research participants was in accordance with established ethical guidelines and appropriate institutional approval was obtained.² A total of 203 undergraduate students applied to the GiGS program during the 2014-2015 academic year. Our program primarily targeted junior and senior class standing students, first generation college students, and students in the social sciences. We

website: http://diversity.berkeley.edu/programs-services/graduate/information-prospective-students

² Given all assessments and surveys were de-identified and there was no key linking code to identifiable data, the Office of Protection of Human Subjects at UC Berkeley did not consider our proposal to be human subjects research and no further review was necessary.

attracted a wide range of students. Some had never considered graduate school. Others were referred by their academic advisers because they wanted to learn more about graduate school and the application process.

Selected participants included 151 ethnically diverse undergraduate students from the University of California, Berkeley (see Table 1). 73% were female. 56% had senior class standing. 44% reported that English was their second language. 85% identified as first-generation college students. Mentees' majors were predominantly in the social sciences (47%). Their major GPAs ranged from 1.6 to $4.0 \ (M = 3.15, SD = .59)$ and cumulative GPAs ranged from 2.2 to $4.0 \ (M = 3.29, SD = .40)$. With respect to selection criteria, we welcomed a wide range of students and did not exclude any students from the GiGS program on the basis of GPA. Our program excluded 52 student applicants due to their academic interests in the life sciences and referred them to the Berkeley Science Network, a partnering campus mentoring program specifically developed to mentor URMs in the life sciences that are interested in graduate school.

A total of 55 ethnically diverse graduate student mentors across disciplines were selected to participate in the program (67% female, 42% first generation college student, 18% English as second language; see Table 1). We selected graduate student mentors based on student mentee match and need. Our program matched undergraduates with mentors based on multiple factors: areas of interest, first-generation college student status, gender, and ethnic/cultural background.

Measures

Pre- and Post-Assessment Questionnaire. Mentees were given an identical, online pre- and post-assessment questionnaire, consisting of 15 yes/no/not sure questions. Pre-assessment questionnaires were completed by all mentees prior to their first meeting with their mentor and prior to attending any of the informational workshops. Post-assessment questionnaires were completed at the end of the academic year and after mentees had completed all program requirements. Previous research has highlighted the importance of understanding the graduate school application, knowledge of funding opportunities, perceived support from family to pursue a postgraduate degree, and personal perception of graduate school in a students' successful post-graduate application. Thus, the pre- and post-assessments sought to measure mentee knowledge of these topics before and after participating in the GiGS program. Complete data (i.e., pre- and post-assessment questionnaires) were obtained for 81% (n = 122) of the mentees.

End of Year Survey (EYS). An online survey was created in order to assess participants' graduate school application progress, post-graduation plans, as well as general feedback about the program. The EYS was completed at the end of the academic year after all mentee requirements were completed. A total of 124 students answered questions pertaining to graduate school application progress and

post-graduation plans while 119 students answered whether participating in GiGS changed their perception and plans for graduate school.

Table 1
Demographics of GiGS Mentees and Mentors, 2014-2015

Demographics of Gross menees and meniors, 201	Mentees	Mentors
	(n = 122)	(n = 122)
Major GPA, mean (standard deviation)	3.15 (.59)	-
Cumulative GPA, mean (standard deviation)	3.29 (.40)	-
Female	73%	67%
First generation college student	85%	42%
English as second language	44%	18%
Ethnicity		
African American	10%	18%
American Indian	4%	3%
Asian	25%	22%
Latino/a	54%	33%
Middle Eastern	3%	2%
White	4%	22%
Discipline		
Arts & Humanities	9%	7%
Biological Science	4%	0%
Double major	7%	2%
Education	0%	11%
Engineering	8%	5%
Environmental Design	0%	2%
Math & Physical Science	1%	0%
Natural Resources	5%	4%
Professional schools	18%	49%
Social Sciences	47%	20%
Undeclared	1%	-
Class Standing		
Alumni	3%	-
Fifth year and above	3%	7%
Fourth year	56%	9%
Third year	36%	20%
Second year	1%	33%
First year	1%	29%

Notes. Professional schools include Social Welfare, Public Policy, Public Health, Law and Business. Information not applicable to mentors is not reported.

DATA ANALYSIS

First, statistical analyses for available quantitative data were performed with SPSS for Mac (2016, Version 24.0). In order to assess differences between the preand post-assessment questionnaires, a series of 15 chi-square tests were run. Next, to help explain quantitative results, we used an inductive approach to uncover emerging themes in qualitative data from one open-ended question from the EYS: Has your view of your post graduate plans changed as a result of your participation in the GiGS Program? If so, how has the GiGS program benefitted you? Explain.

We then developed a coding system based on recurrent themes from participant responses. In particular, regarding change in graduate school perception, the following themes emerged: (1) yes, (2) no, without explanation, (3) no, it only reinforced previous post-graduate plans, and (4) not sure. For those who answered yes, data was further categorized into five subthemes to identify *how* the program had benefitted them: (1) improved self-concept (i.e., felt confident to apply to graduate school), (2) attained more knowledge of the application process, (3) greater awareness of alternative post-graduation plans, (4) better understanding of how to be a competitive graduate school applicant, and (5) better understanding of how to select a graduate program. This qualitative data was used to supplement the reported quantitative data, specifically expanding upon the recurrent narratives of the students as they described how the program benefitted them.

RESULTS

Results indicate that the GiGS program was successful in helping mentees achieve both instrumental and developmental goals. Regarding instrumental goals, which targeted the demystification of graduate school and learning more about the application process, we found that the proportion of students who knew the difference between a master's degree and a doctoral degree in the pre-assessment was 70%, whereas the proportion of students who knew the difference after participating in the GiGS program was 98%. The difference in proportions is significant, $(\chi^2 (1, N = 122) = 37.86, p < 0.01)$. In addition, there was support to suggest that mentees had more knowledge regarding: funding opportunities (χ^2 (1, N = 122) = 83.03, p < 0.01), the graduate school application (χ^2 (1, N = 122) = 122.07, p < 0.01), how to build a curriculum vitae or resume (χ^2 (1, N = 122) = 61.76, p < 0.01), and increased knowledge about the GRE (γ^2 (1, N = 122) = 14.13, p < 0.01) after program participation. Anecdotal data also provides evidence that participation in the GiGS program helped students demystify graduate school and the application process. One student mentioned that "before the program, the thought of graduate school overwhelmed [him]. However, GiGS helped demystify the process and now [he] knows what to do when [he] decides to apply." Other students also mentioned that participation in the program informed them about the application process. One student said that "gaining support from a current graduate student provided [her] with an immense amount of information about what [she] can do with a graduate degree...and knowledge about [her] options." Another student noted that "before GiGS, grad school was beyond my dreams and I never believed I could prepare for it on my own, but with the help of this program, I now feel better about applying and being the first in my family to pursue higher education."

Table 2
Pre- and Post-Assessment Data for GiGS Mentees, 2014-2015

	Pre	Post
	(n = 122)	(n = 122)
<u>Demystifying Grad School</u> 1. Know the difference between a master's degree and Ph.D.	70%	98%
2. Meet regularly with a faculty member in intended field of study.	11%	36%
3. Know leading academic journals in their field.	12%	43%
4. Feel comfortable conducting library research.	50%	75%
Socialization to Grad School 5. Have talked to graduate students in intended field	53%	93%
5. Have talked to graduate students in intended field of study.	35% 16%	93% 58%
6. Are familiar with leading scholar in intended field of study.	1070	36%
7. Have three or more faculty members that will write a strong letter of recommendation for graduate school.	16%	38%
8. At least one recommender is in intended field of study.	46%	75%
Knowledge on Grad School Application 9. Knowledgeable about the graduate school application process.	11%	81%
10. Feel prepared for the Graduate Record Examination (GRE).	4%	20%
11. Know how to create a curriculum vitae/academic resume for graduate school.	4%	48%
12. Know how to write a strong statement of purpose.	11%	57%
13. Aware of funding opportunities for graduate school.	12%	70%
Support for Grad School		
14. Family supports graduate school plans.	62%	79%
15. Aware of funding opportunities for graduate school.	12%	70%

Notes. Only mentees who completed the pre- and post-assessment are included (n = 122).

With regards to the program's developmental goals, which focused on creating a trusting relationship between mentors and peers, we found that after program participation, mentees also felt more support in their graduate school plans from their family $(\chi^2 (1, N = 122) = 7.88, p < 0.01)$ and from others in their community $(\chi^2(1, N = 122) = 23.24, p < 0.01)$. Lastly, there is evidence to suggest that mentees gained socialization skills by meeting more regularly with staff (γ^2 (1, N = 122) = 21.99, p < 0.01) and networking with graduate students at a higher rate after participating in the GiGS program (χ^2 (1, N = 122) = 48.32, p < 0.01). Anecdotal data from the EYS also indicates that participating in the program encouraged students to gain socialization skills needed to thrive in postgraduate programs. For example, a student mentioned that "GiGS helped make graduate study seem more attainable and [helped] form friendships with graduate students across departments." Many students reported developing strong relationships with their graduate student mentors. For example, one student shared: "This mentorship was meant for grad school but the mentorship transcended academics to life goals, happiness, and more. I appreciated my mentor's flexibility in the topics we talked about. I can say that this experience lasts one year but her words will stay with me much, much longer."

The EYS also asked students whether participating in GiGS changed their perception and plans for graduate school and 87 students (73%) answered yes. Some participants provided further explanation on how the GiGS program had changed their perceptions and plans. Consistent with pre-post assessment and anecdotal data, many students mentioned learning more about graduate school and the application process. For instance, 17 students stated that the GiGS program helped them view graduate school as an attainable goal, 11 said the GiGS program increased their knowledge of the graduate application process, 12 indicated they were helped with program selection, 15 said the GiGS program increased their awareness of other postgraduate opportunities (i.e., internships), and 27 felt they had increased their understanding of how to become a competitive graduate school applicant. Only five students replied "yes" without further explanation. Nine mentees (8%) stated their goals had not changed because the program had only reinforced their original goals and gave them greater confidence to pursue their plans. A total of 16 students (13%) selected "no" and only seven (6%) reported "not sure" on whether GiGS had changed their graduate school perception and plans.

Additional outcome data from the EYS highlights that 14 graduating seniors (11%) reported applying to graduate school and all were accepted into their top choices, with the exception of only one student. Eleven students were admitted into master's programs, one into a joint master's and doctoral program, and one directly into a doctoral program. The other students were either non-graduating seniors (30%; n = 37) or reported they were not ready to apply (59%; n = 73). Of the students who did not apply to graduate school, 65% (n = 72) reported they would apply within two years after program participation (see Table 3).

Table 3
Mentee Responses to End of Year Survey (EYS)

Did you apply to graduate school this academic year? No 599	,
No. 500	/
37/	0
Not a graduating senior 30%	6
Yes 119	6
What are your immediate plans upon completing your	
bachelor's degree?	
Work 389	6
Not sure 159	6
Travel/study abroad 129	6
Fellowship 119	6
Graduate school 9%)
Internship 8%)
Teach for America 3%)
Post-baccalaureate 3%)
Continue at UC Berkeley 1%)
When do you plan to apply to graduate school?	
In two years 429	6
In a year 239	6
After three years 199	6
Already applied and was accepted 9%)
Unsure 7%)

Note. All mentees who completed the EYS are included (n = 124).

DISCUSSION

The GiGS program is dedicated to assisting first-generation college students and URMs as they prepare for graduate study. The GiGS program was created not only to encourage and prepare these undergraduate students to select, apply, and enroll in graduate school. It was also designed to prevent students on the academic margins from "falling through the cracks." These students had often been discouraged from applying to graduate school either because they possessed a "compromised GPA" or were led to believe that graduate school was unobtainable, or they simply lacked familiarity with the graduate school application process because they were the first in their family to attend college. Our program, welcomed students from various backgrounds, including those that knew little about the graduate application process and those with lower GPAs. GiGS mentees' major GPAs ranged from 1.6 to 4.0 and was 3.15 on average.

Results of pre- and post-assessments found that GiGS mentees learned 15 different instrumental and developmental skills needed to successfully prepare for the graduate school application process at a significant level (p < 0.01). Some examples consisted of instrumental skills like how to write a strong statement of

purpose, having greater awareness of funding opportunities, and an increased knowledge of the graduate application process. Although we cannot infer a causal relationship as we did not have a matched control group (i.e., no students were placed on a waitlist), anecdotal data supports the notion that students were impacted by the advising and mentoring they received. Thirteen of 14 students who applied to graduate school during the Fall 2014 semester were admitted. At least 65% of students who were not immediately applying to graduate school said they would apply after participating in post-baccalaureate programs, internships, or relevant jobs in order to increase their graduate admission potential. Mentors also imparted advice on coping with the difficult life challenges students often face during their 4 to 5 years as undergraduates, offering psychological support and strategic recommendations that they learned from the professional college advisers who trained them. This type of psychological support was described by Nora and Crisp (2007) as pivotal for developing an effective mentoring relationship.

Nevertheless, results should be interpreted with a few limitations in mind, which can serve as potential springboards for future research. First, assessment of what graduate mentors learned from their interactions with their undergraduate mentees was not undertaken and is recommended for future study. In particular, it would be important to assess if graduate mentors report a reciprocal benefit from mentoring URMs. Second, assessment of the mentors and how college advisers assisted and advised them with challenging student issues was also not conducted and is recommended. Third, completion of pre- and post-assessment questionnaires was not required for program participation. Since these pre- and post-assessment questionnaires were self-reported, students who answered both surveys may have been biased in favor of GiGS, resulting in an overestimation of results. This bias was hopefully addressed by emphasizing the anonymity of survey answers and explaining that answers did not affect status in the program. The anonymity of the surveys also precluded us from running additional statistical analyses because we were not able to link individual level data to pre- and post-assessment outcomes. Similarly, we initially did not implement the tracking of participant level data after students were accepted into a graduate program. Other programs, like McNair, report that one of the biggest limitations in their program evaluation is the lack of sufficient data on immediate graduate school enrollment and completion (Bell, 2002). Thus, we highly encourage that other programs with similar initiatives focus on tracking participant level data throughout all aspects of their data collection, even as their students matriculate into a graduate program. Fourth, we primarily targeted students in the social sciences, and referred students in the life sciences to a better suited mentoring program. As such, it will be important to assess whether our proposed model will be effective in supporting students in other disciplines. Unfortunately, our program did not include informational workshops regarding research opportunities like other programs, but we hope to better integrate research opportunities into our program and encourage other programs to do so.

Following a two-year developmental phase, the GiGS program has been successful. It began with no previous campus model yet flourished into a highly

regarded program covering many disciplines. The University of California, Berkeley, and most research universities have well-established undergraduate programs providing top URM scholars an opportunity to acquire research experience and knowledge about the graduate school application process (e.g., the McNair Scholars Program). In addition, there are other scholarly initiatives available to a limited number of URM students with high GPAs (e.g., the Mellon Mays Undergraduate Fellows Program). However, students at the "academic margins" are generally bypassed by these initiatives and these are the students GiGS seeks to serve. The GiGS program offered students critical advising on vital "next step" activities, such as networking, post-baccalaureate programs, and the availability of internships. The GiGS program helped URMs gain a clearer understanding of how to broaden their potential for graduate study and can serve as a model to other universities wishing to support similar students.

Our program benefitted greatly from close partnership with academic advisers across campus. College advisers served as our program "gatekeepers" because they helped recruit students "at the margins" that would benefit from the program. Also, advisers were able to disseminate their knowledge to both our graduate student mentors during training and to undergraduate mentees during informational workshops. Advisers taught GiGS mentors how to disseminate critical information on the graduate school application process and how to motivate and encourage their mentees in preparing graduate school applications. The success of this program suggests that advisers can serve a unique role in teaching graduate students how to mentor, support, and advise URMs.

In sum, we believe that our program was effective in helping URMs prepare for graduate school because of its multifaceted, evidence-based, and collaborative approach. GiGS provided students with many resources, including: one-on-one mentoring with a knowledgeable and carefully matched and trained graduate mentor, informational workshops throughout the year, and networking events with other GiGS mentees and mentors to promote a sense of community and support. In addition to using previous research to guide our program design, we relied heavily upon the rich experiences of our expert academic advisers that had been working with many URMs throughout the years. We believe that the integration of both research and real student advising experience is what made this program unique and effective.

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REFERENCES

- Adler, P. A., & Adler, P. (2005). The identity career of the graduate student: Professional socialization to academic sociology. *American Sociologist*, 36(2), 11-27.
- Bell, N. (2012). Data sources: A profile of McNair scholars. *Council for Graduate Schools*, *I*(30), 1-7.
- Bordes, V., & Arredondo, P. (2005). Mentoring and 1st-year Latina/o college students. *Journal of Hispanic Higher Education*, 4(2), 114-133.
- Chen, M. M., Sandborg, C. I., Hudgins, L., Sanford, R., & Bachrach, L. K. (2016). A multifaceted mentoring program for junior faculty in academic pediatrics. *Teaching and Learning in Medicine*, 28(3), 320-328.
- DuBois, D.L., Holloway, B.E., Valentine, J.C., & Cooper, H. (2002). Effectiveness of mentoring programs for youth: A meta-analytic review. *American Journal of Community Psychology*, 30(2), 157–197.
- Davis, D. J. (2007). Access to academe: The importance of mentoring to Black students. *Negro Educational Review*, 58(3/4), 217-231.
- Eby, L. T., Allen, T. D., Evans, S. C., Ng, T., & DuBois, D. L. (2008). Does mentoring matter? A multidisciplinary meta-analysis comparing mentored and non-mentored individuals. *Journal of Vocational Behavior*, 72(2), 254-267.
- Girves, J. E., Zepeda, Y., & Gwathmey, J. K. (2005). Mentoring in a post-affirmative action world. *Journal of Social Issues*, 61(3), 449-479.
- Gregerman, S. R., Lerner, J. S., von Hippel, W., Jonides, J., & Nagda, B. A. (1998). Undergraduate student-faculty research partnerships affect student retention. *The Review of Higher Education*, 22(1), 55-72.
- Hansen, K. (2003). Big Brothers Big/Sisters High School Bigs evaluation for school year 2002-2003. Philadelphia: Big Brothers/Big Sisters of America.
- Herrera, C.L., Sipe, W.S., & McClanahan, W.S. (2000). Mentoring school-age children: Relationship development in community-based and school-based programs. Philadelphia: Public/Private Ventures.
- Humphrey, J., Carey, N., & Mansfield, W. (2002). A profile of the Ronald E. McNair postbaccalaureate achievement program: 1999–2000. Washington, DC: Mathematica Policy Research.
- Johnson-Bailey, J., Valentine, T., Cervero, R. M., & Bowles, T.A. (2009). Rooted in the soil: The social experiences of black graduate students at a southern research university. *Journal of Higher Education*, 80(2), 178-203.

- Karcher, M.J., & Lindwall, J. (2003). Social interest, connectedness, and challenging experiences: What makes high school mentors persist? *Journal of Individual Psychology*, *59*(3), 293–315.
- Karcher, M. J., Kuperminc, G. P., Portwood, S. G., Sipe, C. L., & Taylor, A. S. (2006). Mentoring programs: A framework to inform program development, research, and evaluation. *Journal of Community Psychology*, 34(6), 709-725.
- Karcher, M.J. (2005). Cross-age peer mentoring. In D.L. DuBois & M.J. Karcher (Eds.), *Handbook of youth mentoring* (pp. 266–285). Thousand Oaks, CA: Sage.
- Levin, H., Belfield, C., Muennig, P., & Rouse, C. (2007). *The costs and benefits of an excellent education for all of America's children* (Vol. 9). New York, NY: Teachers College Press.
- Luna, V., Prieto, L., & Luna, V. (2009). Mentoring affirmations and interventions: A bridge to graduate school for Latina/o students. *Journal of Hispanic Higher Education*, 8(2), 213-224.
- McCoy, D.L. & Winkle-Wagner, R. (2015). Bridging the divide: Developing scholarly habitus for aspiring graduate students through summer bridge program participation. *Journal of College Student Development*, *56*(4), 423-439.
- Nora, A., & Crisp, G. (2007). Mentoring students: Conceptualizing and validating the multi-dimensions of a support system. *Journal of College Student Retention: Research, Theory & Practice*, 9(3), 337-356.
- Ovink, S. M., & Veazey, B. D. (2011). More than "getting us through": A case study in cultural capital enrichment of underrepresented minority undergraduates. *Research in Higher Education*, 52, 370-394.
- Pfund, C., Pribbenow, C. M., Branchaw, J., Lauffer, S. M., & Handelsman, J. (2006). The merits of training mentors. *Science*, *311*(5760), 473.
- Rhodes, J. E., Spencer, R., Keller, T. E., Liang, B., & Noam, G. (2006). A model for the influence of mentoring relationships on youth development. *Journal of Community Psychology*, 34(6), 691-707.
- Salinitri, G. (2005). The effects of formal mentoring on the retention rates for first-year, low achieving students. *Canadian Journal of Education*, 28(4), 853-873.
- Snyder, T.D., de Brey, C., and Dillow, S.A. (2016). Digest of Education Statistics 2015 (NCES 2016-014). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education: Washington, DC.
- U.S. Census Bureau (2014). *Educational Attainment, 2010-2014 American Community Survey 5-Year Estimates*. Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk

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