Building Infrastructure to Enhance Diversity in Political Methodology

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In social sciences, the underrepresentation of racial and ethnic minorities in PhD programs has drawn renewed public critique. Data from the National Center for Education Statistics show a lack of diversity among graduates in the top political science PhD programs (Roudiez 2020), which is most pronounced in quantitative methodology and formal theory (APSA 2020). What can be done to close this diversity gap, specifically in political methodology?

This article describes an effort to diversify the pool of undergraduates interested in pursuing graduate studies in political science by making quantitative social science more accessible to underrepresented minority (URM) students. We recognize that opportunity structures are racialized and gendered (e.g., Beckwith 2015; Jackson 2019; Kenney 1996; Wilson 2007). Thus, we must challenge institutional barriers by engaging "in efforts that recognize the ways in which intersectional forms of oppression manifest in academic spaces" (Tormos-Aponte 2021, 2). Our program follows the blueprints of existing ones designed to increase opportunities for underrepresented undergraduate and graduate students, including the APSA Ralph Bunche Summer Institute and the Visions in Methodology conference (Barnes and Beaulieu 2017). Such programs contribute to the diversity infrastructure (Sinclair-Chapman 2015) in political science by building networks of support and providing valuable training and institutional resources.

By partnering with the APSA's Minority Graduate Placement Program (MIGAP) and engaging in outreach efforts to Hispanic-serving institutions (HSIs), we offered a two-day lab opportunity that builds skills and confidence in data science and shares information on political science research and PhD programs. Dubbed the "Data Lab," this model fits within the intersectional organizing approach (Tormos-Aponte 2021) and generated positive responses from participating URM students. We believe the keys to the emerging success of this model are targeted recruitment, an inclusive learning environment, institutional and financial support, and the development of ongoing relationships with lab participants. By describing our efforts and the features of the Data Lab, we aim to provide a blueprint to other institutions in hopes that they will create or adopt similar programs.

FRAMEWORK OF THE DATA LAB

Tormos-Aponte (2021) argues that an *organizing approach* is needed to diversify political science and increase inclusivity. This approach outlines how to create opportunities while seizing on existing frameworks already established by women, minority political scientists, or both groups. Specifically, the organizing approach advocates for placing scholars from marginalized groups in leadership roles, prioritizing issues specific to marginalized groups, and dedicating resources to these efforts. Importantly, it requires that these efforts be part of an ongoing dynamic process (Tormos-Aponte 2021). Table 1 summarizes how Data Lab elements map onto each of these criteria.

The Data Lab is a two-day, hands-on workshop developed in 2019 at Texas A&M University by Dr. Brittany Perry that reviews basic principles of quantitative social science research. It begins by familiarizing students with Stata software, including data basics (e.g., importing, reshaping, and encoding). Participants learn to analyze, interpret, and present results (e.g., *t-test*, linear regression, and basic logit/probit estimation). Two keynote talks expose students to substantive research and research design, and one-on-one faculty meetings and social gatherings with graduate students facilitate network building. The program has secured internal grants to compensate two graduate teaching assistants (TAs) and cover lab expenses, including participant travel and meals. We also built partnerships with the APSA's Minority Graduate Placement Program (MIGAP) and with Stata Corp, which donates software licenses and instructor time. In 2020 and 2021, 25 and 31 students participated, respectively.

Recognizing Structural Barriers

Especially in STEM-related fields, recruitment tends to favor white men (Moss- Racusin et al. 2012). Thus, we intentionally recruit underrepresented students, rather than relying on student self-selection (Barnes 2018; Chaudhary and Berhe 2020).[1] A self-selected Data Lab participant pool would likely mirror existing patterns in political methodology and the undergraduate population more broadly.

Yet because a targeted recruitment strategy is complicated by federal legal precedent (see Texas A&M University 2021), we emphasize our mission in the application and recruit through faculty (many of whom are from underrepresented groups themselves), historically black universities (HBCUs), and surrounding HSIs. Given that URM students tend to seek out support from descriptively representative faculty (Ensher and Murphy 1997), these individuals are often best suited for sharing information about the lab opportunity and encouraging applicants.[2]

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Table 1

Data Lab and the Organizing Approach

The Organizing Intersectional Approach	Data Lab Elements
Recognize structural barriers	• Targeted recruitment
Represent scholars from intersectionally marginalized groups in institutional and organizational leadership	• Inclusive learning environment • Descriptive representation in leadership
Prioritize issues facing intersectionally marginalized groups	• Institutional/financial support • External partnerships
Dynamic, not static	• Ongoing relationships after the program ends

We believe the keys to the emerging success of this model are targeted recruitment, an inclusive learning environment, institutional and financial support, and building ongoing relationships with lab participants.

To reduce barriers facing URM students (see Reinhardt & King, this issue), our application does not require letters of recommendation, strict GPA requirements, or strong research skills: interest in a graduate program or STEM career is the only requirement. We ask applicants for a resume, an unofficial transcript, and responses to a set of questions on their background and interest in social science research. For example, prospective participants are asked about their desire to learn and apply data science skills in their future careers. In many ways, completing and submitting an application are considered a "litmus test" for a student's genuine interest in learning STEM skills. By taking the time to apply to the Data Lab, students are demonstrating their commitment to learning about quantitative social science. Our hope is to cast a wide net and so recruit students who have not been asked to participate in or have considered participating in this type of program before. We also consider whether someone recommended the student for the program, which can signal support from trusted colleagues or past participants.

Although most participants in the Data Lab are political science majors, some major in other fields: majoring in political science is not a requirement. Perhaps counterintuitively, including non-major participants contributes to the Data Lab's goal of ultimately diversifying political methodology. First, the Data Lab introduces students to the idea of advanced study in political science through program features like research presentations and meetings with faculty and graduate students. These features introduce non-majors to the idea of graduate study within political science, which they may not have previously considered or known about. Second, building a community of URM students interested in STEM, regardless of major, creates an inclusive learning environment with many positive externalities.

Final admission decisions are made by the departmental Climate and Inclusion Committee, which comprises a diverse group of faculty members and one graduate student. The committee views applicants holistically, gauging their desire to attend, diversity of experiences, and challenges that make the lab an appropriate fit. Thus far, all attending students have been engaged, and many have used the lab as a stepping-stone to future opportunities. One student wrote, "The Lab helped me clear up some doubts I had about grad school and gave me more confidence to pursue academia as a career."

Representing Scholars from Intersectionally Marginalized Groups in Institutional and Organizational Leadership

Due to limited funding in 2020, we recruited at geographically proximate institutions but expanded to the University of Puerto Rico (UPR) through the MIGAP program (Tormos- Aponte and Velez-Serrano 2020). In 2020, the Data Lab hosted 13 students from Texas A&M, 7 students from UPR, and 5 from nearby universities. In total, 40% of the 25 participants were Hispanic/Latino, and 20% identified as Black. Seventy-six percent of the participants were women, of whom 68% were nonwhite. This contrasts to APSA membership as of February 2020, which was 5.92% Hispanic/Latino, 4.88% Black, and 37.39% women; of those women, 23.84% identified as nonwhite.

In 2021, the Data Lab was held online because of the pandemic, which allowed us to expand the scope of our recruitment efforts to include advertising through the American Political Science Association and Twitter. Networking through existing intersectional opportunity structures (e.g., Women Also Know Stuff, People of Color Also Know Stuff) allowed us to connect to more students and yielded participants from across the United States. In 2021, 74% of the 31 participants were nonwhite, with 6 participating remotely from the UPR and 9 others participating from outside Texas A&M University. Compared to 2020, a smaller percentage of participants were Black (6%) or women (58%). However, of the women in attendance, 67% identified as nonwhite. Figure 1 displays the demographic breakdown of the 2020 and 2021 Data Lab participants compared to the APSA membership (at large).

In addition to providing opportunity, the learning environment must take the unique needs of URM students into account. This involves faculty and staff building a culture for minority student success (Museus 2011). Undergraduate students (including URMs) who participate in research experiences are more likely to pursue graduate education. Hathaway, Nagda, and Gregerman (2002, 14) suggest that this relationship occurs because research work is usually done in small

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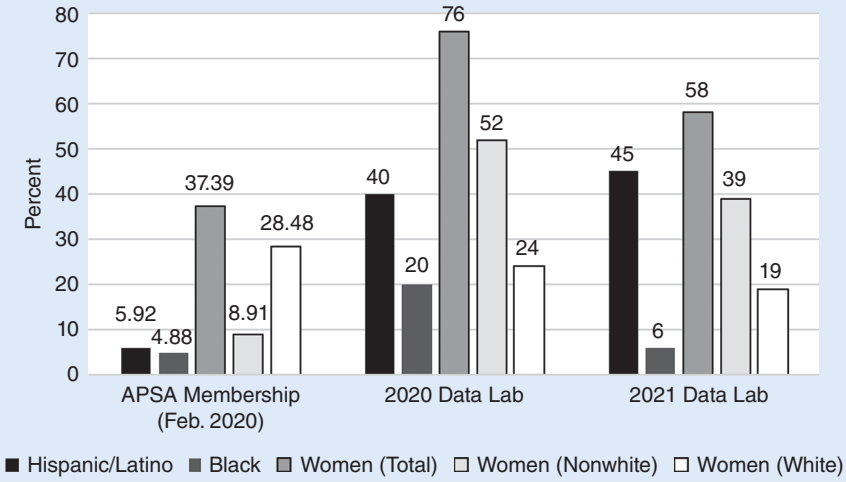
Figure 1

Percent URM Scholars in APSA Membership vs. Data Lab Participants



Notes: Percent URM Scholars in APSA Membership vs. Data Lab Participants

social groups where faculty members humanize the educational experience and assume responsibility for student outcomes. In addition, descriptively representative faculty and staff enhance student performance and retention (Fairlie, Hoffmann, and Oreopoulos 2014; Hoffmann and Oreopoulos 2009).

Selection of instructors and TAs is crucial to the success of the Data Lab. Bilingual instruction that involves active student engagement can promote "STEM meaning-making" (National Academies of Sciences, Engineering, and Medicine 2018). Given the large proportion of Spanish-speaking participants, we sought out a Latinx instructor from Stata who speaks with students in both Spanish and English. TAs are members of underrepresented groups and are selected based on their ability to connect with students. In a follow-up survey from 2020, one Hispanic participant commented that the best thing about the Data Lab was "that the mentors were always by our side" and that the instructor "knew how to answer questions in both Spanish and English." Participants also mentioned that they liked the opportunity to interact with current graduate students and hear about faculty research; another participant noted that the best part of the Data Lab was the interaction with graduate students who were "super helpful and friendly," making the student feel "very welcomed."

Typically, undergraduate students of color receive very little exposure to political science research (Dickinson, Jackson, and Williams 2020). Our Data Lab students participate in two research talks during the workshop. The faculty giving the talks are selected carefully: we choose individuals who "act as behavioral models, as representations of the possible, and [as] inspirations" (Morgenroth, Ryan, and Peters 2015, 477). In 2020 and 2021, all the speakers were junior faculty (one woman and one man in each year). One Data Lab participant stated that it made a difference that the invited speakers were "honest, humble, young and inspiring."

Above all, everyone on the institutional side of the Data Lab was committed to building a culture dedicated to URM student success (as highlighted by Museus 2011). The Data Lab creates an inclusive learning environment by ensuring that students see themselves among their peers and their instructors (Narayanan et al. 2018). The targeted recruitment strategy of the Data Lab ensured that students participated in a learning environment alongside a group of their peers (figure 1). This is in line with Hagedorn and coauthors (2007) who find that Latino student success increases when Latino faculty are present and there is a "critical mass" of Latino students.

Prioritizing Issues Facing Intersectionally Marginalized Groups

In a pre-lab survey, we ask students whether "a career using quantitative methods is attainable for people like me." Given that students self-select into the program, we expected a bias toward agreement. Surprisingly, only 18% of participants strongly agreed with this statement before participating in the workshop. Afterward, however, 33% of survey respondents strongly agreed and another 48% agreed with this statement; in addition, 58% of respondents stated that they were "a lot more likely" or "somewhat more likely" to consider a PhD in political science. There are many possible reasons for this increase, including descriptive representation and the building of new skills among lab participants. Yet, we know that providing institutional support, including tangible resources and external benefits (Tsui 2007), also matters.

External institutional partnerships—in our case, with APSA's Minority Graduate Placement Program (MIGAP)—are crucial for developing diversity pipelines (Mealy 2015).

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MIGAP, created by Tormos-Aponte and Velez-Serrano (2020), responds to the hurdles facing Latinx students as they pursue graduate studies. The program works with students at the University of Puerto Rico to support and fund the graduate-school application process. MIGAP's vision is to create a nationwide network of political science graduate studies placement and preparation programs.

We support the institutional goals of MIGAP by acknowledging the resource inequalities that exist, particularly between the University of Puerto Rico and more abundantly sourced institutions. Cutting or eliminating costs (including hidden costs such as time) to underresourced students is critical to encouraging their participation in STEM opportunities (Tormos-Aponte and Velez-Serrano 2020).With internal grant support, we are able to pay our TAs and provide financial assistance to participants to cover the costs of their travel and meals. In addition to direct financial support, we rely on Stata Corp for donated time and access to software.[3] During our virtual session in 2021, we mailed to students a locally sourced "care package" that included coffee, tea, and university gear. We also offer certificates of completion and letters of recommendation on request.

Despite the short length of the Data Lab, 68% of participants said their knowledge of Stata improved "a great deal" or "a lot." No student reported zero improvement. In addition to developing coding skills, students benefited from interactions with faculty and graduate students. After a one-on-one faculty meeting, one participant noted that this was "one of the most meaningful conversations [they've] had related to graduate interests."

BUILDING A DYNAMIC CONNECTION

In a survey of political science undergraduates from the University of Puerto Rico, students reported that a lack of mentorship opportunities was a barrier to pursuing graduate studies (Tormos-Aponte and Velez-Serrano 2020).[4] Mentoring, specifically group mentoring, can foster "relational learning, feedback, and support" (Williams et al. 2019). The Data Lab aims to fill some of the mentoring gap by keeping open channels of communication after the two-day experience. This provides an avenue for students to follow up about professional and research-oriented challenges. In December 2020, we also invited all 2020 Lab participants and newly accepted 2021 participants to a virtual information session on applying to PhD programs.

However, mentoring cannot be the only solution because it fails to address systemic problems that decrease diversity within political science (Chapman, Benedict, and Schiöth 2018). Thus, the makeup and culture of political science programs must adapt to further encourage the success of underrepresented students. Although the Data Lab is a single moment in time, its effects are potentially far-reaching. In a one-year post-lab survey (2020 Data Lab), 50% of respondents (8 of the 16 who responded) said that they were "a lot more" or "somewhat more" likely to consider a PhD in political science; two of these students had already applied, with one accepting a position in the PhD program at Princeton. Another student engaged in summer research following the Lab and joined APSA's Ralph Bunche Summer Program, class of 2021.

CONCLUSION

We believe in the potential of the Data Lab model as one avenue to diversify political science. Yet, there are limitations and areas for improvement. For one, although we are endowed with resources internally and externally, those resources are finite. Financial support must be secured on a yearly basis. Many students noted that the Data Lab was too short and hoped for at least a day to a week more of programming. Asking for that time from TAs and the instructor (and when in person, funding the space and accommodations) is a tall order. However, these student requests demonstrate that the demand exists among URM students for short-term STEM experiences, like the Data Lab.

Like all institutions, the Data Lab faced unprecedented challenges caused by the COVID-19 pandemic. Female and Black student enrollment dropped, possibly because of limited face-to-face recruitment (Blumenthal et al. 1995) or disproportionate impacts of the pandemic on Black communities (Moore et al. 2022). Similarly, deeper connections between students and facilitators were lost, and screen fatigue among participants increased. Despite these challenges, the online environment enabled access to the Data Lab for participants around the country. An online learning environment, like the one held in 2021, may increase accessibility to opportunities like the Data Lab for resource-constrained institutions, but special attention must be paid to targeted recruitment and todesigning programmatic components that specifically address the issues facing marginalized groups.

The Data Lab is one of many models that seek to resolve the demographic imbalance within political science at large (e.g., Adida et al. 2020; Barnes and Beaulieu 2017; Tormos-Aponte and Velez-Serrano 2020). We hope other institutions see potential in this model and adopt it, or a variation of it, to advance diversity, equity, and inclusion within political science and quantitative social sciences more broadly.

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CONFLICTS OF INTEREST

The authors declare no ethical issues or conflicts of interest in this research. ■

NOTES

1. An example of the success of such efforts is highlighted by Barnes and Beaulieu (2017) in their discussion of the Visions in Methodology program.

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2. As Tormos-Aponte (2021, 3) emphasizes, this reflects how the burden for diversifying is placed on scholars whose presence diversifies the field.
3. Data Labs also could be designed around open-access software like R.
4. Other barriers reported by students were a lack of time to pursue personal research projects and limited advanced methodological training (N = 78).

REFERENCES

Adida, Claire L., David A. Lake, Fatemeh Shafiei, and Matthew Platt. 2020. "Broadening the PhD Pipeline: A Summer Research Program for HBCU Students." *PS: Political Science & Politics* 53(4): 723–28.

American Political Science Association. 2020. "APSA Membership." https://www.apsanet.org/RESOURCES/Data-on-the-Profession/Dashboard/Membership.

Barnes, Tiffany D. 2018. "Strategies for Improving Gender Diversity in the Methods Community: Insights from Political Methodologists and Social Science Research." *PS: Political Science and Politics* 51 (3): 580–87.

Barnes, Tiffany D., and Emily Beaulieu. 2017. "Engaging Women: Addressing the Gender Gap in Women's Networking and Productivity." *PS: Political Science and Politics* 50 (3): 461–66.

Beckwith, Karen. 2015. "State, Academy, Discipline: Regendering Political Science." *PS: Political Science & Politics* 48 (3): 445–49.

Blumenthal, Daniel S., John Sung, Ralph Coates, Jackie Williams, and Jonathan Liff. 1995. "Recruitment and Retention of Subjects for a Longitudinal Cancer Prevention Study in an Inner-City Black Community." *HSR: Health Services Research* 30 (1): 197–205.

Chapman, Colin D., Christian Benedict, and Helgi B. Schiöth. 2018. "Experimenter Gender and Replicability in Science." *Science Advances* 4 (1): e1701427.

Chaudhary, V. Bala, and Asmeret Asefaw Berhe. 2020. "Ten Simple Rules for Building an Antiracist Lab." *PLoS Computational Biolology* 16 (10):1008210. doi:10.1371/journal.pcbi.1008210.

Dickinson, Kesicia A., Jasmine C. Jackson, and Princess H. Williams. 2020. "Jackson State University: Challenging Minds and Cultivating the Political Science Pipeline." *PS: Political Science & Politics* 53 (1): 148–50.

Ensher, Ellen A., and Susan E. Murphy. 1997. "Effects of Race, Gender, Perceived Similarity, and Contact on Mentor Relationships." *Journal of vocational behavior* 50 (3): 460–81.

Fairlie, Robert W., Florian Hoffmann, and Philip Oreopoulos. 2014. "A Community College Instructor like Me: Race and Ethnicity Interactions in the Classroom." *American Economic Review* 104 (8): 2567–91.

Hagedorn, Linda Serra, Winny YanFang Chi, Rita M. Cepeda, and Melissa McLain. 2007. "An Investigation of Critical Mass: The Role of Latino Representation in the Success of Urban Community College Students." *Research in Higher Education* 48 (1): 73–91.

Hathaway, Russel S., Biren A. Nagda and Sandra R. Gregerman. 2002. "The Relationship of Undergraduate Research Participation to Graduate and Professional Education Pursuit: An Empirical Study." *Journal of College Student Development* 43 (5): 614–31.

Hoffmann, Florian, and Philip Oreopoulos. 2009. "A Professor like Me: The Influence of Instructor Gender on College Achievement." *Journal of Human Resources* 44 (2): 479–94.

Jackson, Jenn M. 2019. "Breaking out of the Ivory Tower: (Re) Thinking Inclusion of Women and Scholars of Color in the Academy." *Journal of Women, Politics & Policy* 40 (1): 195–203.

Kenney, Sally J. 1996. "New Research on Gendered Political Institutions." *Political Research Quarterly* 49 (2): 445–66.

Mealy, Kimberly A. 2015. "Forging Inclusive Diversity Coalitions within Associations." *Paper presented at the 2015 National Science Foundation Workshop on Coalition Building to Advance Diverse Leadership and Address Discrimination in Political Science and Law and Social Sciences*. Arlington, VA, January 7–9.

Moore, Sharon E., Sharon D. Jones-Eversley, Willie F. Tolliver, Betty L. Wilson, and Christopher A. Jones. 2022. "Six Feet apart or Six Feet under: The Impact of COVID-19 on the Black Community." *Death Studies* 46 (4): 891–901.

Morgenroth, Thekla, Michelle K. Ryan, and Kim Peters. 2015. "The Motivational Theory of Role Modeling: How Role Models Influence Role Aspirants' Goals." *Review of General Psychology* 19 (4): 465–83.

Moss-Racusin, Corinne A., John F. Dovidio, Victoria L. Brescoll, Mark J. Graham, and Jo Handelsman. 2012. "Science Faculty's Subtle Gender Biases Favor Male Students." *Proceedings of the National Academy of Sciences* 109 (41): 16474–79.

Museus, Samuel D. 2011. "Generating Ethnic Minority Student Success (GEMS): A Qualitative Analysis of High-Performing Institutions." *Journal of Diversity in Higher Education* 4 (3): 147–62.

Narayanan, Sathya, Kathryn Cunningham, Sonia Arteaga, William J. Welch, Leslie Maxwell., and Zechariah Chawinga Su Bude. 2018. "Upward Mobility for Underrepresented Students: A Model for a Cohort-Based Bachelor's Degree in Computer Science." *Proceedings of the 49th ACM Technical Symposium on Computer Science Education* 705–10.

National Academies of Sciences, Engineering, and Medicine. 2018. *English Learners in STEM Subjects: Transforming Classrooms, Schools, and Lives*. Washington, DC: National Academies Press.

Roudiez, Chris (chris roudiez). October 17, 2020. "And another!! Even with significantly smaller graduate programs, sociology and political science both produce significantly more Black and Hispanic PhDs. Very insightful comparison of graduate program diversity using IPEDS data by @chris roudiez." Twitter. https://twitter.com/TrevonDLogan/status/1317611597033050118/photo/3.

Sinclair-Chapman, Valeria. 2015. "Leveraging Diversity in Political Science for Institutional and Disciplinary Change." *PS: Political Science & Politics* 48 (3): 454–58.

Texas A&M University. 2021. *Stronger Together: A Report by the Commission on Diversity, Equity, and Inclusion*. https://president.tamu.edu/committees-task-forces/commission-on-diversity-equity-and-inclusion/documents/CDEI_Final_Report_2021.pdf.

Tormos-Aponte, Fernando. 2021. "An Organizing Approach to Diversifying Political Science." *PS: Political Science & Politics* 54 (1): 163–68.

Tormos-Aponte, Fernando, and Mayra Velez-Serrano. 2020. "Broadening the Pathway for Graduate Studies in Political Science." *PS: Political Science & Politics* 53 (1): 145–46.

Tsui, Lisa. 2007. "Effective Strategies to Increase Diversity in STEM Fields: A Review of the Research Literature." *Journal of Negro Education* 76 (4): 555–81.

Williams, Joanna L., Lauren Molloy Elreda, Lora J. Henderson, Nancy L. Deutsch, and Edith C. Lawrence. 2019. "Dyadic Connections in the Context of Group Mentoring: A Social Network Approach." *Journal of Community Psychology* 47 (5): 1184–96.

Wilson, George. 2007. "Racialized Life-Chance Opportunities across the Class Structure: The Case of African Americans." *Annals of the American Academy of Political and Social Science* 609 (1): 215–32.

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