



The national evaluation  
of the NIH Diversity  
Program Consortium

# Data Brief

From the DPC Coordination and Evaluation Center at UCLA

December 2023

## Satisfaction with Mentoring During the First Year of the COVID-19 Pandemic, Reports from The Enhance Diversity Study, 2021 Student Annual Follow-up Survey

**SUMMARY:** Effective mentorship can increase the success of college students from underrepresented groups (URG) who pursue science, technology, engineering, math and medicine (STEMM) degrees and intend to enter the STEMM workforce. Many undergraduate STEMM student support programs have incorporated mentoring practices with the goal of ensuring URG students successfully continue in their career paths. The Enhance Diversity Study (EDS) surveys current and former students at the university campuses where the Building Infrastructure Leading to Diversity (BUILD) programs are implemented. This brief describes student ratings of mentor quality, satisfaction with mentoring, mentoring expectation fulfillment, and changes in access to mentors one year into the coronavirus disease 2019 (COVID-19) pandemic as reported in the 2021 EDS Student Annual Follow Up Survey. Results showed that students involved in BUILD reported higher quality and satisfaction of mentoring than students not associated with BUILD. BUILD students were also more likely to report that their access to mentors did not change during the first year of the pandemic, as opposed to the decline in access experienced by non-BUILD students.

**HALLMARKS OF SUCCESS:** STU-4 – Satisfaction with quality of mentorship

### Background

Effective mentorship can increase the success of college students from underrepresented groups (URG) who pursue science, technology, engineering, math and medicine (STEMM) degrees and intend to enter the STEMM workforce (National Academies of Sciences, Engineering, and Medicine, 2019). Many undergraduate STEMM student support programs have incorporated mentoring practices with the goal of ensuring URG students successfully continue in their career paths. These practices are a key component of the Building Infrastructure Leading to Diversity (BUILD) programs (Hurtado et al., 2017). Mentoring practices, and the ways that universities and programs functioned, were drastically altered by the coronavirus disease 2019 (COVID-19) pandemic. These changes added to the long-standing historical barriers and obstacles that prevent students from obtaining degrees and careers in STEMM

(National Academies of Sciences, Engineering, and Medicine, 2016; U.S. Department of Education, Office for Civil Rights, 2021; Grineski et al., 2022).

The Enhance Diversity Study (EDS) surveys current and former students at the BUILD university campuses. This brief describes student ratings of mentor quality, satisfaction with mentoring, mentoring expectation fulfillment, and changes in access to mentors one year into the COVID-19 pandemic as reported in the 2021 EDS Student Annual Follow Up Survey (SAFS). Differences between BUILD and non-BUILD students are explored. The brief addresses the following research questions.

- 1.) One year into the COVID-19 pandemic, how do students rate the quality of mentoring received from their primary mentor?

- 2.) One year into the COVID-19 pandemic, how do students rate their satisfaction with their primary mentoring relationship?
- 3.) One year into the COVID-19 pandemic, how do students rate the extent to which their primary mentor is meeting their expectations?
- 4.) To what extent do students report changes in access to mentors, one year into the COVID-19 pandemic?

respondents in access to mentors since March 2020 when the COVID-19 pandemic started in the United States. Subgroup differences were examined with Chi-square tests to see if responses from students in the BUILD program were different than those from students not in the BUILD program. Each item was required but respondents were allowed to select “Choose not to answer” or “Can’t Rate”. Missing values and the “Choose not to answer” and “Can’t Rate” options were dropped from the analysis for each related question (See Tables 1-4)

## Data

The 2021 SAFS was administered between January 27 and July 15, 2021. A total of 8,561 people participated in the 2021 SAFS. This brief presents data from 1,956 respondents who were undergraduates at the time of the survey (class standing of freshman, sophomore, junior or senior), and reported having a faculty member or someone else who is more senior than them whom they consider a mentor. Specifically, it presents responses to four questions that describe the mentoring relationship during the first year of the COVID-19 pandemic (see Figures 1 and 2 in the appendix, Images from survey portal).

The first three questions provide self-reported ratings of the overall quality of mentoring, the level of satisfaction with the primary mentoring relationship and the extent to which the primary mentor was meeting expectations. The fourth question describes any changes experienced by

## Characteristics of the Sample

**Gender Identity.** Overall, nearly three-fourths (69%) of the respondents identified as a Woman, 27% identified as a Man, and 5% selected Other Gender Identity, which included respondents who identified as a Trans Man (0.4%), as a Trans Woman (0.1%), as Gender queer/ Gender non-conforming (2%), those selecting Different identity (0.4%) and those choosing not to answer (2%). There were no differences in distribution by those involved with BUILD.

**Race/Ethnic Identity.** Overall, 19% of respondents identified as Asian; 20% identified as Black or African American; 21% identified as Hispanic, Latina/o, or Spanish Origin; and 19% identified as Other Race, Ethnicity, or Origin, a grouping composed of several identities (see Table 1). Those involved with BUILD were more likely to identify as Black or African American or with the Other group (Table 1).

**Table 1: Percentage Distribution of Reported Race / Ethnic Identity by BUILD program involvement**

Program Involvement	n	Asian	Black or African American	Hispanic, Latina/o, or Spanish Origin	Other	White
In BUILD (%)*	320	14	28	18	25	16
Not in BUILD (%)	1636	21	18	22	17	21
Overall	1956	19	20	21	19	20

Note. \* p-value < 0.05 for Chi-square of differences by BUILD program involvement. The Other category includes respondents who identified as Middle Eastern or North African (4.6%); as Native American, Indigenous, First Nations, American Indian or Alaska Native (0.5%); as Native Hawaiian or Other Pacific Islander (0.1%); selected 2 or more categories (13%); and those who selected Other Race, Ethnicity or Origin (0.5%). BUILD - Building Infrastructure Leading to Diversity

### **BUILD Program Involvement.**

Involvement with a BUILD program was defined by beginning at least one of the following BUILD activities by September 2020 (the fall prior to the survey): Scholar activities (the most intensely treated and supported group); Associate activities (less intensely treated group often participating in a subset of intervention supports); and Undergraduate Research Experience (URE) activities (students participate in BUILD-affiliated student-directed research or a mentored undergraduate research experience) (Davidson et al, 2017). BUILD-involved respondents comprised 16% (n=320) of the sample.

mentoring they receive from their primary mentor using a 7-point scale from very low to very high. Categories were merged from a 7-point scale to a 3-point scale for analyses due to small cell sizes. Category Low includes response options 1-Very Low, 2 and 3, Average includes options 4 and 5, and the High category includes options 6 and 7-Very High. There were no major differences in distribution prior to collapsing the categories. Overall, two-thirds of respondents (67%) rated the quality of the mentoring received as High. Respondents involved with BUILD tended to rate the quality of mentorship from their mentors significantly more highly – a gap of eight percentage points in the “High” category (Table 2).

### **Findings**

The first question of interest asked respondents to rate the overall quality of the

---

**Table 2: Percentage Distribution of Student Rating of Overall Quality of Mentoring Received from their Primary Mentor, by BUILD Program Involvement**

---

<b>Program Involvement</b>	<b>n</b>	<b>Low</b>	<b>Average</b>	<b>High</b>
<b>In BUILD (%)*</b>	236	3	23	74
<b>Not in BUILD (%)</b>	1176	3	31	66
<b>Overall</b>	1412	3	30	67

---

Note. \* p-value < 0.05 for Chi-square of differences by BUILD program involvement. Respondents who selected “Choose not to answer” were omitted from analysis (n=544). BUILD - Building Infrastructure Leading to Diversity

The second item asked respondents to rate their satisfaction with their primary mentoring relationship using a 7-point scale from Not at all to Completely satisfied. Categories were merged from a 7-point scale to a 3-point scale for analyses due to small cell sizes. Category Not at all includes response options 1-Not at all, 2 and 3, Moderately includes options 4-Moderately and 5, and the Completely category includes options 6 and 7-Completely. There were no major differences in distribution prior to collapsing the categories. Overall, about three-fourths (72%) of respondents indicated being completely satisfied with their primary mentoring relationship (Table 3). Respondents involved with BUILD were significantly more likely to rate their satisfaction with mentoring on the higher end of the scale than those not in the BUILD program.

**Table 3: Percentage Distribution of Student Satisfaction with their Primary Mentoring Relationship by BUILD Program Involvement**

Program Involvement	n	Barely / Not at all	Moderately	Largely / Completely
In BUILD (%)*	308	2	19	79
Not in BUILD (%)	1454	4	26	71
Overall	1762	3	25	72

Note. \* p-value < 0.05 for Chi-square of differences by BUILD program involvement. Respondents who selected “Choose not to answer” were omitted from analysis (n=194). BUILD - Building Infrastructure Leading to Diversity

The third item asked respondents to indicate the extent to which they felt their primary mentor met their expectations using a 7-point scale from Not at all to Completely. Categories were merged from a 7-point scale to a 3-point scale for analyses due to small cell sizes. Category Not at all includes response options 1-Not at all, 2 and 3, Moderately includes

options 4-Moderately and 5, and the Completely category includes options 6 and 7-Completely. There were no major differences in distribution prior to collapsing the categories. Overall, most respondents felt their primary mentor met their expectations (73% rated Completely). There was no difference based on BUILD program involvement (Table 4).

**Table 4: Percentage distribution of reported extent to which the primary mentor was meeting student expectations by BUILD program involvement**

Program Involvement	n	Not at all	Moderately	Completely
In BUILD (%)	307	3	20	78
Not in BUILD (%)	1445	4	25	72
Overall	1752	4	24	73

Note. No statistically significant difference by BUILD program involvement. Respondents who selected “Choose not to answer” omitted from analysis (n=204).

BUILD - Building Infrastructure Leading to Diversity

The fourth item describes any changes experienced by respondents in access to mentors since March 2020 when the COVID-19 pandemic started using a 5-point scale from Decreased a lot to Increased a lot. Overall, about a quarter of respondents reported that access to mentors decreased a lot. By contrast, slightly less than one-third reported access decreased a little while a similar

proportion of respondents reported no change in access. Respondents involved with BUILD were significantly more likely to report that access did not change, while those not in the program were more likely to report their access decreased a lot since the start of the pandemic (Table 5).

**Table 5: Percent of respondents by level of changes in access to mentors since the start of the COVID-19 pandemic and BUILD program involvement**

Program Involvement	n	Decreased a lot	Decreased a little	Did not change	Increased a little	Increased a lot
In BUILD (%)*	283	17	30	39	10	4
Not in BUILD (%)	1343	26	29	34	9	3
Overall	1626	24	29	35	9	3

Note. \* p-value < 0.05 for Chi-square of differences by BUILD program involvement. Respondents who selected “Can’t rate” omitted from analysis (n=330). BUILD - Building Infrastructure Leading to Diversity; COVID-19 - coronavirus disease 2019

## Conclusion

Students involved with the BUILD program during the COVID-19 pandemic rated the quality and satisfaction with their mentoring experience statistically significantly higher than students not associated with the BUILD program. BUILD students were also more likely to report that their access to mentors did not change during the first year of the pandemic, as opposed to the decline in access experienced by non-BUILD students.

This brief’s findings suggest that the BUILD program’s structured mentoring component continued to support students even during the challenging conditions of the COVID-19 pandemic. A potential reason for this finding could be the strong communication channels that the BUILD programs already had developed with their students, so changes to remote or hybrid meetings were easier to navigate. Or, mentors in the program may have been more committed to the mentoring process, either because of their training or due to formal agreements with BUILD programs, than the mentors of students not in the program. In further analyses, comparison of pre-pandemic mentor experiences may enhance our understanding of these findings.

# Appendix

**Figure 1**

*SAFS Survey Portal – Mentoring Satisfaction Items*

OMB #0925-0747 Expiration Date: 05/31/2023

How would you rate the overall quality of the mentoring you are receiving from your primary mentor?

1 - Very Low  2  3  4 - Average  5  6  7 - Very High  I choose not to answer

Overall, how satisfied are you with your primary mentoring relationship?

1 - Not at all  2  3  4 - Moderately  5  6  7 - Completely  I choose not to answer

To what extent do you feel that your primary mentor is meeting your expectations?

1 - Not at all  2  3  4 - Moderately  5  6  7 - Completely  I choose not to answer

[Back](#) [Next](#) [Save for later completion](#)

The Diversity Program Consortium Coordination and Evaluation Center at UCLA is supported by Office of the Director of the National Institutes of Health / National Institutes of General Medical Sciences under award number 2U54GM119024. [Need Assistance?](#)

**Figure 2**

*SAFS Survey Portal – Access to Mentor Item*

OMB #0925-0747 Expiration Date: 05/31/2023

Since March 2020 when the COVID-19 pandemic started in the US, please indicate any changes you experienced in the following areas:

Access to mentors

Decreased a lot  Decreased a little  Did not change  Increased a little  Increased a lot  Can't Rate

Opportunities to conduct research

Decreased a lot  Decreased a little  Did not change  Increased a little  Increased a lot  Can't Rate

Is there anything further you would like to share or clarify about your experiences related to the COVID-19 pandemic?

[Back](#) [Next](#) [Save for later completion](#)

The Diversity Program Consortium Coordination and Evaluation Center at UCLA is supported by Office of the Director of the National Institutes of Health / National Institutes of General Medical Sciences under award number 2U54GM119024. [Need Assistance?](#)

## About BUILD

Building Infrastructure Leading to Diversity (BUILD) consists of a set of 10 linked awards granted to primarily undergraduate institutions, each of which developed approaches intended to determine the most effective ways to engage and retain students from diverse backgrounds in biomedical research, and to prepare students to become future contributors to the NIH-funded research enterprise.

BUILD is one of three primary initiatives within the Diversity Program Consortium (DPC). Further information can be found here: <https://dpcnew.netlify.app/dpc/consortium-members/nih>

## Publication and Contact Information

This data brief is published by the Diversity Program Consortium's (DPC) Coordination and Evaluation Center (CEC) at UCLA, 1100 Glendon Ave. Suite 850, Los Angeles, CA 90024. [info@diversityprogramconsortium.org](mailto:info@diversityprogramconsortium.org)

## Suggested Citation

Ramirez, K.D., Han, W., McCreath, H.E. & Seeman, T. (2023). Satisfaction with Mentoring During the COVID-19 Pandemic, Reports from The Enhance Diversity Study, 2021 Student Annual Follow-up Survey. Los Angeles, CA: Diversity Program Consortium (DPC) Coordination and Evaluation Center at UCLA.



The authors prepared this manuscript on behalf of the Diversity Program Consortium. Work reported in this publication was supported by the Office of The Director, National Institutes of Health Common Fund and Office of Scientific Workforce Diversity awards U11GM118979, U11GM118976, U11GM118973, U11GM118964, U11GM118985, U11GM118991, U11GM118982, U11GM118988, U11GM118970, U11GM118967, and U54GM119024 administered by the National Institute of General Medical Sciences. The work is solely the responsibility of the authors and does not necessarily represent the official view of the National Institutes of Health.

## Acknowledgments

The research team offers a special acknowledgment and thank you to the many students who generously shared their time and experience for the Enhance Diversity Study and members of the DPC.

## References

- 1 Davidson, P.L., Maccalla, N.M.G., Afifi, A.A., Guerrero, L., Nakazono, T., Zhong, S., & Wallace, S.P. (2017). A Participatory Approach to Evaluating a National Training and Institutional Change Initiative: The BUILD Longitudinal Evaluation. *BMC Proc* 11, 15. <https://doi.org/10.1186/s12919-017-0082-9>
- 2 Diversity Program Consortium. (2022). DPC Hallmarks of Success: Yr. 6-10. <https://diversityprogramconsortium.org/research/hallmarks>
- 3 Grineski, S.E., Morales, D.X., Collins, T.W., Nadybal, S., & Trego, S. (2022). A US National Study of Barriers to Science Training Experienced by Undergraduate Students during COVID-19. *International Journal of Environmental Research and Public Health*, 19, 6534. <https://doi.org/10.3390/ijerph19116534>
- 4 Hurtado, S., White-Lewis, D. & Norris, K. Advancing inclusive science and systemic change: the convergence of national aims and institutional goals in implementing and assessing biomedical science training. *BMC Proc* 11 (Suppl 12), 17 (2017). <https://doi.org/10.1186/s12919-017-0086-5>
- 5 National Academies of Sciences, Engineering, and Medicine. (2016). Barriers and Opportunities for 2-Year and 4-Year STEM Degrees: Systemic Change to Support Diverse Student Pathways. Committee on Barriers and Opportunities in Completing 2-Year and 4-Year STEM Degrees. S. Malcom and M. Feder, Editors. Board on Science Education, Division of Behavioral and Social Sciences and Education. Board on Higher Education and the Workforce, Policy and Global Affairs. Washington, DC: The National Academies Press. <https://doi:10.17226/21739>.
- 6 National Academies of Sciences, Engineering, and Medicine. (2019). The Science of Effective Mentorship in STEMM. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25568>.
- 7 U.S. Department of Education, Office for Civil Rights. (2021). Education in a Pandemic: The Disparate Impacts of COVID-19 on America's Students. <https://www2.ed.gov/about/offices/list/ocr/docs/20210608-impacts-of-covid19.pdf>