

## **Work-in-Progress: Updated Progress Towards Understanding Perspectives among Neurodiverse Undergraduate Researchers in STEM**

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# **Work-in-Progress: Updated Progress towards Understanding Perspectives among Neurodiverse Undergraduate Researchers in STEM**

## **Abstract**

In this work-in-progress research paper, we update the community on the assessment tool we have been developing to assess Thriving in STEM undergraduate researchers across neurodiversity. Neurodivergent students are often marginalized and stigmatized to the point of feeling pressure to "normalize" or "camouflage" their behavior to appear neurotypical. We have generated a preliminary assessment tool to understand the perspectives of neurodiverse students in undergraduate research, specifically their priorities in community, culture, and future prospects. Our investigation reports a qualitative assessment of these categories between neurodivergent students in STEM research environments compared to their neurotypical counterparts. The survey was first improved after cognitive interviews, and then distributed among STEM undergraduates. In this paper, we report the refinement process of the survey and the initial quantitative survey results.

## **Introduction**

Over a quarter of the United States population identifies as having a disability [1]. The disability community encompasses a diverse subset of people, inclusive of those who have chronic illnesses, cognitive, visual, walking, and temporary disabilities (pregnancy, surgical recovery, etc.). Neurodiversity is a term that originated in 1998 during an advocacy movement for autistic people and is another subset of the disability community [2]. The term neurodiversity encompasses both those who are neurodivergent and neurotypical. Neurotypical people are those whose brain behaviors, functions, and processing are considered typical. Neurodivergent people are those whose brains function differently in one or more ways than are considered typical [2], [3]. Over the past three decades, the term neurodivergent has expanded from just the autistic community to include others with neurological conditions like dyslexia, ADHD, depression, anxiety, and many other nonvisible disabilities [4].

Despite the large population of disabled people in the United States, disabled people are still underrepresented in STEM (science, technology, engineering, and mathematics). About 19% of undergraduate students identify as having disabilities. Of those, 27.97% are in STEM-related disciplines [5]. Disabled students face systemic barriers such as inaccessible classrooms, a general lack of support, and negative views from faculty members [6], [7]. Of note, those who are from multiple marginalized communities (racial and ethnic minority groups, LGBTQIA+, socioeconomic backgrounds, etc.) are further underrepresented in STEM education. Educators have identified a lack of institutional support as a barrier to supporting disabled students' success [8], [9]. The education pipeline for neurodivergent people is leaky [10], as is indicated by only

3.5% of engineering Ph.D. recipients having a cognitive disability [11]. There is a need to find solutions to repair the leaky pipeline for neurodivergent people by increasing representation and retention.

Previous research has shown that mentorship of neurodivergent individuals improves student outcomes [12], [13]. One study found improvements were seen in decreased anxiety, increased perceived social support from friends, academic self-efficacy, and more accurate definitions of self-advocacy [14]. However, there are few studies on the mentorship of neurodivergent people in post-secondary education, and more research is needed on how to best implement mentoring practices [12]. Undergraduate research opportunities provide avenues for mentorship and demonstrating a sense of belonging [15]. Currently, there is a lack of literature on the experience of undergraduate researchers with the lens of neurodiversity. With the knowledge that research opportunities provide opportunities for mentorship, and that mentorship can improve neurodivergent students' outcomes, we seek to better understand the neurodiverse population of STEM undergraduate researchers.

In this study, we present initial findings from a survey of 96 undergraduate students from the University of New Hampshire. At this time, our initial findings have resulted in anecdotal findings. While this initial survey is a helpful initial observation of research experiences from neurodiverse populations, additional surveys or interview responses would be beneficial to understanding students' research experiences.

## **Methods**

Using cognitive interviews, we improved on our previously published tool [3]. This survey (**Appendix B**) was distributed to undergraduate students through the Dean's office of STEM related colleges in Spring 2023. Further, it was also distributed through the Hamel Center of Undergraduate Research, Honors program, and Student Accessibility Services during the same time. We report the collection of raw data of this report and summarize initial impressions as we move forward with more specific hypotheses to further refine our understanding of the Undergraduate Research space across neurodiversity. We break out this data into six key sections: (1) Participant Demographic Data; (2) Research Demographics; (3) STEM Research - Relationships and Culture; (4) STEM Research - Future Thinking; (5) STEM Research - Community; (6) Discrimination of Neurodivergent Participants.

In the responses, we did not check for any formal diagnosis of neurodivergence. We allowed participants to self-identify as neurodivergent based on their personal, broad, self-interpreted definitions. Further, no definition of neurodivergence was provided at the time of the survey. This approach was used so that students could identify as neurodivergent without needing a formal diagnosis, since there are barriers to receiving diagnoses [4].

Abbreviations used in this work:

NT: Neurotypical

ND: Neurodivergent

## Results and Discussion

The survey was distributed to approximately 3,500 students at the University of New Hampshire in Spring 2023. In total, there were 130 respondents who started the survey with 96 respondents who completed the survey, meaning a completion rate of 74%. A meta-analysis of online education surveys found the completion rate on average was 41%, of which our completion rate is higher [16]. Of those who completed the survey, 66 participants (69%) were involved in research, and 51 participants' research was STEM-related (53% of participants or 77% of those who participated in research). No questions were required, but we only included data from participants who finished the survey.

### *Participant Demographic Data*

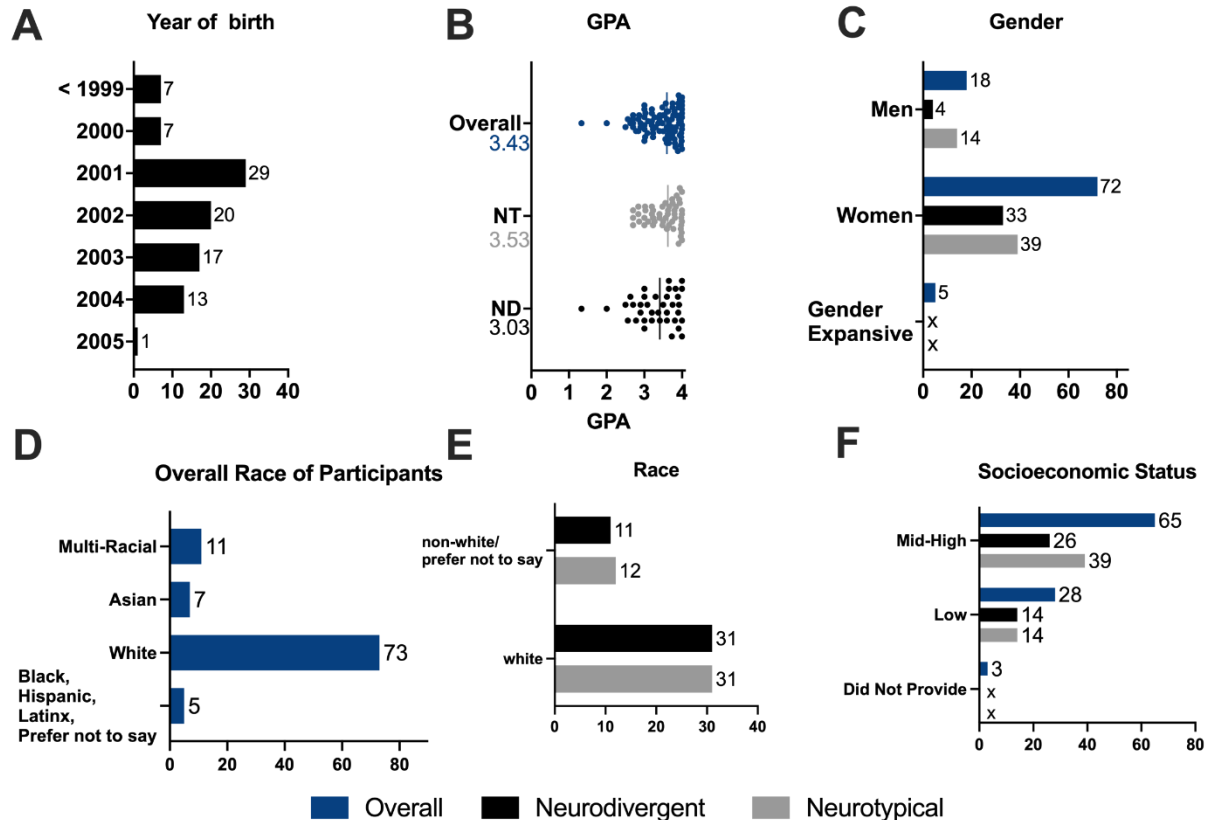
Of the 96 participants, most participants were traditional students (**Figure 1A**), defined as those who enter college within one or two years of finishing high school [17]. At the time the survey was conducted, students born in 2000-2001 would have been either juniors or seniors, while students born in 2004 would likely be freshmen. The data also supports that 7 non-traditional students responded, who were born between 1995 to 1999.

The split of the 96 participants was evenly distributed with 55% identifying as neurotypical (NT), while 46% identifying as neurodivergent (ND). This is a higher percentage of ND individuals than broadly reported in STEM disciplines, which is around 28% disabled [5]. This could be due to how the survey was distributed across campus, as Student Accessibility Services was one outlet used to acquire responses from the target audience.

The average Grade Point Average (GPA) across all participants was 3.43 on a 4.0 scale; 3 participants chose not to respond. There was no statistical difference (One-way ANOVA,  $p > 0.05$ ) between NT and ND participant's GPA. Neurotypical participants had a mean average GPA of 3.53, compared to ND participants, who had an average GPA of 3.03 (**Figure 1B**). The change in the mean average is likely due to outliers, as seen in the box plot.

We had a greater response from participants who identified as women (76%) compared to men (19%) (**Figure 1C**). There were approximately the same number of women who responded were ND as those who were NT. The distribution of males was predominantly NT (77%). The reason for the X's in the gender expansive category for NT and ND participants is due to a low N

number. The majority of participants identify as white (73 out of 96), which is indicative of the racial demographics of the University of New Hampshire which has a student population of 86% white students (**Figure 1D-E**) [18]. Black, Hispanic, Latinx, and participants who responded Other were grouped into one category due to small numbers. Out of all participants, the majority tend to come from a mid-high socioeconomic background (**Figure 1F**). We observe a higher percentage of NT participants from a mid-high socioeconomic background compared to ND participants. The reason for the X's in the "Did Not Provide" category for NT and ND participants is due to a low N number.



**Figure 1: Personal Demographic** data for all survey participants (all research) with a total of 96 participants. Gender expansive and socioeconomic status has X's because of low N number.

### Research Demographics

Next, we wanted to explore students' experience as researchers and therefore asked questions about their involvement in undergraduate research. Neurodivergent and neurotypical participants responded similarly showing that two-thirds (66 out of 96) had research experience while one-third did not (**Figure 2A**). This could show that access and opportunity are similar among participants. The thirty students who completed the survey, but were not involved with undergraduate research, were asked why they have not engaged with research opportunities (**Figure 2B**); participants could select multiple answers. Approximately 80% of participants

indicated they were unsure how to get involved; and an equal distribution was seen in both ND and NT participants. Based on previous literature, we would expect closer to 29% of participants were not aware of research opportunities that were available to them [19], but the difference in percentage could be due to a small sample size. Some students, 11 out of 30, were too focused on grades and studies to participate in research. Five NT participants indicated they had insufficient knowledge or experience compared to one ND participant. Unless indicated, future responses are limited to only the 66 participants who participated in undergraduate research.

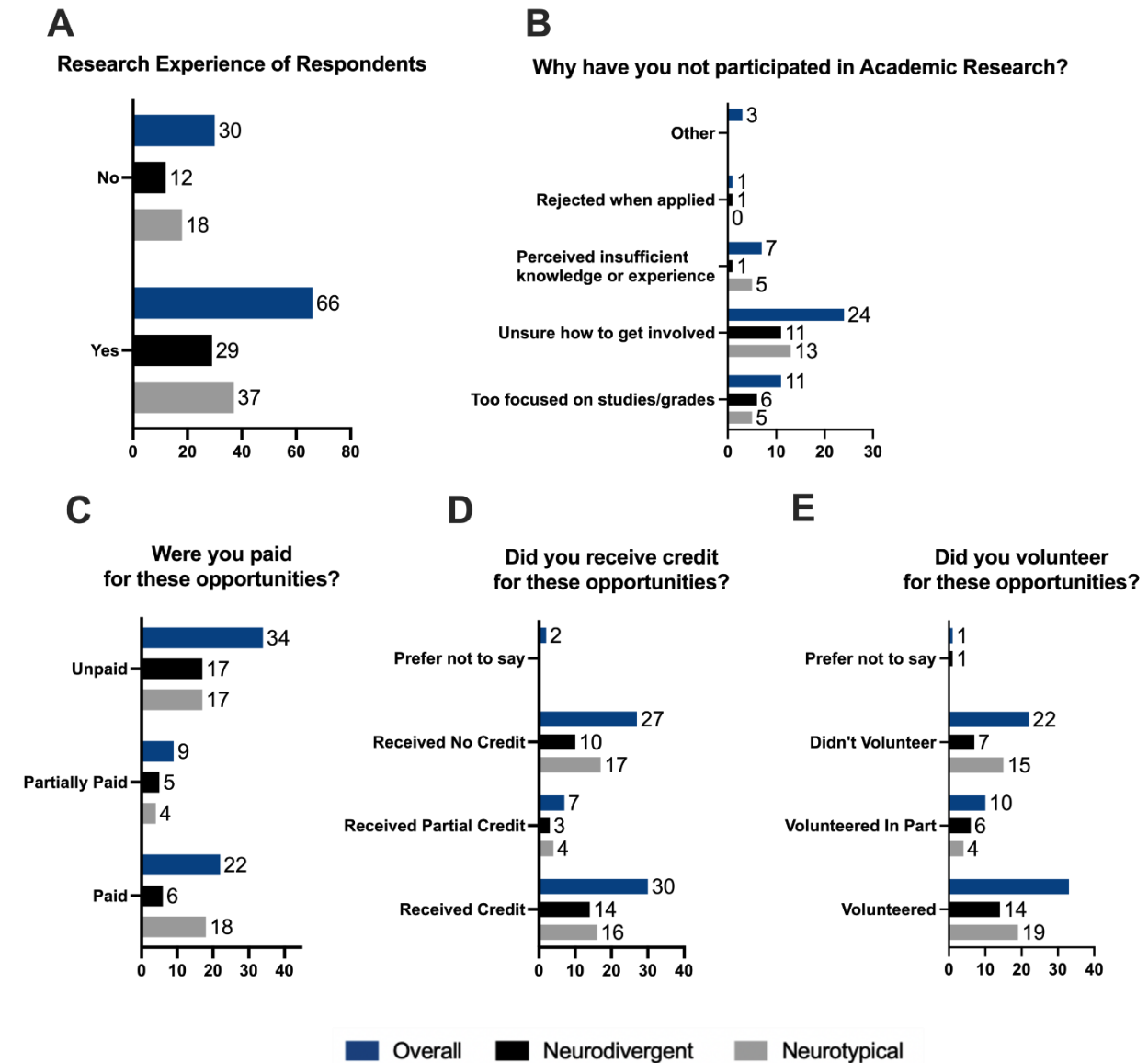
We sought to understand the opportunities through which ND and NT researchers are participating in research. From these data, there appears to be a difference between ND (6 paid, 18 unpaid) and NT (16 paid, 17 unpaid) participants' pay for their research experience (**Figure 2C**). The number of participants seems to be very similar for both participants who did and did not receive credit, an example being 27 students overall who didn't receive credit while 30 did (**Figure 2D**). A slightly higher percentage of ND participants received credit in comparison to NT participants, likely due to differences in students who were not paid. ND participants appear to be more likely to be unpaid for their research activities; we are concerned that ND individuals may not have the tools to actively advocate for paid positions [20], [21]. This result could point to the need for more inclusive hiring strategies around neurodiversity [20]. The definition, as "volunteer" was never defined. We intended "volunteer" to be at the exclusion of credit or pay; however, some participants receiving credit could also perceive this as a volunteer (**Figure 2E**). In the future, we should specify what we mean by research for credit or volunteer. Additionally, this difference could be also due to the type of research being sought out by ND and NT participants (departments with more or less funding). However, these initial findings are anecdotal until statistical analysis can be applied. Further, the survey doesn't highlight whether there are any pay gaps between ND and NT researchers.

Future results and discussion are limited to those participants who conducted STEM-related research (51 participants or 53% of participants). Of those 51 participants, only 21 were ND, and therefore, no strong conclusions can be made from the results. But the data collected allows us to think about potential trends for future inquiries.

### *STEM Research - Relationships and Culture*

Both ND and NT participants indicated similarly that they strongly agreed about having a positive relationship with their research professor/mentor (**Figure 3A**). A larger percentage of ND participants indicated that they neither disagreed nor agreed or strongly disagreed that they had a positive relationship with their research professor/mentor. Both ND and NT participants responded similarly to having laboratory peers who collaborate and support each other (**Figure 3B**). It is well documented that academia has an ableist problem; however, our data indicate that ND students feel supported by their peers [4]. This is a very positive finding where

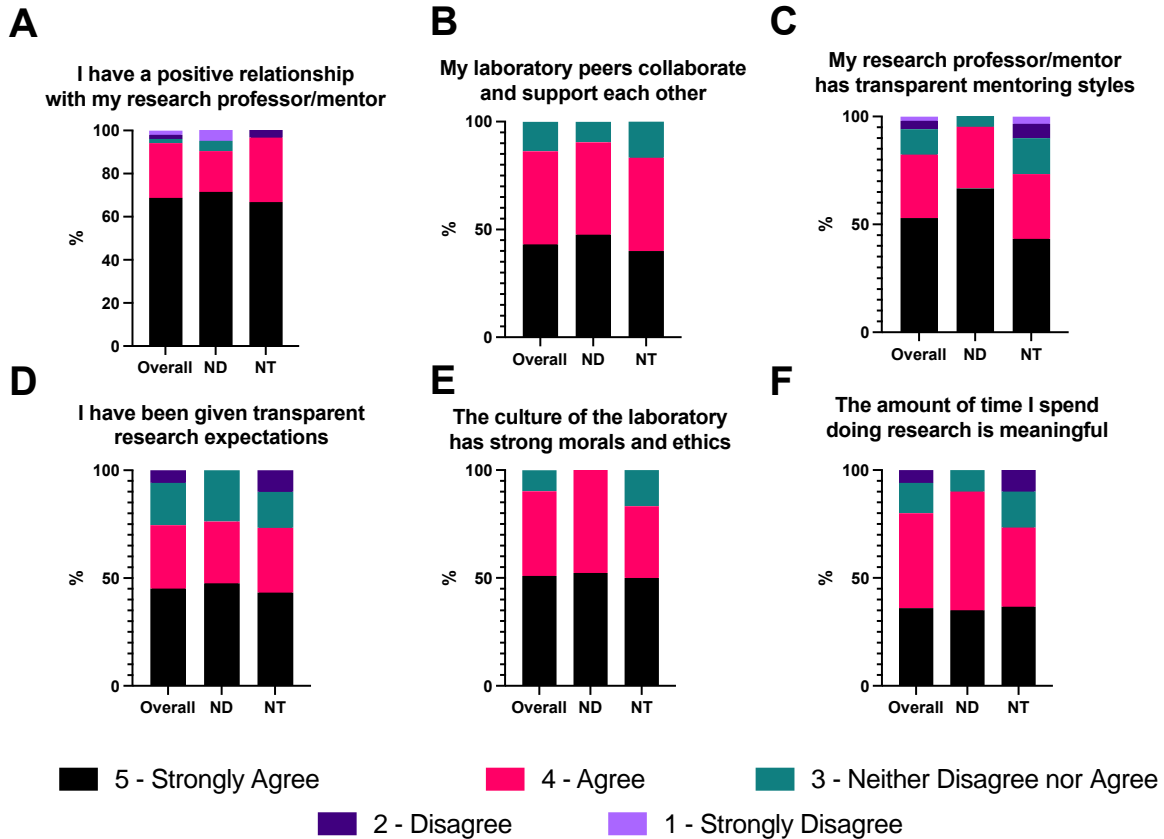
most studies highlight the negative experiences of ND students [22].



**Figure 2: Research Demographics** related to all participants (96 participants) separating out the type of research conducted and whether the research was volunteer, credit-bearing, or paid.

Neurodivergent participants had a larger percentage indicated strongly agree or agree with transparent mentoring styles (90%) compared to NT participants (60%) (**Figure 3C**). Interestingly, 10% of NT participants responded that they disagree or strongly disagree with being transparent about mentoring strategies compared to 0% of ND participants. When looking at if research objectives are transparent (**Figure 3D**) we see that the results match the student's opinions on if the mentor is transparent. Neurodivergent participants seemed to have greater access to, or perception of, transparent mentoring styles. One potential explanation could be that ND participants inquire for greater transparency or that transparency is more important for the

success of the ND student, and therefore, they look for mentoring styles that match. These findings could also be due to the different mentoring practices of the mentor. More research is needed on the impact of different mentoring styles on ND and NT individuals in the context of undergraduate research.



**Figure 3:** Likert scale questions around *STEM Research* centered on **Relationships and Culture**. The total amount of overall is 51 participants with 30 NT and 21 ND. Data is organized to look at overall trends and changes.

When asked if “The culture of the laboratory has strong morals and ethics,” 100% of ND participants strongly agreed or agreed compared to 84% of NT participants. The rest of the NT individuals selected neither agree nor disagree (**Figure 3E**). Neurodivergent participants had a greater reported percentage (90%) of strongly agreed or agreed that “the amount of time I spend doing research is meaningful” compared to NT participants (72%) (**Figure 3F**). More survey data is available in **Appendix A** and included questions that did not see differences like “My mentor explains clear goals and direction for my research/project,” and “I have a lot of personal influence in my research” (**Appendix A, Figure 7**).

Overall, the students surveyed had a relatively positive experience. The largest amount of disagreement came from the question “I have a lot of personal influence in my research,” which was ~15% of undergraduate researchers (**Appendix A, Figure 7**). This fits with the common

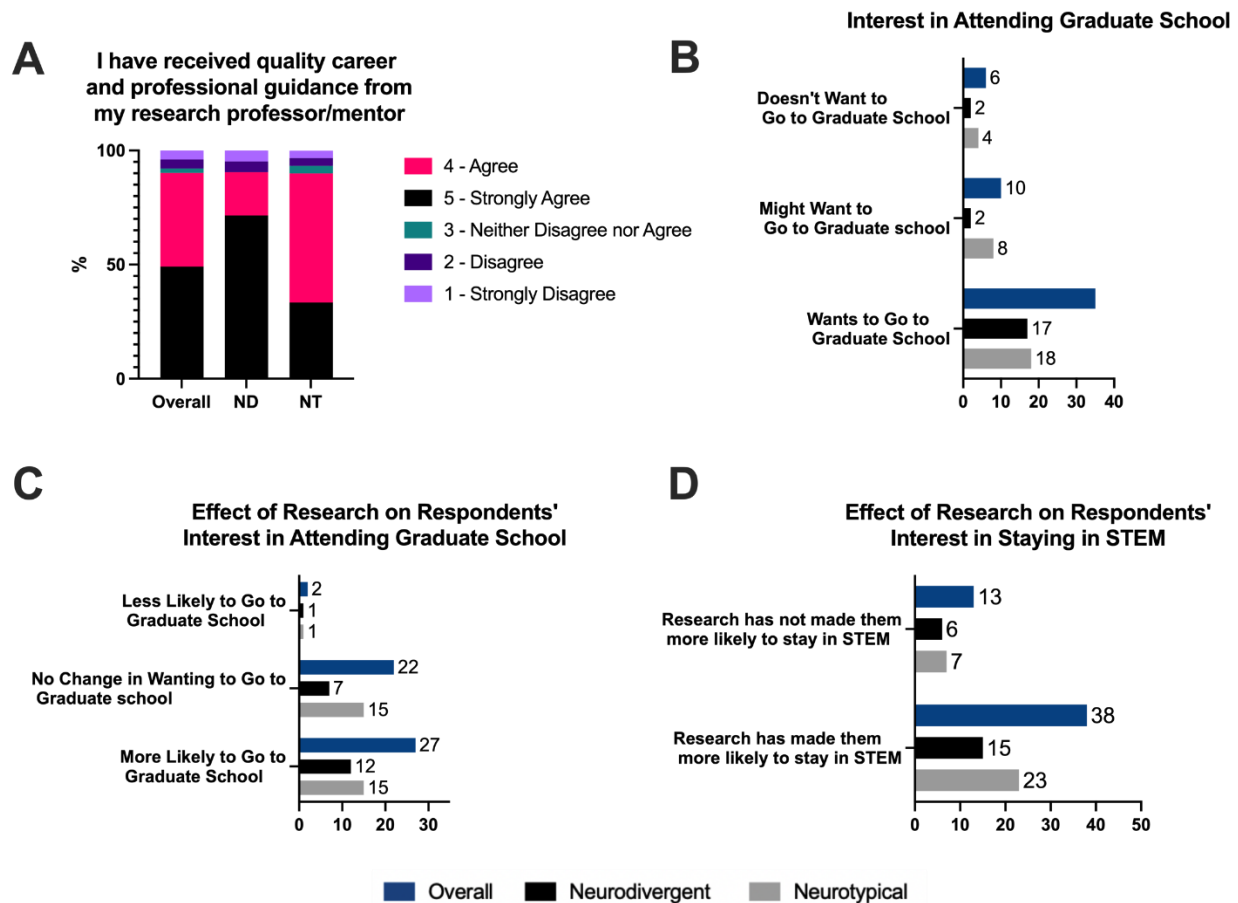


mode of providing project-oriented goals to undergraduate researchers and not large ambiguous research aims that is more commonly done in graduate school training.

### *STEM Research - Future Thinking*

We next sought to understand the impact of undergraduate research on ND and NT individual future career plans. Previous research has indicated that participation in undergraduate research opportunities significantly increases the chance of individuals pursuing graduate school [23]. With the desire to increase representation and diversity in graduate school programs, we sought to understand if participation in undergraduate research impacts career plans differently from ND to NT individuals. Both ND and NT participants had similar low percentages for disagreeing and strongly disagreeing that they received quality career and professional guidance from their research professor/mentor (**Figure 4A**). One major difference was in the percentages of those who strongly agreed; NT participants had a lower percentage that strongly agreed (30%) compared to ND participants (70%). When asked if their research was going to lead to a publication, more NT researchers responded in the affirmative, 53% vs. 33% (**Appendix A, Figure 8**). In terms of career and future goals, ND participants seemed to have a perception of better-quality career and professional guidance. This could be due to ND participants looking, asking, or perceiving more structure than their NT counterparts as was indicated in our question about transparent mentorship. It could also be due to ND students being more goal-oriented in participating in undergraduate research for the purpose of attending graduate school.

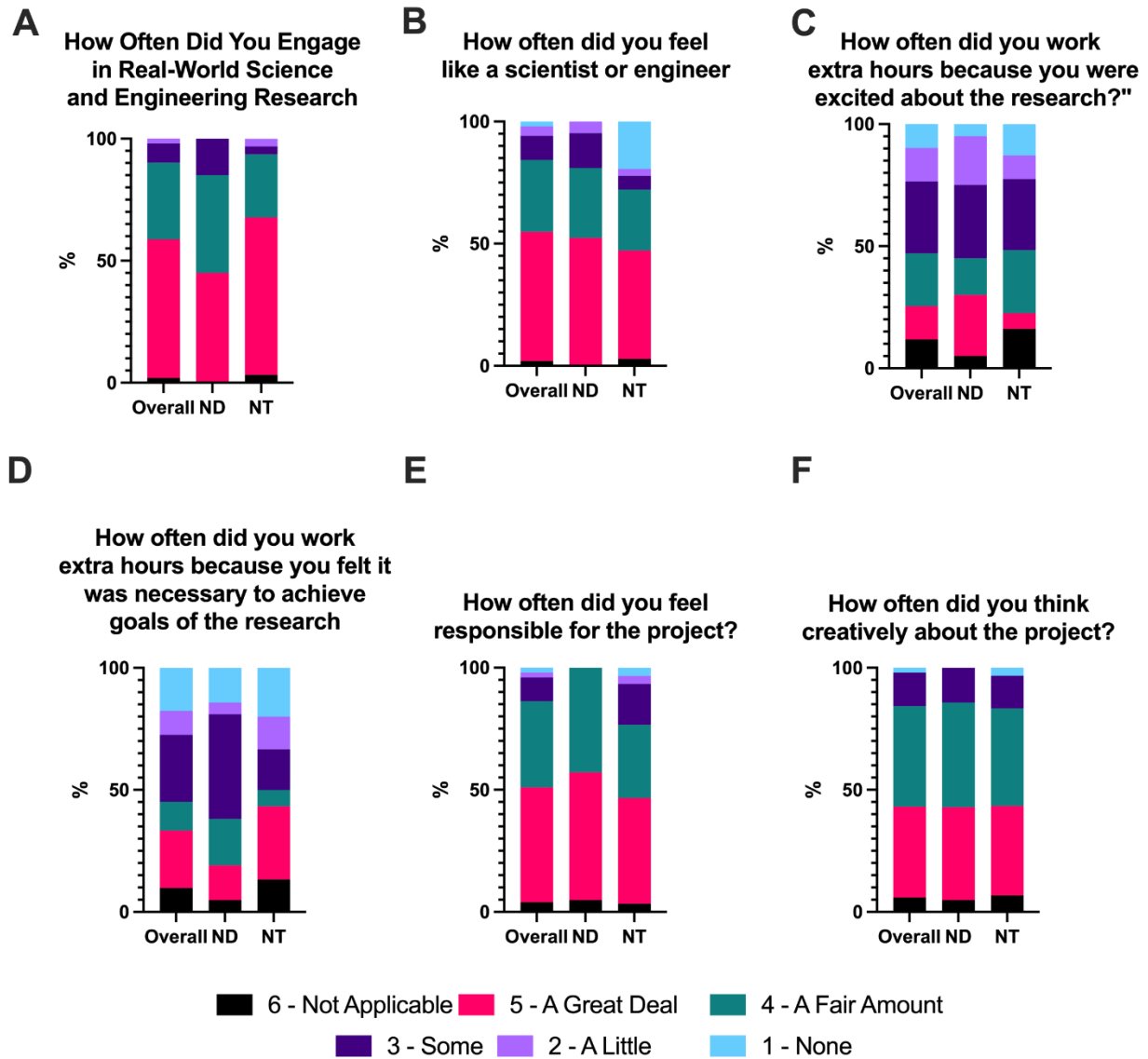
Neurodivergent participants had a similar percentage (90%) in comparison to NT participants (87%) towards an interest in attending graduate school (**Figure 4B**). Neurodivergent participants also indicated that research made them slightly more likely to go to graduate school (57%) compared to NT participants (50%) (**Figure 4C**). The data here suggests that research had a positive impact on ND participants, though more research is needed to fully establish these findings. Both ND and NT participants had a similar response that the time spent with their research mentor was well used (**Appendix A, Figure 8**). This data is important because ND individuals have high rates of departure from college and are underrepresented in graduate school [24]. Based on our initial results, it appears that research experiences might be beneficial for the retention of ND students in STEM and continuation into graduate school. Undergraduate research experience does have a direct impact on ND and NT students in pursuing graduate school. However, our data also indicates that there seems to be no difference between the two inquiries if the experience made them more interested in staying in STEM (**Figure 4**). Further studies are needed to understand if these differences are significant, as well as their long-term impact on the retention of ND students.



**Figure 4:** Questions to inquire on how **STEM Research** may or may not have influenced the participants thoughts on their professional **Future Thinking** associated with graduate school. 51 participants are included; 30 neurotypical and 21 neurodivergent participants.

### STEM Research - Community

We next wanted to understand how ND and NT individuals perceive themselves as part of the scientific community. Research has shown that a sense of belonging in STEM is a stronger predictor of persistence than general belonging [25]. Neurodivergent participants had a lower percentage, compared to their NT counterparts, in the perception of engaging in real-world science and engineering research (**Figure 5A**). However, ND participants had a higher percentage of those who felt like a scientist or engineer (**Figure 5B**). This could show that ND participants don't feel as though they participate as much in real-world STEM research in comparison to their counterparts but have a greater sense of belonging. However, this finding is anecdotal, and differences in these responses need further investigation to see if they are significant and meaningful.

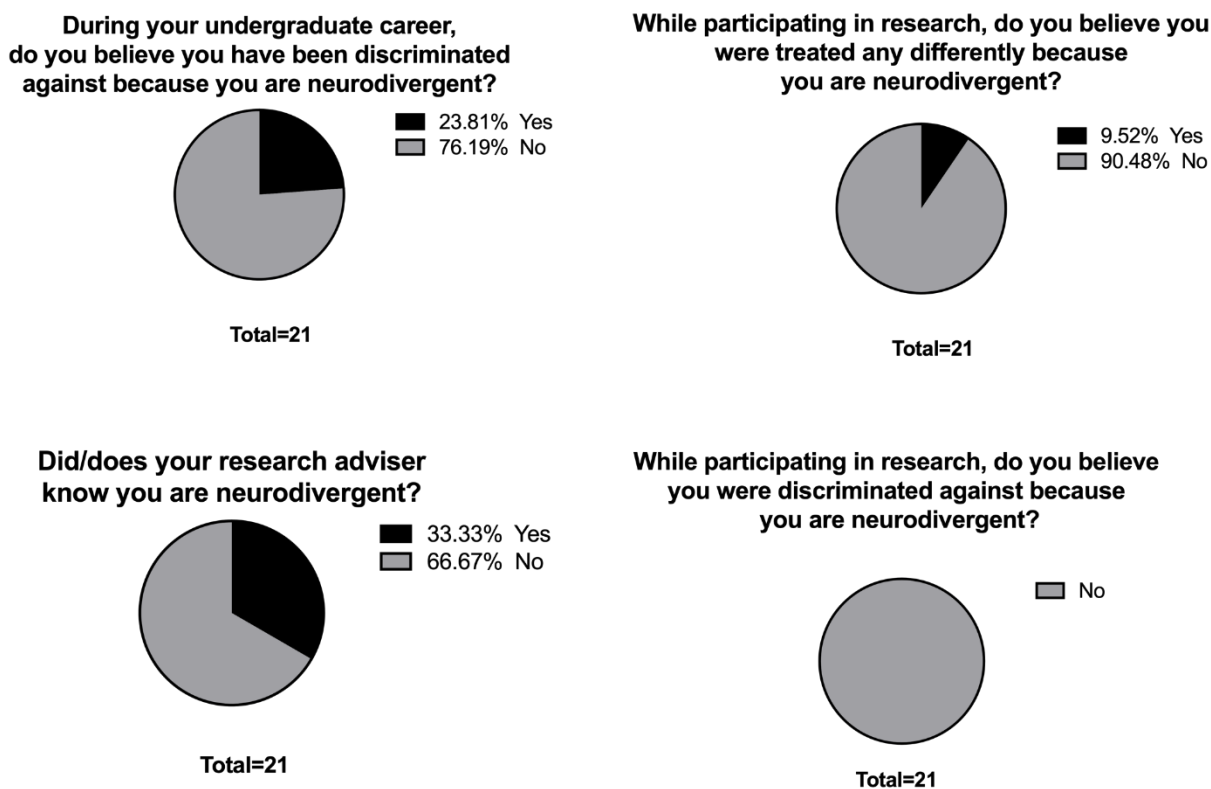


**Figure 5:** Likert scale questions around how the participants felt a sense of belonging in the general **STEM Research Community**. We include questions about belonging and responsibility towards their research project. 51 participants are included; 30 neurotypical and 21 neurodivergent participants.

Neurodivergent participants indicated they worked extra hours because they were excited about the research as opposed to NT participants who worked extra hours to achieve the goals of the research (**Figure 5C-D**). It's hard to say whether this difference is significant based on the sample, but it could show that ND participants are more likely to work extra hours if they are excited about the project, rather than feeling as though it's necessary. Special interests, also referred to as hyperfixations, are prevalent traits among ND individuals, particularly those with conditions such as autism and ADHD [26], [27]. It could be that ND individuals select research topics that align with their special interests and therefore spend more time with their work due to

being excited by it. Neurotypical participants had a higher percentage (30%) than ND participants (0%) to say that they felt responsible for their project some, little, or not at all, indicating that ND participants might feel more responsible for their project rather than their counterpart (**Figure 5E**). Neurodivergent and neurotypical had similar responses about the creativity of their project (**Figure 5F**). Similar answers were also observed with most of the questions, such as how often the participant will try out new ideas or procedures, and how often the participant engaged with the broader community (**Appendix A, Figure 9**).

### *Discrimination of Neurodivergent Participants*



**Figure 6:** We inquired yes/no questions around discrimination during their undergraduate career and specific to their participation in research. Only the 21 neurodivergent participants that were active in STEM related research were polled.

As was previously stated, ableism is an issue in Academia [22]. We, therefore, wanted to explore if the ND undergraduate researchers surveyed felt as though they had been discriminated against. Five ND participants who did STEM research responded that they had been discriminated against in their undergraduate career because they are ND (24%) (**Figure 6**). We then asked if ND researchers felt as though they were treated any differently during their research activities because they were ND, in which 10% (two participants) responded in the affirmative. Being treated differently is not indicative of a negative response (**Figure 6**). For example, a ND individual with dyslexia might receive more feedback on their writing than their NT counterpart.

This would not be a negative difference, but instead an enhanced support of an ND researcher. Therefore, we asked students if they felt as though they had been discriminated against while participating in research. Excitingly, no ND participants who participated in STEM research believed they had been discriminated against because they are ND. This is a promising finding; however, neurodivergent researchers are not required to disclose their neurodivergence, and many choose not to. Therefore, these results could be due to not informing people of their neurodivergence or masking to fit in [28]. Masking may cause others to assume they are NT, and they won't be discriminated against because of this assumption.

## **Conclusions and Future Inquiries**

The goal of this study was to investigate and understand the perspectives of neurodiverse students in undergraduate research, specifically their priorities in community, culture, and future prospects. We received 96 completed responses from an almost equal percentage of ND and NT individuals. We explored how students were compensated for their undergraduate research experience (credit, volunteer, or paid). There were fewer ND individuals who were paid compared to NT in the study. Future work could explore if there are paid research disparities among ND participants. When we asked the survey recipients why they were not involved in undergraduate research, the majority said it was because they were unsure how to get involved. When investigating the relationship and culture of the laboratory spaces of STEM undergraduate researchers, we found that ND participants had a larger percentage indicated strongly agree or agree with having transparent mentoring styles with their mentor (90%) compared to NT participants (60%). Next, we looked at future outlooks and found that ND and NT participants had a similar percentage of interest in attending graduate school. When looking at the research environment, we found that ND participants worked extra hours because they were excited about the research, and NT participants worked extra hours to achieve the goals of the research. We hypothesize this difference could be due to ND individuals aligning their research interests with their special interests; however, additional inquiry is needed to understand if there is a correlation. Lastly, we looked at whether ND individuals experienced discrimination. As undergraduate students, 24% said they experienced discrimination. Excitingly, 0% of ND individuals experienced discrimination during their research experiences, which is a very promising, and hopeful, finding.

It should be noted that neurodiversity varies from person to person, and with who chooses to identify as ND or NT. We allow self-identification of ND, and therefore, the term could be inclusive of participants who do not have any formal diagnosis or accommodations. Further, we didn't define ND in the survey, and we expected those as part of the inclusionary group to be able to self-define and self-identify as such. However, we could, in the future, include a definition or provide some examples of conditions and disorders that fit under the term. We should also collect the subtype of students' neurodivergence if they are willing to disclose (ex:

dyslexic, ADHD, autism, OCD, etc...).

Most of the ideas gathered from this initial survey are primarily anecdotal and potentially circumstantial since we have not applied statistical analysis to our findings. Our next step is to investigate the best statistical analysis to use on these data to determine if any findings are significant. As first-pass investigation, we learned much about the approach to assessing ND and NT undergraduate researchers' experiences. These initial gathered ideas are still helpful, but another survey would need to be done with a larger sample size, and more direct questions, to get a more accurate and applicable result. Further, more open-ended optional boxes for participants to expand their thoughts could be very insightful. There are still a lot of lingering questions after this first survey, which an additional survey or interview responses could help answer.

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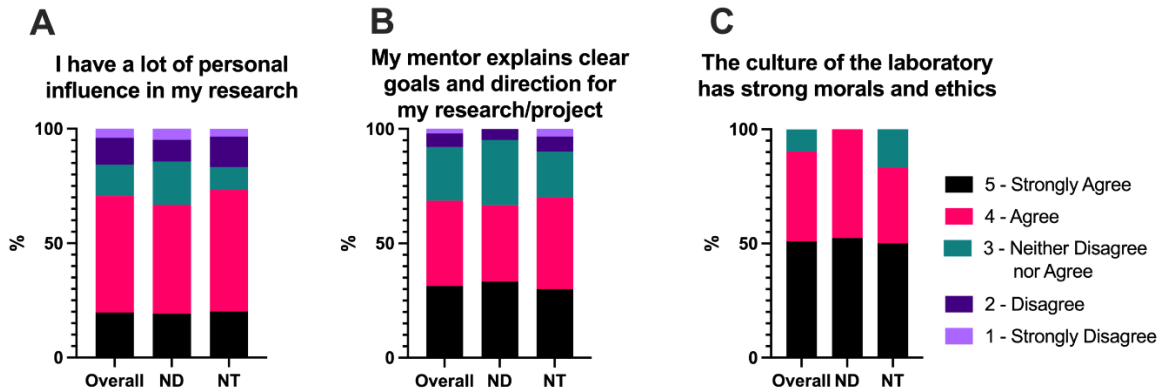
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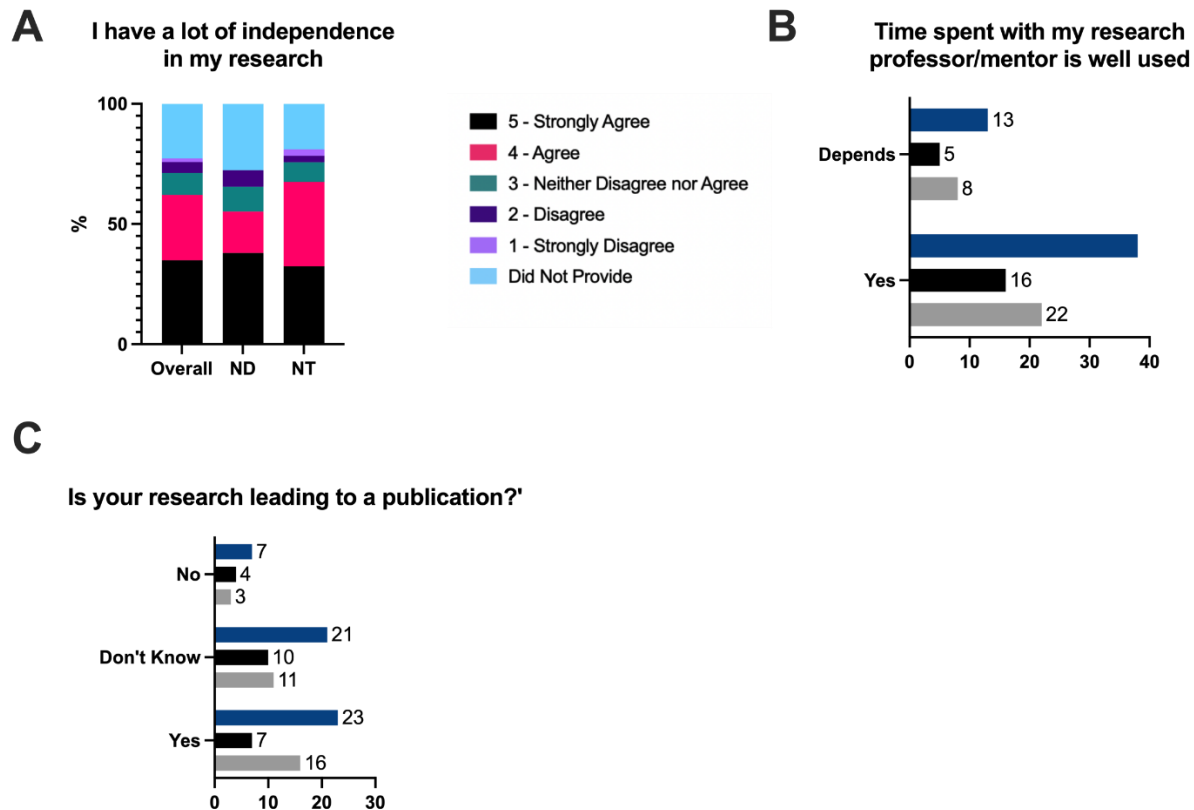


## Appendix A - Additional Data Figures

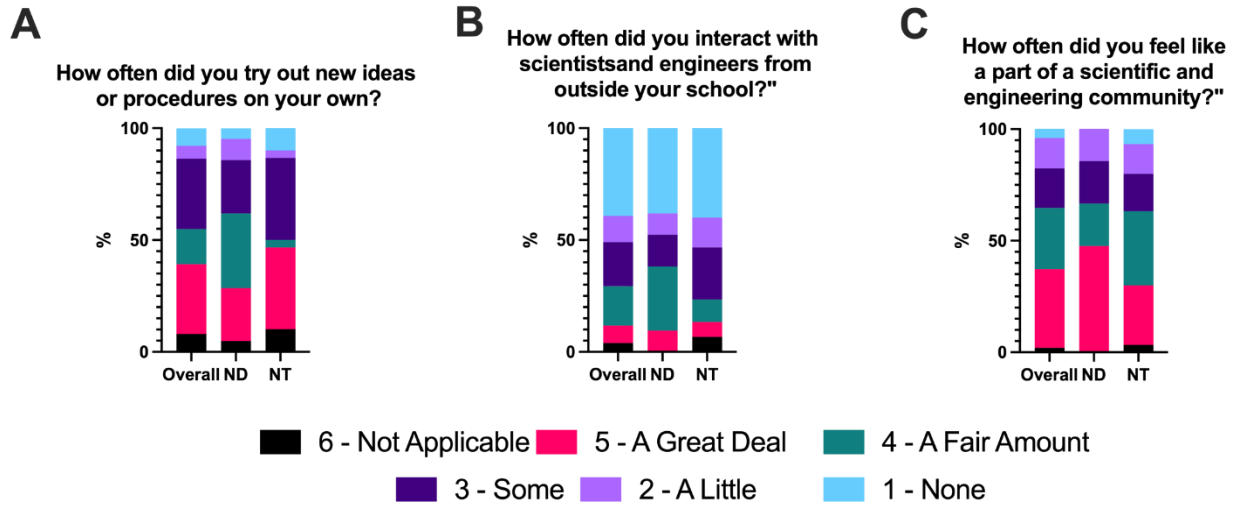
To share additional data received from the survey tool (**Appendix B**), we include additional data figures are included here. Description of these figures are contained in the main text.



**Figure 7:** Likert scale questions around *STEM Research - Relationships and Culture* centered on influence of research, clarity and direction of research, and laboratory culture around morals and ethics. The total amount of overall is 51 participants with 30 NT and 21 ND.



**Figure 8:** Three additional questions were asked to look at trends of independence of research and the value of time with their mentor. 51 participants are included; 30 neurotypical and 21 neurodivergent participants.



**Figure 9:** Likert scale questions around how the participants felt a sense of ownership with their research project and community. 51 participants are included; 30 neurotypical and 21 neurodivergent participants.

## Appendix B - Survey Tool

### Page1

- Q1: DOB (MM/YYYY)  
Q2: Major  
Q3: Minor  
Q4: GPA  
Q5: Expected graduation (MM/YYYY)  
Q6: Demographics:  
a. Gender  
b. Race/Ethnicity  
c. Are you Pell-grant eligible? [Yes/No]  
d. Do you identify as neurodivergent? [Yes/No]  
Q7: Have you participated in academic research? (Currently or previously) [Yes/No]  
a. Were you paid for these opportunities? [Yes/No/In part]  
b. Did you receive credit for these opportunities? [Yes/No/In part]  
c. Did you volunteer for these opportunities? [Yes/No/In part]

### Page2: If NO to "Have you participated in academic research"

- Q8: Why have you not participated in Academic Research? Check all that apply:  
Too focused on studies/grades  
Unsure how to get involved  
Perceived insufficient knowledge or experience  
Rejected when applied  
Other [write in]

*End Survey*

### Page3: If YES to "Have you participated in academic research"

- Q9: Was your Research STEM related? [Yes/No]  
o If NO – End Survey  
o If YES - Continues on Page 4

### Page4:

- Q10: What college was your research based?  
Q11: What department was your research professor/mentor based in?  
Q12: How many months did you participate in research?

Q13-24: During your most recent research experience, on a scale from 1 (strongly disagree) to 5 (strongly agree), please rate the following statements:

- 1 = Strongly Disagree  
2 = Disagree  
3 = Neither Disagree nor Agree  
4 = Agree  
5 = Strongly Agree

- Q13: I have a positive relationship with my research professor/mentor  
Q14: I have a positive relationship with my research group members

- Q15: My laboratory peers collaborate and support each other
- Q16: My research professor/mentor has transparent mentoring styles
- Q17: I have been given transparent research expectations
- Q18: The culture of the laboratory has strong morals and ethics
- Q19: My mentor explains clear goals and direction for my research/project
- Q20: The amount of time I spend doing research is meaningful
- Q21: I have a lot of independence in my research
- Q22: I have a lot of personal influence in my research
- Q23: My overall research experience is positive
- Q24: I have received quality career and professional guidance from my research professor/mentor

- Q25: Do you want to go to graduate school? [Yes/Maybe/No]
- Q26: Is this research experience making you more likely or less likely to go to graduate school? [More likely/No change/Less likely]
- Q27: Has being involved with research helped keep you in STEM? [Yes/No]

Q28-31: During your most recent research experience, how many times do you engage in written communication with your professor/mentor? (times per week)

- Q28: Email:
  - a. Actually Communicate \_\_\_\_\_ Would Like to Communicate \_\_\_\_\_
- Q29: Text:
  - a. Actually Communicate \_\_\_\_\_ Would Like to Communicate \_\_\_\_\_
- Q30: Slack/Discord Chat:
  - a. Actually Communicate \_\_\_\_\_ Would Like to Communicate \_\_\_\_\_
- Q31: Other (please specify):
  - a. Actually Communicate \_\_\_\_\_ Would Like to Communicate \_\_\_\_\_

Q32-35: During your most recent research experience, how often do you meet with your professor/mentor? (hours per week)

- Q32: In-person Individual (one on one):
  - a. Actually Meet \_\_\_\_\_ Would Like to Meet \_\_\_\_\_
- Q33: In-person Group Meetings:
  - a. Actually Meet \_\_\_\_\_ Would Like to Meet \_\_\_\_\_
- Q34: Over Zoom/Teams:
  - a. Actually Meet \_\_\_\_\_ Would Like to Meet \_\_\_\_\_
- Q35: Other (please specify):
  - a. Actually Meet \_\_\_\_\_ Would Like to Meet \_\_\_\_\_

Q36: The time spent with my research professor/mentor is well used.  
[Yes/Depends/No]

Q37-45. During your most recent research experience, HOW OFTEN did you:

- 1 = None
- 2 = A Little
- 3 = Some
- 4 = A Fair Amount

5 = A Great Deal

6 = Not Applicable

- Q37: Engage in real-world science and engineering research
- Q38: Feel like a scientist or engineer
- Q39: Think creatively about the project
- Q40: Try out new ideas or procedures on your own
- Q41: Feel responsible for the project
- Q42: Work extra hours because you were excited about the research
- Q43: Work extra hours because you felt it was necessary to achieve goals of the research
- Q44: Interact with scientists and engineers from outside your school
- Q45: Feel like a part of a scientific and engineering community
  
- Q46: Is your research leading to a publication? [Yes/Don't know/No]

- If yes to "Do you identify as neurodivergent"

Goes to Page 5

**Page5:**

- Q47: During your undergraduate career, do you believe you have been discriminated against because you are neurodivergent? [Yes/No]
- Q48: Did/does your research adviser know you are neurodivergent? [Yes/No]
- Q49: While participating in research, do you believe you were treated any differently because you are neurodivergent? [Yes/No]
- Q50: While participating in research, do you believe you were discriminated against because you are neurodivergent? [Yes/No]