

NHERI User Satisfaction Survey of Known NHERI Site Users Results  
2024

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Funded by the National Science Foundation, CMMI-1612144.

February 18th, 2025

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# NHERI User Satisfaction Research

The National Science Foundation (NSF) requires the Natural Hazards Engineering Research Infrastructure (NHERI) to conduct user satisfaction research on an annual basis. The User Forum User Satisfaction Subcommittee conducted this survey to fulfill this requirement for the program's eighth year.

## Year Eight User Satisfaction Survey

The 2024 survey instrument closely mirrored the 2023 version, maintaining a mixed-response format that captured qualitative and quantitative data. Consistent with the 2023 survey, the NHERI User Forum's user satisfaction subcommittee targeted 'known NHERI users' for participation, with an additional targeted recruitment strategy to solicit additional graduate student responses. This group includes *any* individual who has engaged with any component of the NHERI network in the past year, such as facilities, resources, workshops, or tools. Known NHERI users encompass a broad range of NHERI stakeholders, including graduate students, facility site staff, workshop participants, Principal Investigators (PIs), and Co-PIs. In addition to measuring several key dimensions of user satisfaction with NHERI resources and tools more broadly, the 2024 survey included additional questions specifically addressing graduate student experiences across the NHERI network. These questions were added to the 2024 instrument in response to the NHERI Graduate Student Council's (GSC) assessment needs and ongoing collaborations between the GSC and the User Forum. These new questions were designed to support program development and the evaluation of GSC resources and programmatic structure, targeting both graduate students and those who work closely with them.

The survey was open from June 15th, 2024, to October 15th, 2024. To identify known users, NHERI Educational and Community Outreach (ECO) personnel collaborated with the User Forum. ECO personnel played a key role in participant recruitment, using platforms such as Slack, social media, and a dedicated email list of NHERI-affiliated users. Additionally, User Forum members directly solicited survey responses at the Summer Institute, which took place from June 12th to June 14th, 2024. Data collection was conducted using the Qualtrics online survey platform, with the extended data collection period aimed at maximizing response rates and increasing the sample size compared to previous years. Invitations and follow-up reminders were sent via email to a broad list of NHERI affiliates. The initial invitation clarified the survey's target audience and purpose, and encouraged recipients to share the survey with Co-PIs, post-doctoral researchers, graduate students, and others who had used NHERI services. Two reminder messages were sent throughout the survey period to further encourage participation. A total of 78 users began the survey, and 76 confirmed their participation. Due to the nature of the request for known users to share the survey with others, it is not possible to calculate a precise response rate.

## Overall Findings Summary

The 2024 survey yielded quantitative and qualitative data on various dimensions of user satisfaction. Responses to demographic questions indicate most NHERI facility users are male and hold PI or graduate student researcher positions. In fact, 36% of all respondents identify as graduate students while roughly half identify as early career researchers (49%).

Feedback derived from quantitative data suggests respondents had overall positive experiences with NHERI facilities and resources, and responses to the ‘Big 4’ questions reflect users’ positive attitudes toward NHERI. In these questions, most respondents agreed or strongly agreed that NHERI had helped advance research collaborations within the natural hazards research community (92.00%) and that their research had been enhanced through NHERI resources and/or their connection to the NHERI components (76.00%). Similarly, a majority of respondents indicated they would write a future grant proposal that would involve the use of NHERI resources (65.00%). Alongside positive responses with the NHERI network more broadly, there was a noticeable decrease in the proportion of respondents who were familiar with the NHERI Science Plan. Perhaps reflecting the number of respondents surveyed who identify as graduate student or early career researchers, roughly half of all respondents indicated they had not reviewed the NHERI Science Plan or were Unsure if they had reviewed the NHERI science plan (49.00%). Even so, these responses, combined with the remaining feedback provided by respondents, demonstrate the value of NHERI resources and services to the natural hazards research community.

Regarding interaction with and utilization of NHERI facilities and resources in the proposal process, all non-graduate student respondents were at some point in the proposal and research process. Of the responses received for Question 8, 13.00% were actively performing experiments/using the SimCenter, and 14.00% had either completed experiments or had completed experiments and were working on the next proposal. The remaining 77.00% had yet to begin utilizing facilities or were writing their first proposal. With regard to the intended utilization of NHERI data, 76.00% of respondents reported wanting to (a) both access and use data and produce and upload original data or (b) produce and upload original data. Only 24.00% of respondents reported intending to exclusively utilize pre-existing data.

Regarding satisfaction with information about NHERI facilities and resources, NHERI staff, scheduling, equipment, support resources, data utilization and interface, and online resources and tools, respondent feedback was largely positive and similar to feedback from previous surveys. In cases where feedback was less than favorable, respondents took the opportunity to provide constructive feedback in open-ended questions. Several questions from previous user satisfaction surveys were repeated in 2024. However, perhaps due to the respondents’ early career and graduate student composition of the sample, a sizable proportion of responses to site and component-specific questions on user satisfaction were rated as ‘neutral’ or ‘not applicable/cannot rate’ throughout. On balance, substantive respondent feedback in 2024 on repeated questions was as positive as it was in 2023.

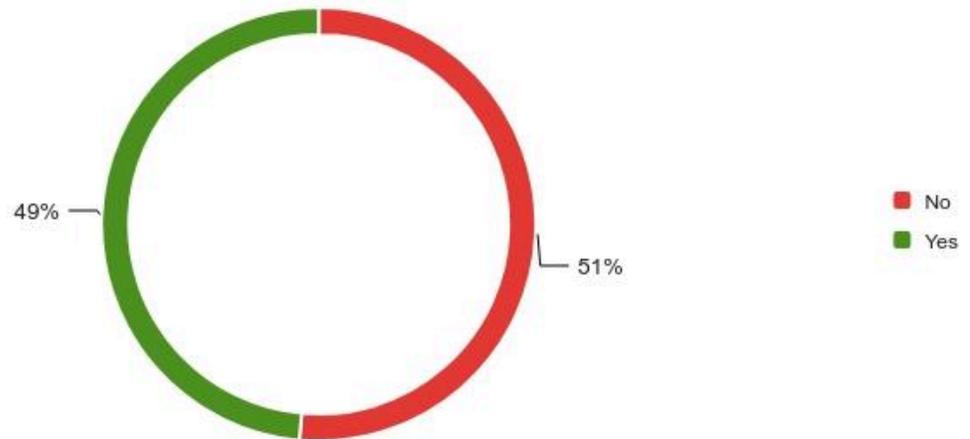
Qualitative data on NHERI facilities, staff, and resources yielded critical feedback that was detailed and constructive. Given the limited number of respondents compared to the number of presumed active users in the NHERI community, it is important to note that the qualitative and quantitative findings presented here are non-generalizable. The findings of this report should thus be interpreted with caution and used as contextual insight into NHERI researchers' experiences with the NHERI network. That is, these results should be used to consider ways to refine and improve NHERI's offerings in future programmatic efforts.

The following sections discuss item-level findings in depth. A copy of the survey instrument and comprehensive qualitative data are attached to this report as Appendices A and B. A summary of graduate student only responses to questions added in collaboration with NHERI GSC is attached to this report as Appendix C.

### Item-Level Data

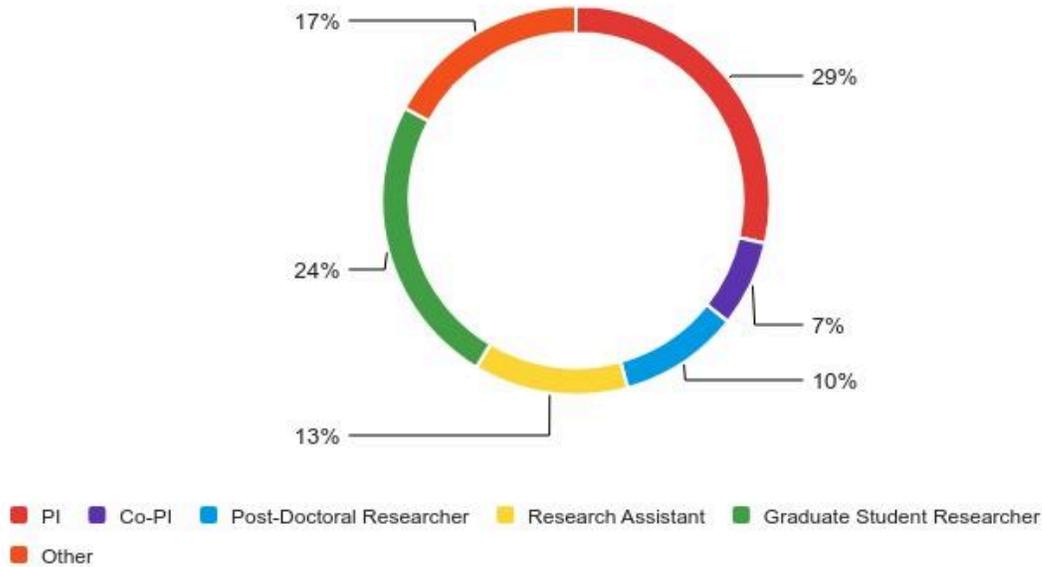
This section provides detailed, question-level data. The question in the survey that deals with informed consent and agreement to participate is excluded from this section.

#### Q1-Do you consider yourself an early career researcher? (N=70)



This question was included in the 2024 NHERI user satisfaction survey instrument as part of a trio of questions designed to capture demographic data on user satisfaction survey participants. 49.00% of respondents do consider themselves early career researchers, and the remaining 51.00% of respondents do not consider themselves early career researchers.

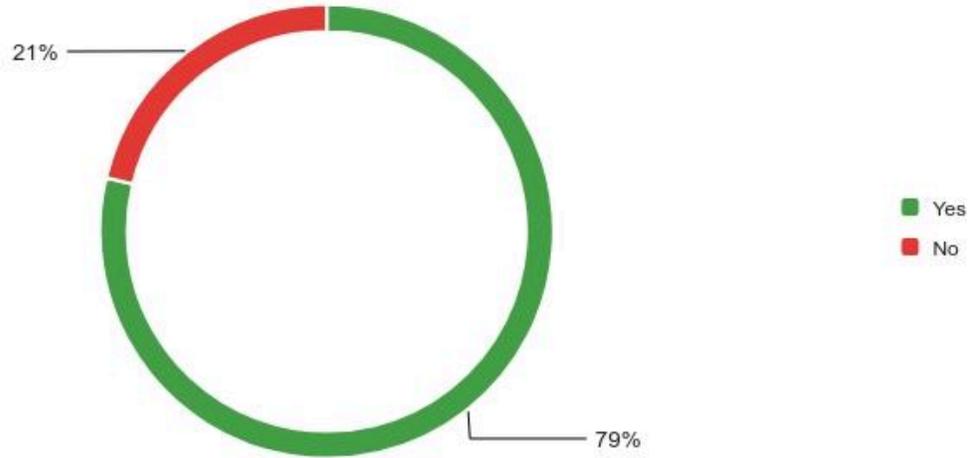
**Q2-Which of the following best describes your position? (N=70)**



This question was included in the 2024 NHERI user satisfaction survey instrument as part of a trio of questions designed to capture demographic data on user satisfaction survey participants. Reflective of the proportion of respondents that consider themselves early career researchers, just under half of all respondents indicated they identified as a Graduate Student Researcher (24.00%), Research Assistant (13.00%), or Post-Doctoral Researcher (10.00%) at the time of data collection. A smaller proportion of participants indicated they held positions as PI (29.00%) or Co-PI (7.00%), with a non-negligible proportion of remaining respondents indicating they held ‘Other’ (17.00%) positions at the time they took the survey. Respondents who indicated they held an ‘Other’ position were prompted to report their role via text. Verbatim responses include ‘Undergraduate Student,’ ‘Student,’ ‘Public Affairs,’ ‘Professor,’ ‘Facilities Manager,’ ‘Regional Innovations Systems Strategist,’ and ‘Business Owner.’

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**Q3-As part of your position, do you work with Graduate Students? (N=33)**

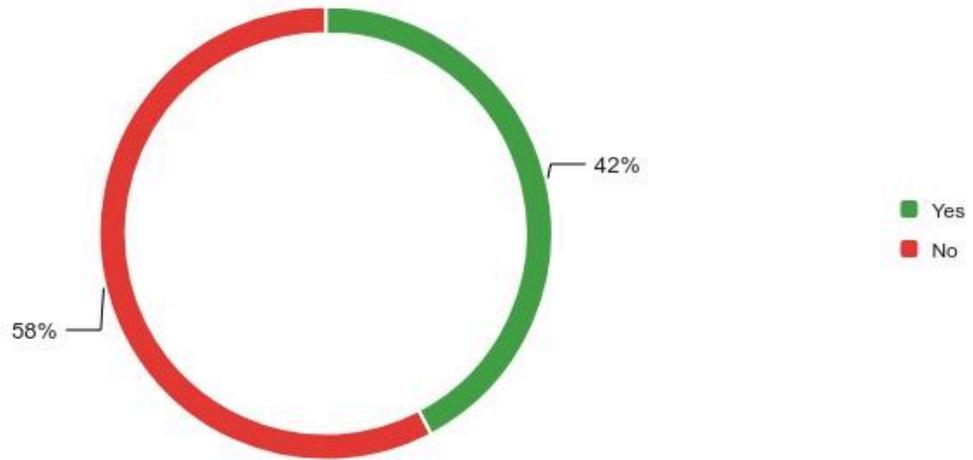


This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. If respondents indicated they held a non-student position, they were asked if they worked with graduate students. A majority of non-student respondents indicated they worked with graduate students (79.00%), with the remaining respondents indicating they did not work with graduate students (21.00%).

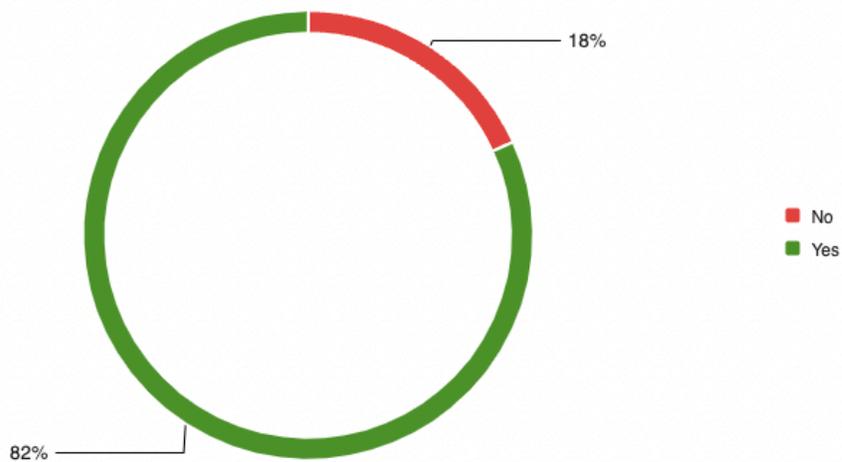
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**Q4-The NHERI Graduate Student Council (GSC) offers support for graduate students interested in natural hazards research. Are you familiar with NHERI GSC's programming? (N=25)**

**Non-Graduate Student Responses:**



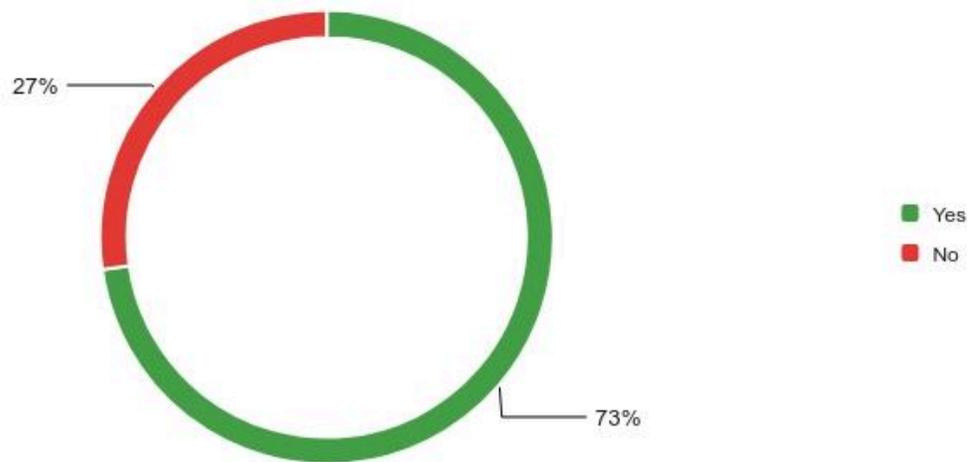
**Graduate Student Responses:**



This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. Both

student and non-student respondents who indicated they worked with graduate students were asked about their familiarity with GSC programming. A majority of non-student respondents (58.00%) indicated they were not familiar with GSC programming (42.00% of non-student respondents indicated they were familiar with GSC programming). Conversely, a majority of student respondents (82.00%) indicated they were familiar with GSC programming (18.00% of student respondents indicated they were not familiar with GSC programming).

**Q5-Have you shared information about NHERI GSC with the Graduate Student(s) you work with? (N=11)**



This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. If non-student respondents indicated they worked with graduate students and were familiar with GSC programming, they were asked if they shared information about NHERI GSC with their graduate students. A majority of non-student respondents (73.00%) indicated they shared information with about NHERI GSC with their students. Remaining respondents (27.00%) had not shared information about NHERI GSC with their students.

**Q6A-Can you briefly describe why you did share information about NHERI GSC with the graduate student(s) you work with? (N=6)**

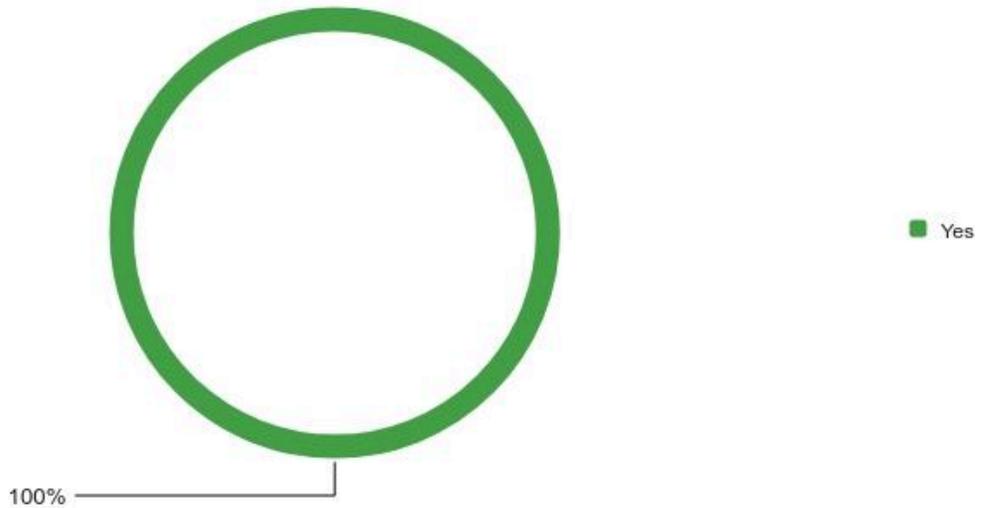
This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. If non-student respondents indicated they worked with graduate students and were familiar with GSC programming but **did share** information about NHERI GSC with their graduate students, they were asked to briefly share why.

**Q6B-Can you briefly describe why you did not share information about NHERI GSC with the graduate student(s) you work with? (N=2)**

This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. If non-student respondents indicated they worked with graduate students and were familiar with GSC programming but **did not share** information about NHERI GSC with their graduate students, they were asked to briefly share why.

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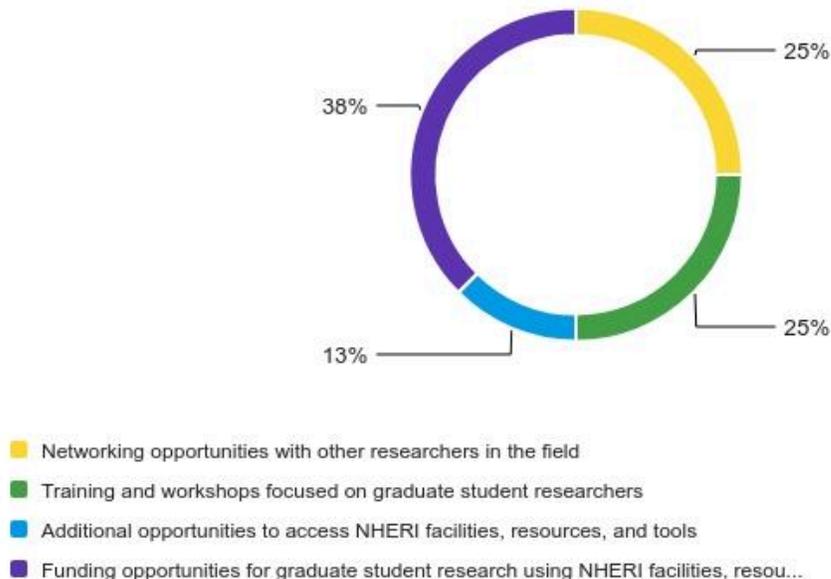
**Q7-Have you ever attended a NHERI GSC Event, such as the NSF Proposal Writing Workshop, Collaborative Workshops, or the GSC Mini-Conference and Research Challenge? (N=7)**



This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. If respondents indicated student status, they received a separate battery of questions. This question was designed to assess their familiarity and engagement with NHERI GSC resources. All respondents indicated they had attended a NHERI GSC Event (100.00%).

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**Q8-Which of the following types of support would you find most beneficial for your academic/research pursuits? (N=11)**

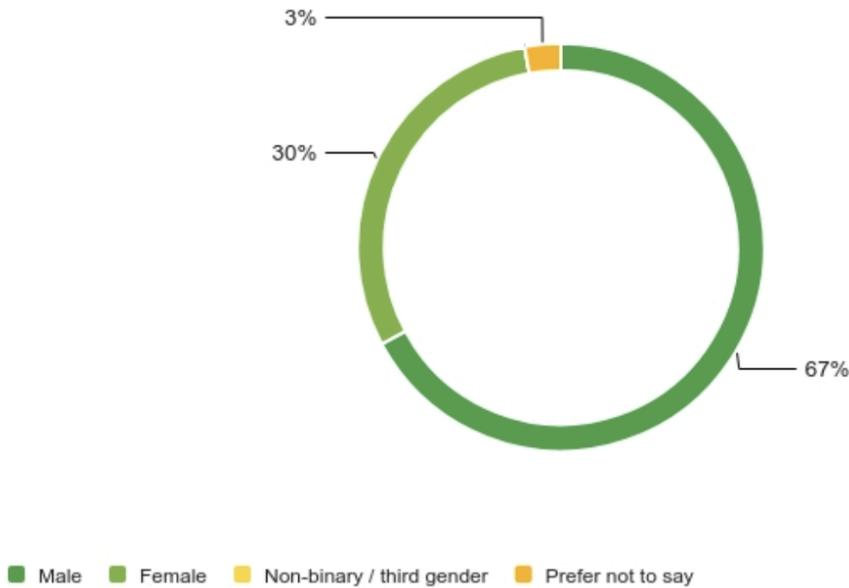


This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. If respondents indicated student status, they received a separate battery of questions. This question was designed to assess programmatic support needs. Responses reflect a range of programmatic support needs, with a majority indicating they would benefit from ‘Funding opportunities for graduate student research using NHERI facilities, resources, and tools’ (38.00%), followed by ‘Networking opportunities with other researchers in the field’ (25.00%) and ‘Training and workshops focused on graduate student researchers’ (25.00%). The fewest proportion of respondents indicated they would benefit from ‘Additional opportunities to access NHERI facilities, resources, and tools’ (13.00%).

**Q9-In what specific ways do you think NHERI GSC could better support graduate students in the NHERI community? (N=2)**

This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. If respondents indicated student status, they received a separate battery of questions. This question was designed to assess general programmatic support needs in an open-ended manner. Respondents highlighted two priorities for graduate student respondents: (1) Manuscript Preparation/Publication Support and (2) Funding. Regarding (1) Manuscript Development/Publication, graduate student respondents expressed a desire for additional support “Helping student[s] publish” and “Training for [publishing].” Meanwhile, regarding (2) Funding, graduate student respondents indicate funding for “travel to conferences, workshops, [professional] development” as well as “Research awards...for grad student led proposals” and even a “small budget for socials” would be especially advantageous.

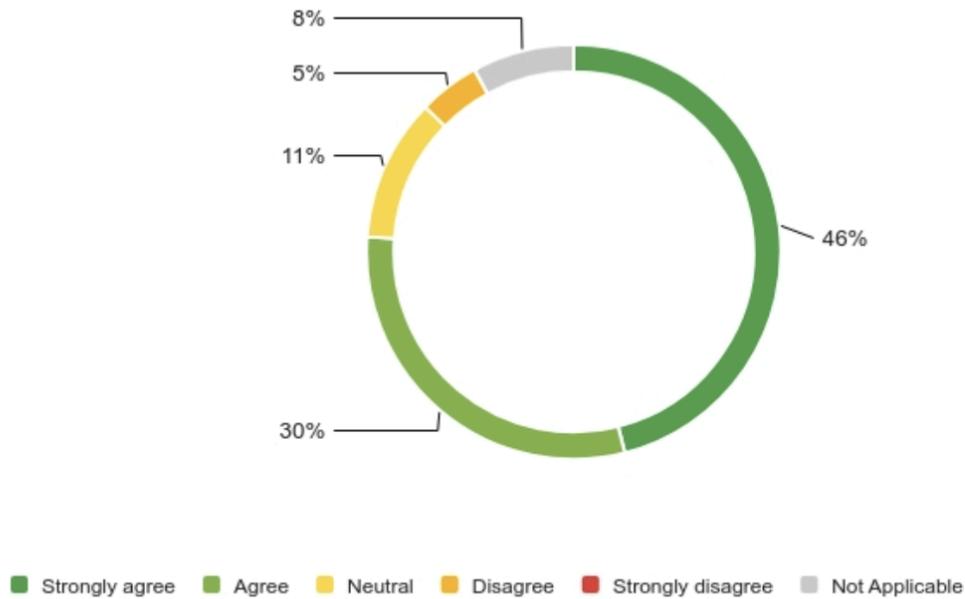
**Q10-Please select your gender. (N=70)**



This question was included in the 2024 NHERI user satisfaction survey instrument as part of a trio of questions designed to capture demographic data on user satisfaction survey participants. Based on feedback from previous NHERI user satisfaction survey instruments, responses were presented with the option to select gender identity from three categories: Male, Female, and Non-binary/third gender. Respondents were also given the option to withhold gender identity with the ‘Prefer not to say’ response category. A majority of respondents indicated they identify as Male (67.00%), with a smaller proportion of participants identifying as Female (30.00%) or indicating that they ‘Prefer not to say’ (3.00 %). No respondents reported identifying as Non-binary/third gender.

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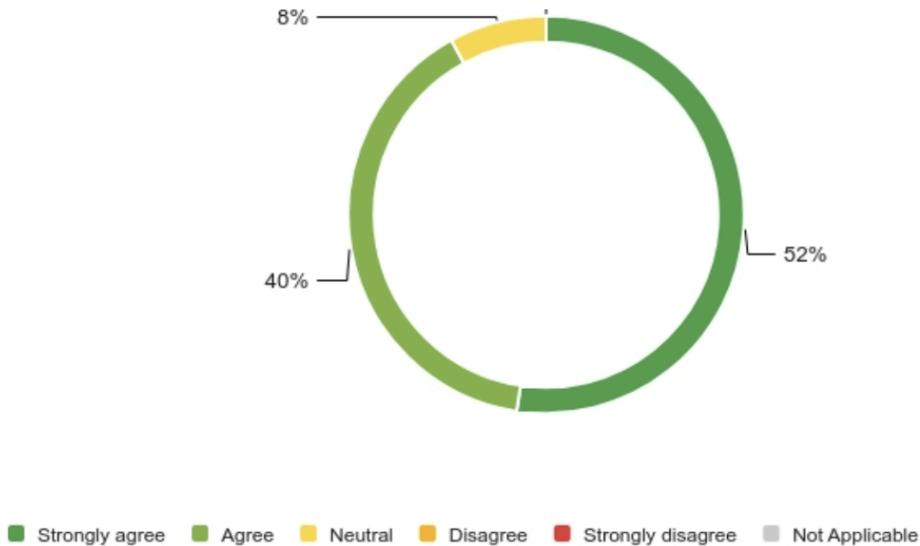
**Q11-My own research has been enhanced through my use of NHERI resources and/or my connection to the NHERI components. (N=63)**



This question was included in the 2024 instrument as part of a transition toward a short-form survey of user satisfaction known as ‘the big 4’ used in facility and component level assessment of user satisfaction. Most respondents Strongly Agreed (46.00%) or Agreed (30.00%) that their “own research has been enhanced” through their “use of NHERI resources/and or...connections to the NHERI components.” Remaining respondents were Neutral (11.00%), found this statement Not Applicable (8.00%). The smallest proportion of respondents Disagreed (5.00%) with this statement. No respondents Strongly Disagreed (1.56%) with this statement.

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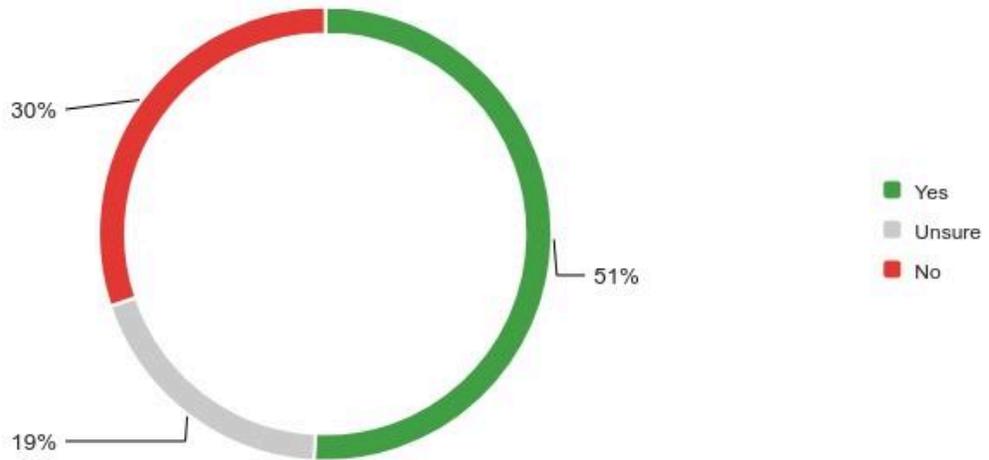
**Q12-The creation of NHERI has helped to advance research collaborations in the natural hazards research community. (N=63)**



This question was included in the 2024 instrument as part of a transition toward a short-form survey of user satisfaction known as ‘the big 4’ used in facility and component level assessment of user satisfaction. An overwhelming majority of respondents Strongly Agreed (52.00%) or Agreed (40.00%) that NHERI “has helped to advance research collaborations in the natural hazards research community.” The smallest proportion of respondents were Neutral (8.00%) to this statement, and no respondents Disagreed, Strongly Disagreed or found this statement Not Applicable.

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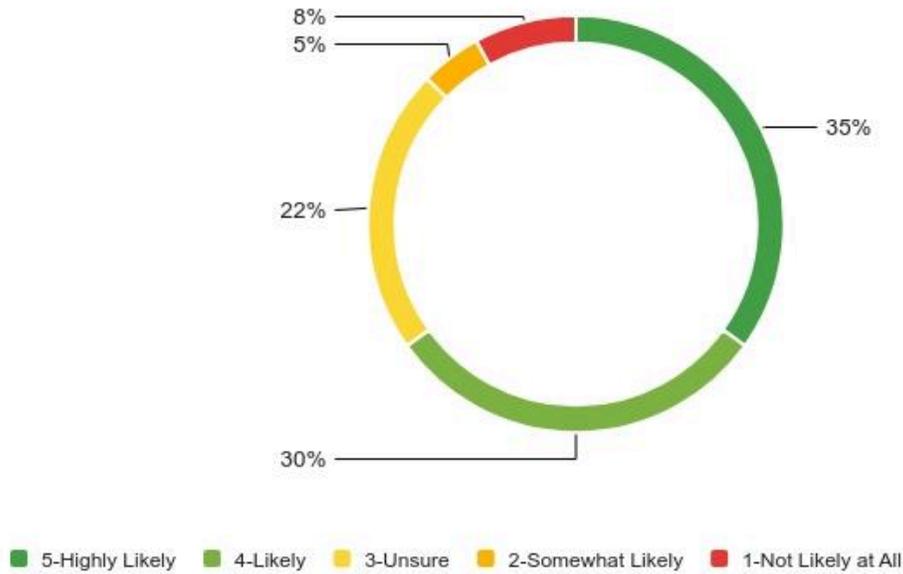
**Q13-I have reviewed the NHERI Science Plan - Version 1.0, Version 2.0, and/or Version 3.0 (N=63)**



This question was included in the 2024 instrument as part of a transition toward a short-form survey of user satisfaction known as ‘the big 4’ used in facility and component level assessment of user satisfaction. Similar to questions regarding the Science Plan in past versions, the substantive question was adjusted this year to reflect the release of the NHERI Science Plan 3.0. Just over half of all respondents indicated they had reviewed the NHERI Science Plan (51.00%). Remaining respondents indicated they had not reviewed the NHERI Science Plan (30.00%) or were Unsure (19.00%).

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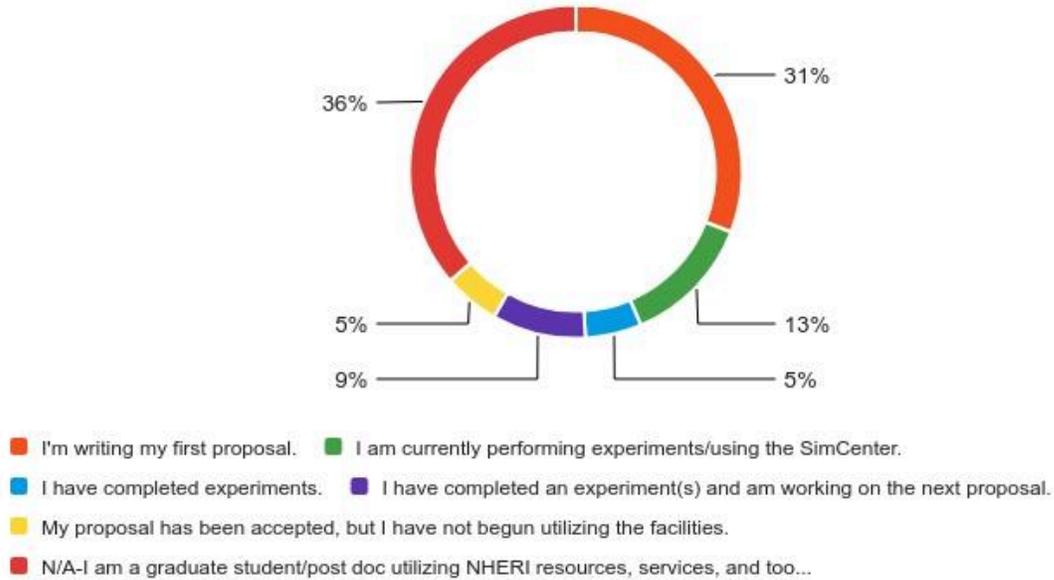
**Q14- On a scale of 1 to 5, how likely are you to write future grant proposals that will involve the use of NHERI resources? (N=63)**



This question was included in the 2024 instrument as part of a transition toward a short-form survey of user satisfaction known as ‘the big 4’ used in facility and component level assessment of user satisfaction. A majority of respondents indicated they were Highly Likely (35.00%) or Likely (30.00%) to write future grant proposals that will involve the use of NHERI resources. Remaining respondents were Unsure (22.00%), or indicated they were Not Likely at All (8.00%) to write future grant proposals that will involve the use of NHERI resources. The fewest proportion of respondents indicated they were Somewhat Likely (5.00%) to write future grant proposals that will involve the use of NHERI resources.

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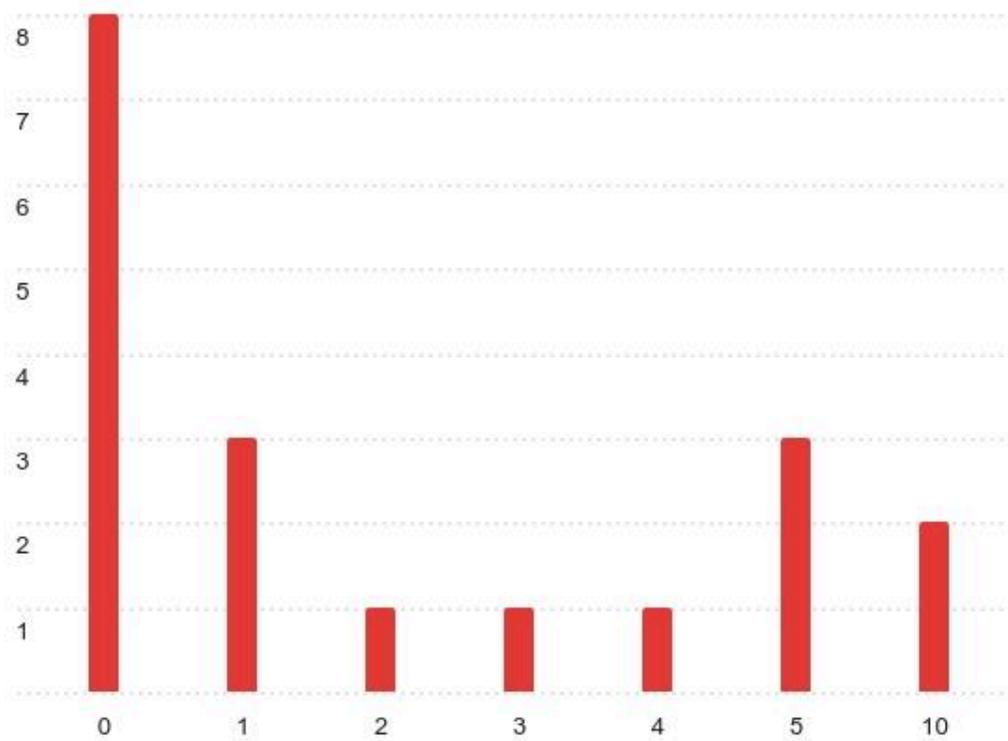
**Q15-Which of the following best describes your current position in the proposal process for NHERI Facilities and Resources? (N=55)**



This question was added to the user satisfaction survey in 2018 to provide more details about the NHERI user group’s interaction with NHERI through the proposal process. In 2024, most respondents indicated this question was not applicable as they identified as “a graduate student/post doc utilizing NHERI resources, services, and tools (e.g., DesignSafe data depot, SimCenter, etc.)” (36.00%). An similar proportion of respondents indicated they were writing their first proposal (31.00%) or that their proposal had been accepted, but they had not begun utilizing facilities (5.00%). Remaining respondents indicated they were currently performing experiments or using the SimCenter (13.00%), had completed an experiment(s) and were working on the next proposal (9.00%), or had completed experiments (5.00%).

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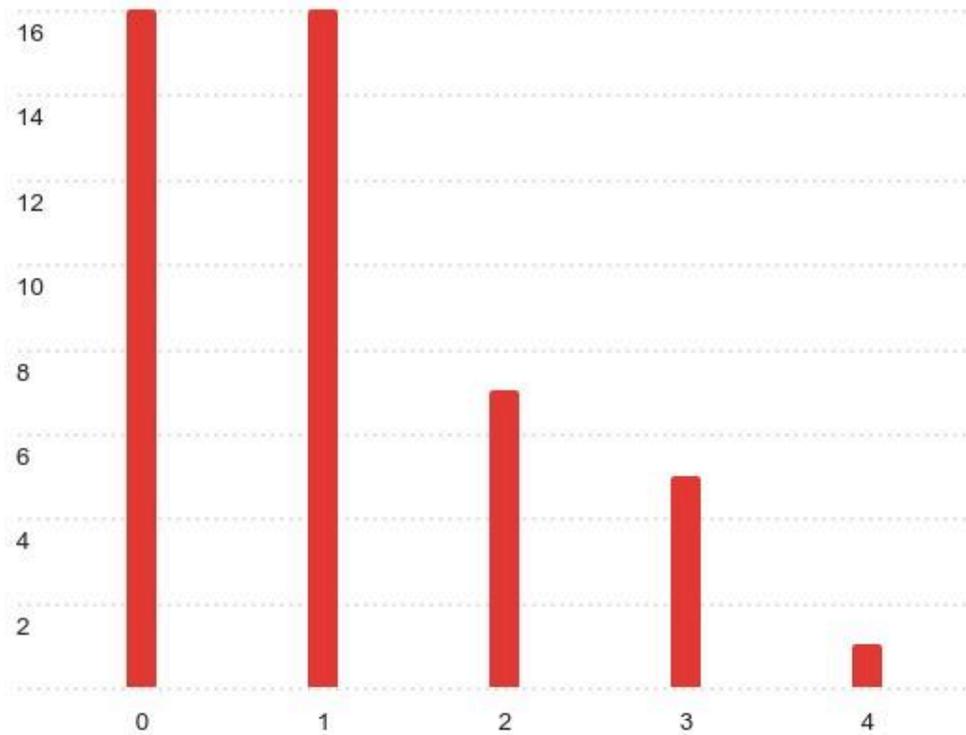
**Q16- How many proposals have you prepared that used either the NHERI Facilities and Resources? (N=78)**



Most respondents indicated they had not yet prepared a proposal that used NHERI facilities and resources, in line with the proportion of respondents that indicated previously they were working on their first proposal or were using NHERI resources, services, and tools. Remaining respondents indicated they prepared 1 to 10 proposals utilizing NHERI Facilities and Resources.

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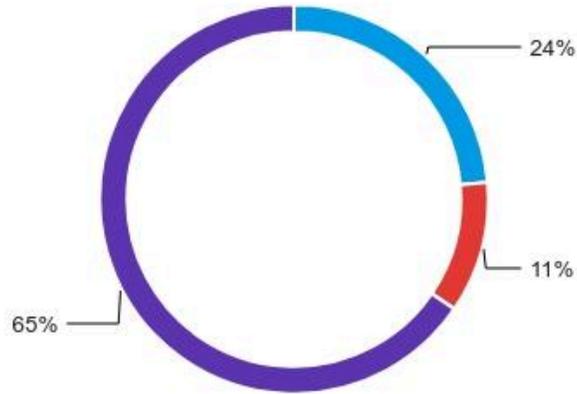
**Q17- How many facilities are you writing proposals for? (N=78)**



If participants indicated they were currently performing experiments, had completed experiments, or had completed experiments and were working on the next proposal they were asked to report how many facilities they are writing proposals for. Responses to this question ranged from 0 to 4, with most respondents reporting they are planning to use a single NHERI facility or no NHERI facilities.

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**Q18-Which of the following best describes how you intend to utilize NHERI Facilities and Resources and/or the Sim Center?? (N=55)**



- I only want to access and use data that has already been uploaded.
- I intend to produce and upload original data.
- I want to both access and use data, and produce and upload original data

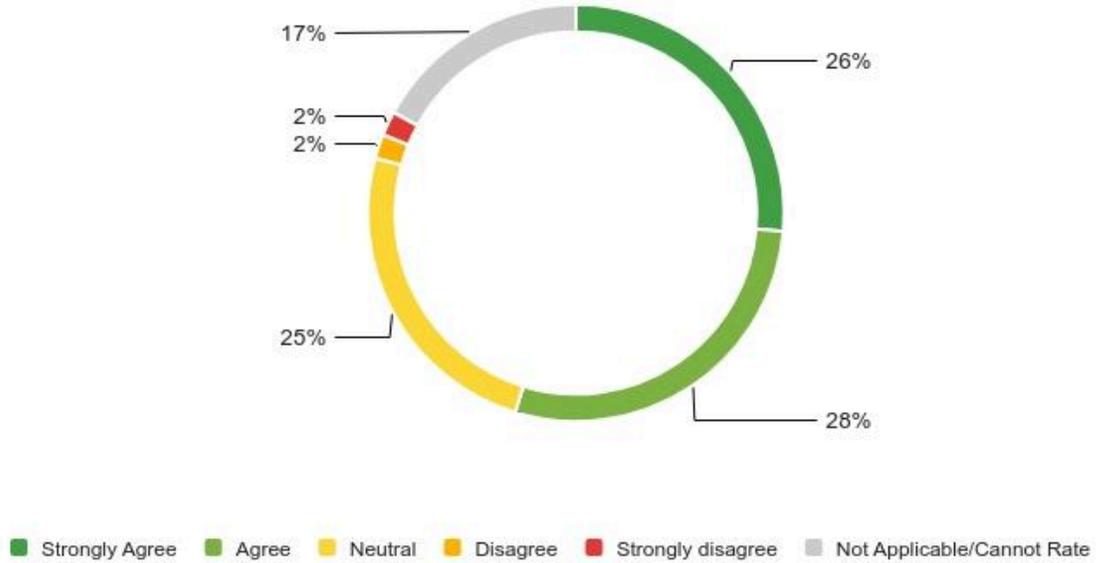
Most respondents (65.00%) reported wanting to both access and use data and produce and upload original data. A smaller proportion of respondents (24.00%) reported only wanting to access and use data that has already been uploaded, and the smallest proportion of respondents (11.00%) intend to produce and upload original data.

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**Q19-Regarding NHERI Data: (N=53)**

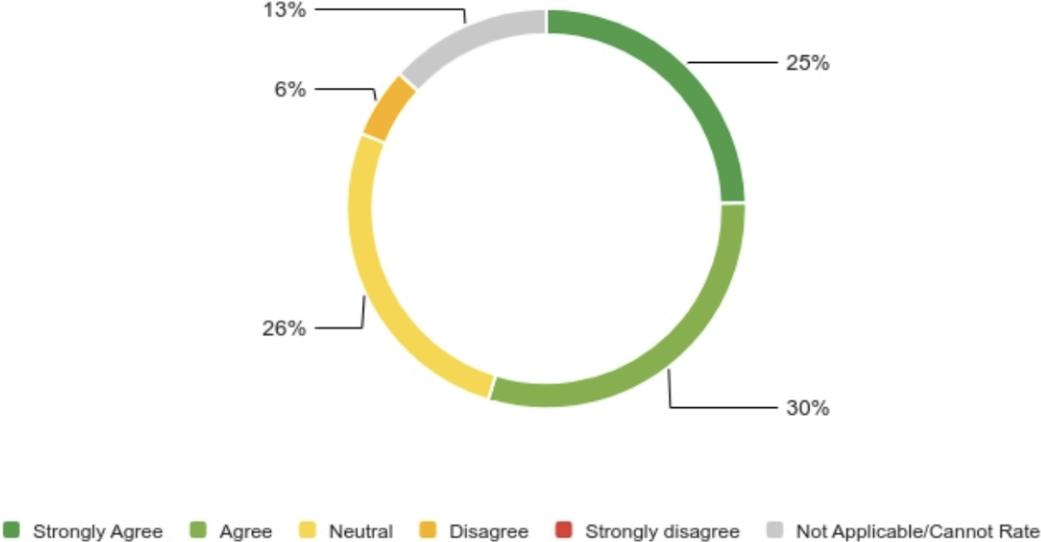
Respondents were asked to respond to six dimensions of satisfaction with NHERI data. Findings here are generally positive and consistent with responses to corresponding questions from previous surveys. However, perhaps reflective of an early career and new to the NHERI network population, a sizable proportion of responses to all six dimensions of satisfaction were reported as ‘Not Applicable/Cannot Rate,’ or ‘Neutral.’

**It's easy to locate the data that I want from my previous tests.**



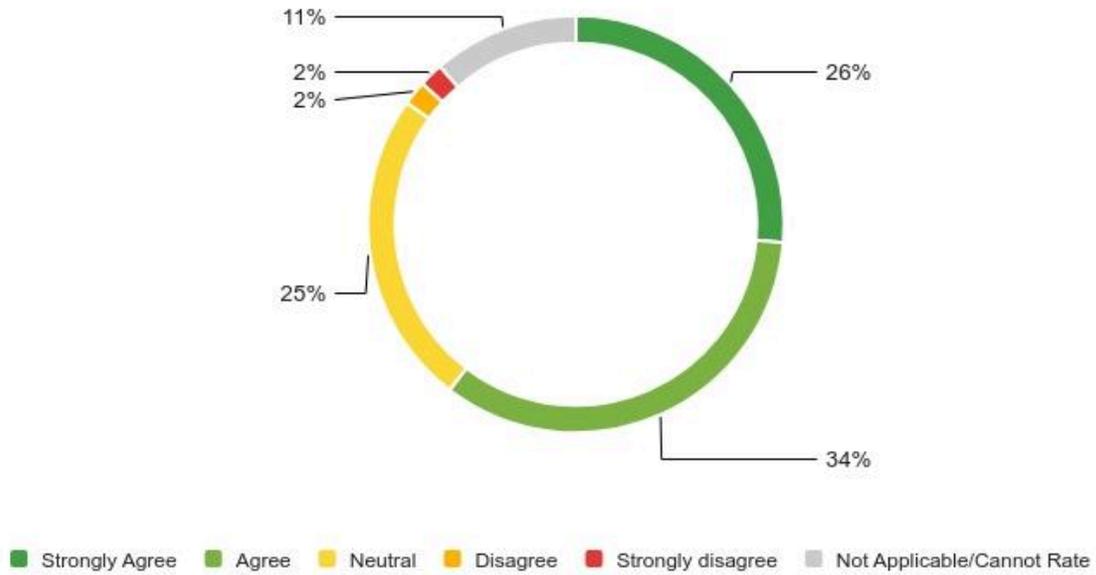
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**It's easy to locate the data that I want from others' tests.**

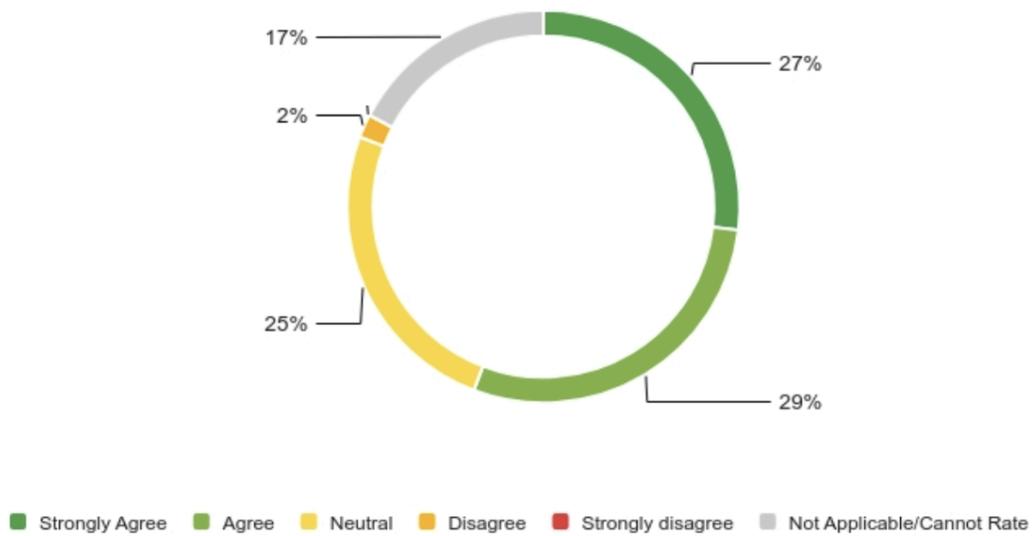


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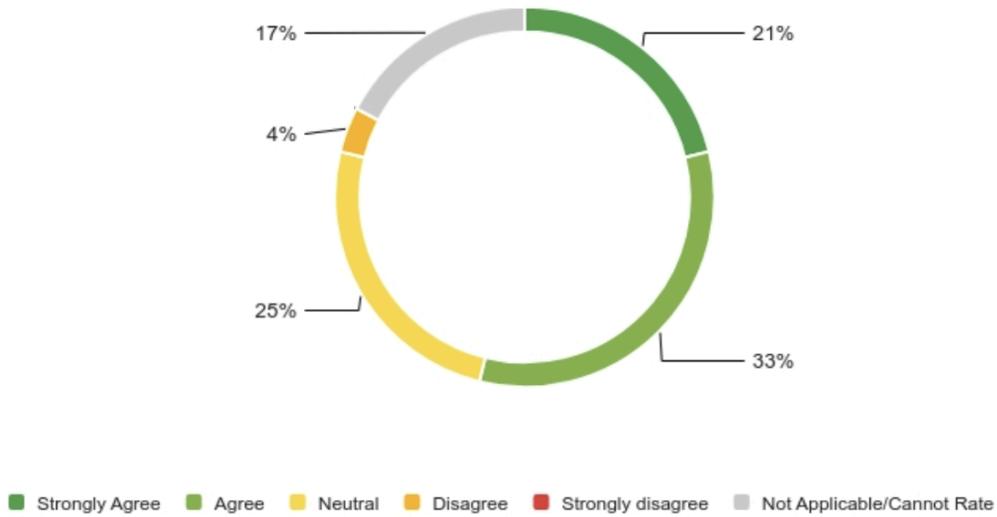
**The required format of the archived data is reasonable/logical.**



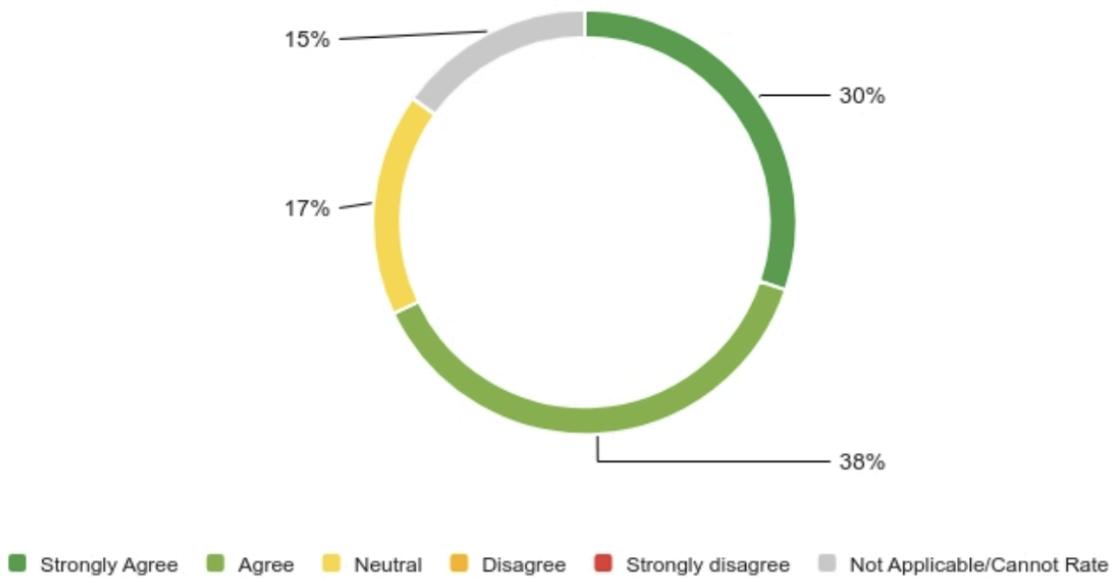
**The metadata quality for the archived experimental data is sufficient.**



**The metadata comprehensiveness of the experimental data is sufficient.**



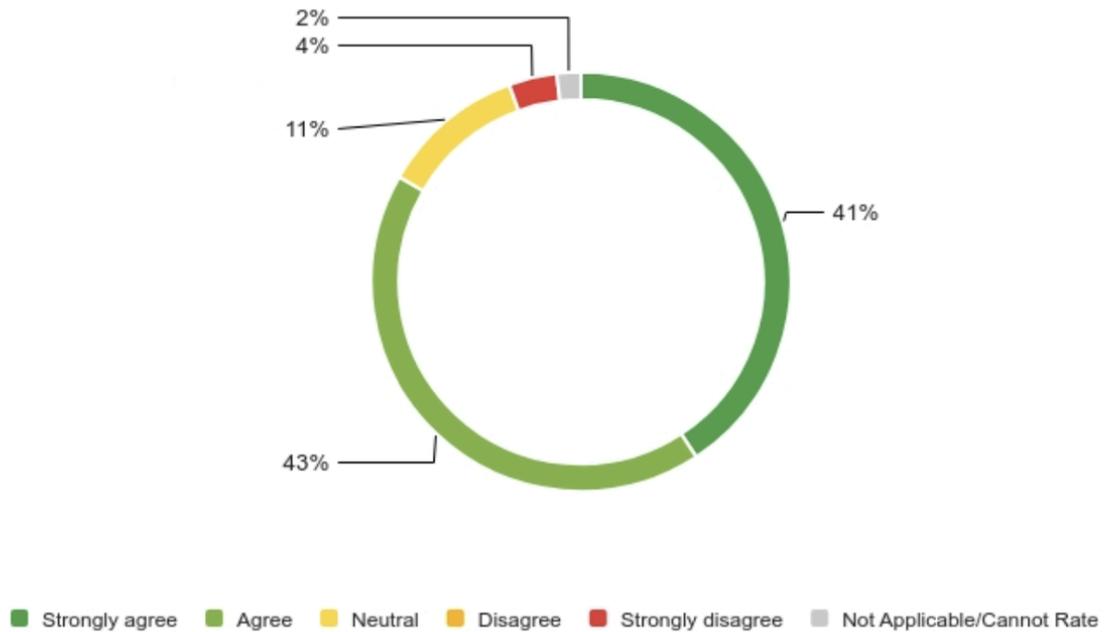
**Data is available for download in useful formats.**



**Q20-Do you have any additional comments regarding NHERI data? (N=15)**

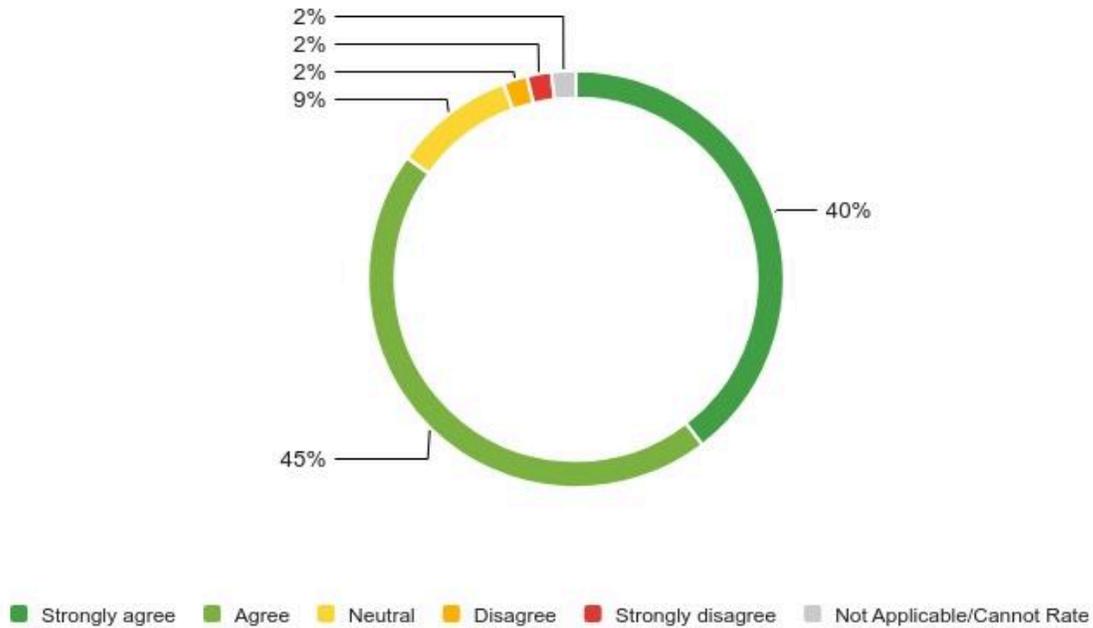
Participants were also asked to provide comments regarding data. Substantive comments provided by respondents suggest the option of receiving data via the addition of “sending [a] “request” command,” and that improved “search tools” and an “easily available folder structure table of contents” would enhance their experience with accessing and utilizing NHERI Data.

**Q21A-Information about NHERI Facilities and Resources is Readily Accessible (N=54)**



A significant majority of respondents indicated they Agreed (43.00%) or Strongly Agreed (41.00%) with the statement that Information about NHERI Facilities and Resources is Readily Accessible. A small proportion of respondents indicated they Strongly Disagreed (4.00%) with this statement. Remaining respondents were Neutral (11.00%) to this statement or found it 'Not Applicable/cannot Rate' (2.00%).

**Q21B- Information about NHERI Facilities and Resources is Comprehensive (N=54)**

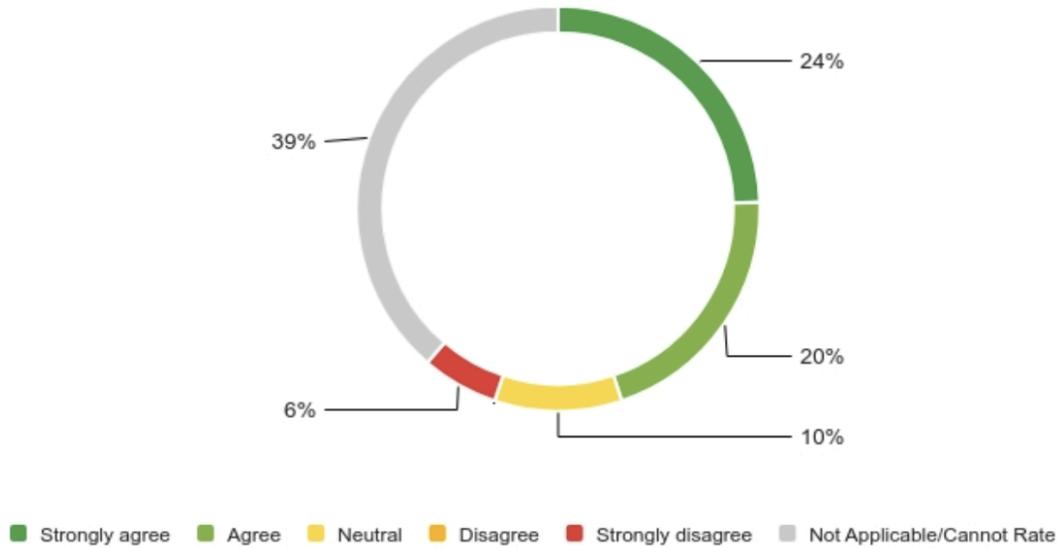


A majority of respondents indicated they Agreed (45.00%) or Strongly Agreed (40.00%) with the statement that Information about NHERI Facilities and Resources is Comprehensive. A very small proportion of respondents indicated they Disagreed (2.00%) or Strongly Disagreed (2.00%) with the statement. Remaining respondents indicated that they were Neutral (9.00%) to the statement or found it ‘Not Applicable/Cannot Rate’ (2.00%).

**Q22-Do you have any additional comments regarding information about NHERI Facilities and Resources? (N=9)**

Participants were given the option to provide comments regarding information about NHERI Facilities and Resources. Respondents who opted to answer this question offered few substantive comments, only indicating that NHERI should “be accessible to all students and researchers.”

**Q23-NHERI experimental facility staff has provided useful feedback on proposed/ongoing/completed tests. (N=49)**

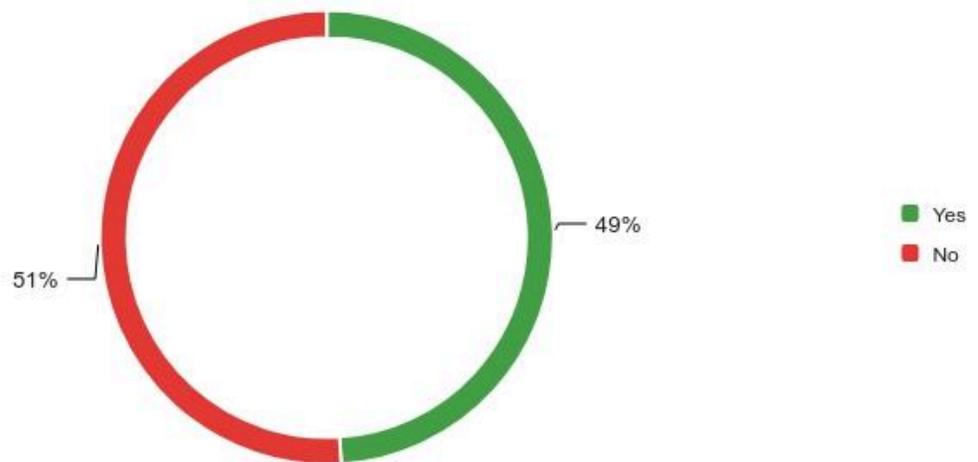


Most respondents Strongly Agreed (24.00%) or Agreed (20.00%) that NHERI experimental staff provided useful feedback on proposed/ongoing/completed tests, with a smaller proportion of respondents indicating they Strongly Disagreed (6.00%). Remaining respondents indicated they found the question Not Applicable/Cannot Rate (39.00%) or were Neutral (10.00%) to this statement.

**Q24-Do you have any additional comments about NHERI Facilities' and Resources' staff? (N=9)**

Respondents were again asked to provide additional feedback – this time regarding staff – in an open-ended manner. Those who provided substantive feedback had positive comments regarding NHERI staff, sharing that staff “have been the most helpful” and were “eager to help.”

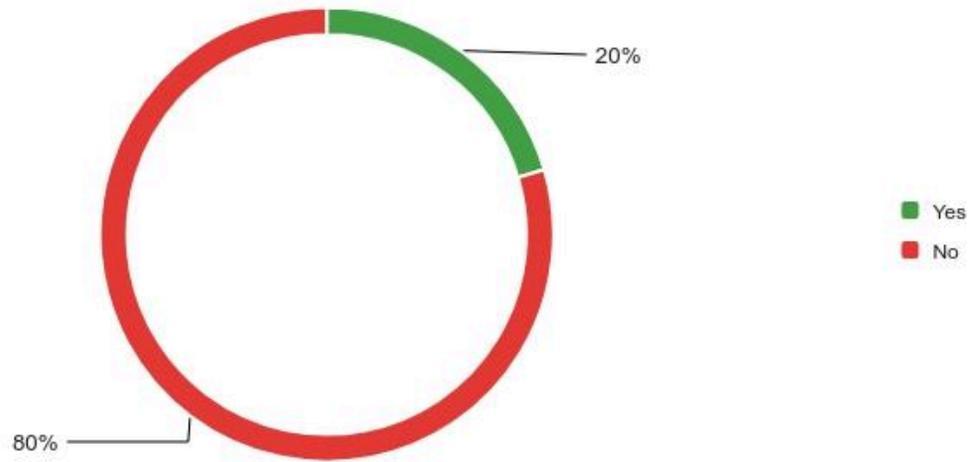
**Q25-Have you participated in any of the proposal writing workshops and/or seminars, or utilized NHERI support resources? (N=49)**



A roughly even split of respondents reported they had (49.00%) or had not (51.00%) participated in proposal writing workshops, and/or seminars, or utilized NHERI support resources.

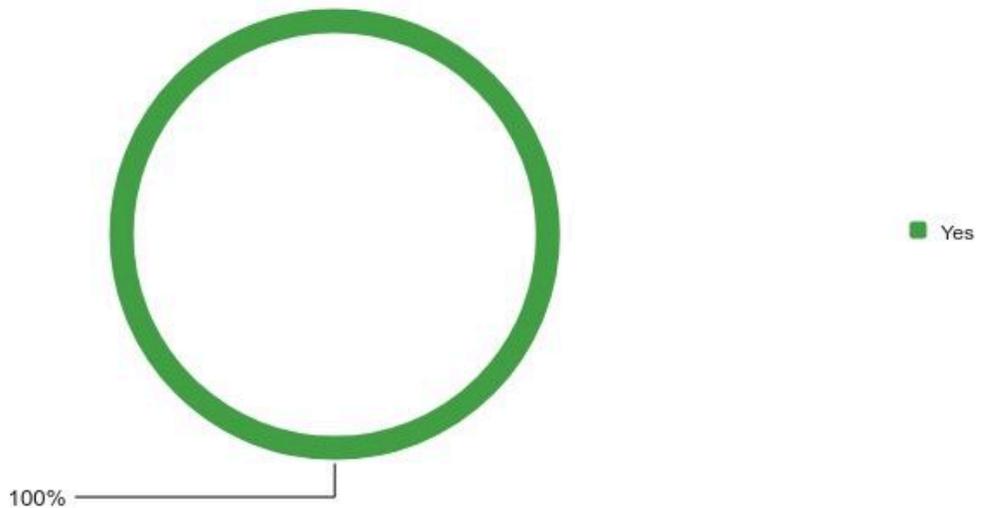
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**Q26-Have you requested assistance from NHERI as you write your proposal? (N=48)**



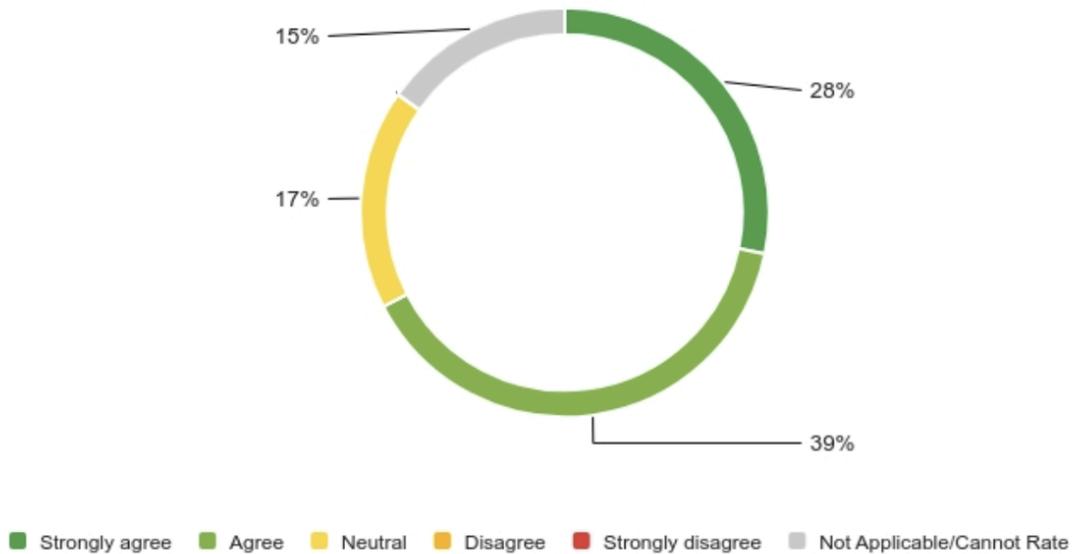
A majority of respondents (80.00) indicated they had not requested assistance from NHERI during the proposal writing process. Respondents who indicated they requested assistance from NHERI during the proposal writing process (20.00%) were asked a follow up question, discussed below.

**Q27-Has the assistance you received been helpful? (N=10)**



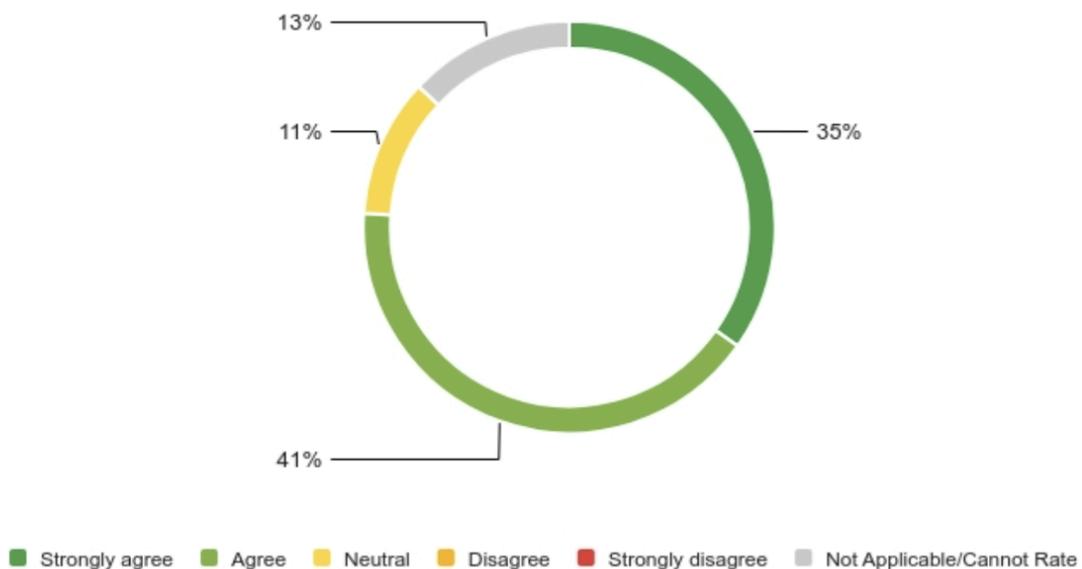
This question was available only to respondents who indicated they had requested assistance from NHERI during the proposal writing process. All respondents who requested assistance reported they received assistance and found the assistance useful.

**Q28A-The training available for online resources and tools meets my needs. (N=46)**



This was part of a question designed to assess two dimensions of satisfaction with NHERI online resources and tools. A majority of respondents either Agreed (28.00%) or Strongly Agreed (39.00%) with the statement that the training available for online resources and tools meets [their] needs. Remaining respondents found this question not applicable/cannot rate (15.00%) or were Neutral (17.00%) to this statement. No respondents Disagreed or Strongly Disagreed with this statement.

**Q28B-The technical support for online resources and tools meets my needs. (N=46)**



This was part of a question designed to assess two dimensions of satisfaction with NHERI online resources and tools. A majority of respondents either Agreed (41.00%) or Strongly Agreed (35.00%) with the statement that the technical support for online resources and tools meets [their] needs. Remaining respondents found this question not applicable/cannot rate (13.00%) or were Neutral (1.00%) to this statement. No respondents Strongly Disagreed or Disagreed with this statement.

**Q29-How many times a month, on average, do you use DesignSafe and other NHERI online resources and tools? (N=78)**

Respondents reported using DesignSafe and other NHERI online resources and tools on average *three* times a month, with responses ranging from 0 to 24.

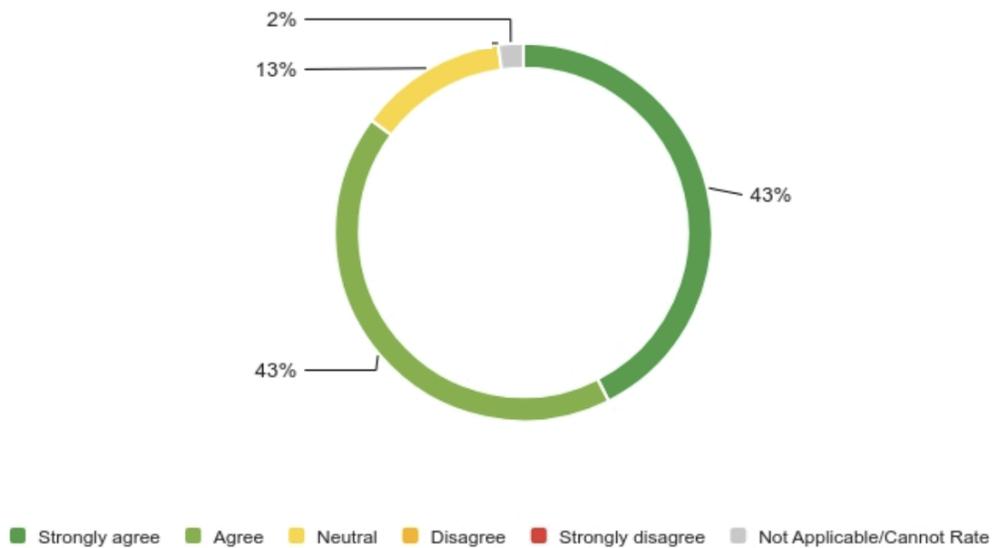
**Q30-What is the most important change to NHERI's services, tools, and resources that would improve your experience with them? (N=20)**

This open-ended question was designed to elicit qualitative responses that allow respondents to suggest a change to NHERI services, tools, and resources that would improve the User experience. Respondents commented suggesting improvements regarding enhancing accessibility through additional "text instructions, fewer videos," and making "technical drawings of facilities" and "presentations" available to prospective facility users. Additional suggestions included featuring "more engagement," "data visualization" capacities, as well as the continued and expanded "integration of the social sciences." Suggestions to enhance data procedures and processes in DesignSafe, including improvements to search functionality "for data in Designsafe," "speed for transferring data," and "mass download" options were also made.

**Q31-What service, tool, or resource not currently in NHERI should be added? Please specify what need your suggestion is going to meet. (N=14)**

This open-ended question was designed to elicit qualitative responses that allowed respondents to comment on what services, tools, or resources NHERI should add. Suggestions were oriented thematically around facilitating collaboration, and included suggestions such as adding "more/better information about international partners," adding a space for "membership profile[s]," and expanding the ability to upload "reports or other documents." Additionally, respondents requested "long-term (5+yr) data sets on community recovery" and "CAD software."

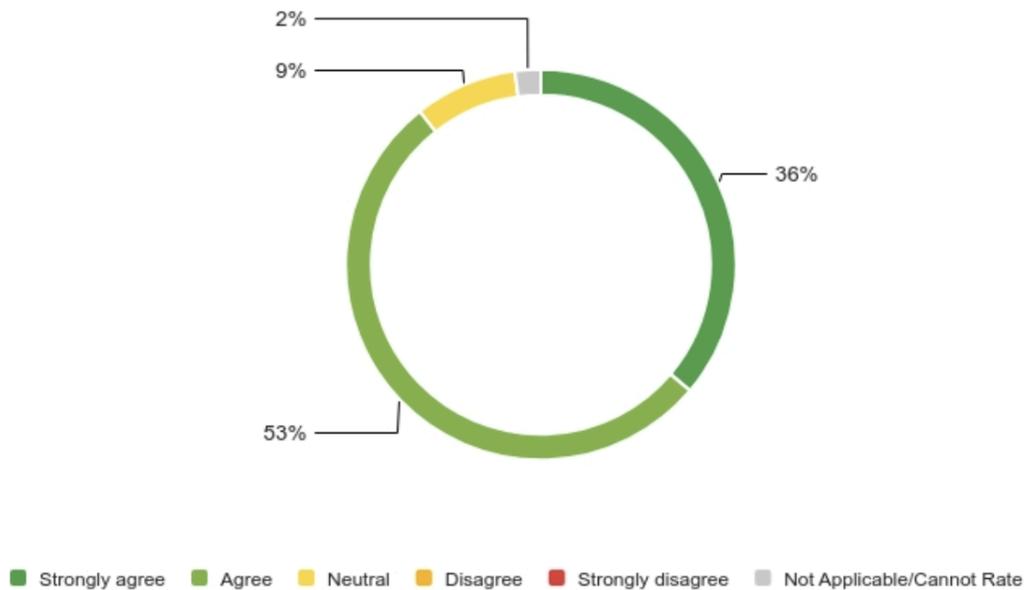
**Q32-Information regarding NHERI is distributed at a useful rate and quantity. (N=47)**



A majority of respondents Strongly Agreed (43.00%) or Agreed (43.00%) with the statement that information regarding NHERI is distributed at a useful rate and quantity. Remaining respondents were Neutral (13.00%) or found the statement not applicable/cannot rate (2.00%). No respondents Disagreed or Strongly Disagreed with this statement.

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**Q33-The information regarding NHERI in DesignSafe is useful. (N=47)**



A majority of respondents Agreed (53.00%) or Strongly Agreed (36.00%) that information regarding NHERI in DesignSafe is useful. A smaller proportion of respondents were Neutral (9.00%) to this statement or found it not applicable/cannot rate (2.00%). No respondents Disagreed or Strongly Disagreed with this statement.

**Q34-Do you have any additional comments regarding NHERI services and information? (N=9)**

Respondents who opted to substantively answer this open-ended question noted that they “are excellent for students” and indicated that there are “a lot of surveys.”

**Q35 - Do you have any final comments regarding NHERI Facilities and Resources? (N=9)**

Substantive responses to this open-ended question regarding NHERI facilities and resources suggested that NHERI “staff are helpful” and indicated that they believed students are open to using NHERI resources, but that their “PI...must put an emphasis on taking advantage” of NHERI’s facilities and resources.

## APPENDIX A-Survey Instrument

Greetings! You have been invited to participate in a user satisfaction survey for the Natural Hazards Engineering Research Infrastructure (NHERI). We greatly appreciate any feedback or comments you may have so that services and user experiences with NHERI may be improved. If you opt to participate in this survey, you will be asked about your experiences using NHERI and related programs based on your experiences in the last year. No personal information will be associated with your responses. Your participation is voluntary, and you may withdraw consent and/or discontinue participation at any time. You may skip questions you prefer not to answer. Completion of the survey should take approximately 8-10 minutes.

1. Yes, I would like to participate in the survey.
  2. No, I would not like to participate in the survey.
- Q1. Do you consider yourself an early career researcher?
1. Yes
  2. No
- Q2. Which of the following best describes your position?
1. PI
  2. Co-PI
  3. Post Doctoral Researcher
  4. Graduate Student Researcher
  5. Research Assistant
  6. Other
- Q3. As part of your position, do you work with Graduate Students?
1. Yes
  2. No
- Q4. The NHERI Graduate Student Council (GSC) offers support for graduate students interested in natural hazards research. Are you familiar with NHERI GSC's programming?
1. Yes
  2. No
- Q5. Have you shared information about NHERI GSC with the Graduate Student(s) you work with?
1. Yes
  2. No
- Q6A. Can you briefly describe why you did share information about NHERI GSC with the graduate student(s) you work with?
- Open ended
- Q6B. Can you briefly describe why you did not share information about NHERI GSC with the graduate student(s) you work with?
- Open ended
- Q7. Have you ever attended a NHERI GSC Event, such as the NSF Proposal Writing Workshop, Collaborative Workshops, or the GSC Mini-Conference and Research Challenge?
1. Yes
  2. No
- Q8. Which of the following types of support would you find most beneficial for your academic/research pursuits?
1. Funding opportunities for graduate student research using NHERI facilities, resources, and tools

2. Networking opportunities with other researchers in the field
3. Training and workshops focused on graduate student researchers
4. Additional opportunities to access NHERI facilities, resources, and tools

Q9. In what specific ways do you think NHERI GSC could better support graduate students in the NHERI community?

- Open ended

Q10. Please select your gender.

1. Female
2. Male
3. Non-binary / third gender
4. Prefer not to say

The NSF-funded Natural Hazards Engineering Research Infrastructure (NHERI) for the nation includes shared-use facilities and other components that are designed to advance research and applications that can help reduce natural hazards losses and improve community resilience. Based on your experience with one or more of the NHERI components, please respond to the following questions:

Q11. My own research has been enhanced through my use of NHERI resources and/or my connection to the NHERI components.

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable/Cannot Rate

Q12. The creation of NHERI has helped to advance research collaborations in the natural hazards research community

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable

Q13. I have reviewed the NHERI Science Plan-Version 1.0, Version 2.0, and/or Version 3.0.

1. Yes
2. Unsure
3. No

Q14. On a scale of 1 to 5, how likely are you to write future grant proposals that will involve the use of NHERI resources?

1. Not Likely at All
2. Somewhat Likely
3. Unsure
4. Likely
5. Highly Likely

We would now like to ask you questions regarding how you intend to utilize NHERI Facilities and Resources (i.e., experimental facilities, DesignSafe, RAPID, CONVERGE, and SimCenter; referred to as "Facilities and Resources" for the remainder of the survey).

Q15. Which of the following best describes your current position in the proposal process for NHERI Facilities and Resources?

1. I'm writing my first proposal.
2. My proposal has been accepted, but I have not begun utilizing the facilities.
3. I am currently performing experiments/using the SimCenter.
4. I have completed experiments.
5. I have completed an experiment(s) and am working on the next proposal.

Q16. How many proposals have you prepared that used either the NHERI Facilities and Resources?

- numeric response

Q17. How many facilities are you writing proposals for?

- numeric response

Q18. Which of the following best describes how you intend to utilize NHERI Experimental Facilities and/or the SimCenter?

1. I want to access and use data that has already been uploaded.
2. I intend to produce and upload original data.
3. I want to access and use data and produce and upload original data (a and b).

Next, we would like to ask a few questions about data and data management with NHERI Facilities and Resources.

Q19a. It's easy to locate the data that I want from my previous tests:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable/ Cannot Rate

Q19b. It's easy to locate the data that I want from others' tests:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable/ Cannot Rate

Q19c. The required format of the archived data is reasonable/logical:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable/ Cannot Rate

Q19d. The metadata quality for the archived experimental data is sufficient/logical:

1. Strongly Disagree
2. Disagree

3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable/ Cannot Rate

Q19e. The metadata comprehensiveness of the experimental data is sufficient:

1. Strongly agree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable/ Cannot Rate

Q19f. Data is available for download in useful formats:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable/ Cannot Rate

Q20. Do you have any additional comments regarding NHERI data?

- Open ended

Please respond to the following statement about NHERI facilities and resources.

Q21a. Information about NHERI experimental facilities is readily accessible:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable/ Cannot Rate

Q21b. Information about NHERI experimental facilities is comprehensive:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable/ Cannot Rate

Q22. Do you have any additional comments regarding information about NHERI Facilities and Resources?

- Open ended

We would like to ask you about NHERI Facilities' and Resources' staff and support resources.

Q23. NHERI experimental facility staff has provided useful feedback on proposed/ongoing/completed tests:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

6. Not Applicable/ Cannot Rate

Q24. Do you have any additional comments about NHERI Facilities' and Resources' staff?

- Open ended

Q25. Have you participated in any of the proposal writing workshops and/or seminars, or utilized NHERI support resources?

1. No
2. Yes

Q26. Have you requested assistance from NHERI as you write your proposal?

1. No
2. Yes

Q27. (IF Q6 = 2) Has the assistance you received been helpful?

1. No
2. Yes
3. Did not receive assistance

Now we have a few questions regarding NHERI online resources and tools.

Q28a. Regarding NHERI online resources and tools the training available for online resources and tools meets my needs.

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable/ Cannot Rate

Q28b. Regarding NHERI online resources and tools the technical support for online resources and tools meets my needs.

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree
6. Not Applicable/ Cannot Rate

Q29. How many times a month, on average, do you use DesignSafe and other NHERI online resources and tools

- numeric response

Q30. What is the most important change to NHERI's services, tools, and resources that would improve your experience with them?

- open ended

Q31. What service, tool, or resource not currently in NHERI should be added? What need is this going to meet?

- open ended

Almost done! We have just a few more questions for you about NHERI services and information.

Q32. Information regarding NHERI is distributed at a useful rate and quantity:

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree

5. Strongly agree
  6. Not Applicable/ Cannot Rate
- Q33. The information regarding NHERI in DesignSafe is useful:
1. Strongly Disagree
  2. Disagree
  3. Neutral
  4. Agree
  5. Strongly Agree
  6. Not Applicable/Cannot Rate
- Q34. Do you have any final comments regarding NHERI services and information?
- Open ended
- Q35. Do you have any final comments regarding NHERI Facilities and Resources?
- Open ended

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## APPENDIX B-Comprehensive Qualitative Response Data by Question

NOTE: Non-substantive responses (e.g., N/A, No, No Answer) are excluded below for parsimony.

Q6A-Can you briefly describe why you did not share information about NHERI GSC with the graduate student(s) you work with?

- Because the GSC is very active and has incredible leadership. I wanted my students to get involved, too!
- Nheri GSC has a lot of tools to simulate the structures, serving their researches
- To promote GSC and increase visibility
- Diversity and Inclusion: The council emphasizes diversity, equity, and inclusion, encouraging participation from underrepresented groups, which aligns with broader goals of equity in research and academia.  
Professional Development: Students can engage in leadership and service opportunities through the council, helping them to develop essential skills for their future careers.
- Opportunities that are shared through the slack channel.
- I thought the GSC was a good way for my graduate students to connect other students doing similar research as well as provide educational opportunities.

Q6B-Can you briefly describe why you did not share information about NHERI GSC with the graduate student(s) you work with?

- Did not have a lot of information or a flyer that synthesizes everything
- It did not cross my mind

Q9-In what specific ways do you think NHERI GSC could better support graduate students in the NHERI community?

- Helping student to publish articles and papers by engaging to research and training for that.
- Funding opportunities to travel to conferences, workshops, professional development. A small budget for socials will be helpful. Research awards or funding for grad student led proposals or research. There are very few opportunities where students can be a PI's and often times they are. Begin rewarded with even a small amount of money via a research competition can look good on a CV.

Q20. Do you have any additional comments regarding NHERI data?

- It is great to have social science and public health data in addition to engineering data.
- That would be great if we could ask for data using sending "request" command and get the result from its website
- Should be accessible to all
- Once i utilize the facilities I will be in a better position to answer the questions.
- The metadata is great, but the search tools could be improved
- I think it would be very useful to have an easily available folder structure table of contents. I would look at the PDFs, but I still ended up looking through folders.
- The DesignSafe upload process is cumbersome. DataDepot is great for data that is already archived, but falls below expectations for creating data sets.

- I use NHERI facilities for projects funded by my Center - no formal proposal to NHERI is required (I allocate funding from my budget)

Q22. Do you have any additional comments regarding information about NHERI Facilities and Resources?

- Should be accessible to all students and researchers

Q24. Do you have any additional comments about NHERI Facilities' and Resources' staff?

- The staff have been the most helpful.
- Eager to help.

Q30. What is the most important change to NHERI's services, tools, and resources that would improve your experience with them?

- more integration of social science.
- Data visualization
- More Engagement
- Making presentation available
- examples
- accessible to use all tools
- searching for data in Designsafe - it's currently not very intuiting or user friendly
- Data accessibility
- more text instructions, fewer videos
- A birt more organization of the design-safe data. The search engine was also not very powerful
- Speed for transferring data
- Accessible technical drawings of facilities to better plan the experiments.
- somehow make it more straightward to upload and classify simple files, PDFs, to the Data Depot. Reports, for example. But maybe these items to do not belong in the Data Depot?
- Create and open and honest forum where data users can speak freely about their experiences.
- Mass download without going up/down windows.
- design safe web pages easier to navigate - too many clicks to go to where you want
- Quicker support response times

Q31. What service, tool, or resource not currently in NHERI should be added? Please specify what need your suggestion is going to meet.

- iCant remember any for now
- A CAD software
- Membership profile
- most advance tools for research and validate the model
- Memberships Profile
- Sorting the data by data type such as file type. This would help with searching for a certain type of data.
- Sometimes we need to upload reports or other documents -- files that are not exactly research papers or research data. Is there a way to just have a kind of file library for

NHERI facilities? Use case: Will be uploading reports to the Data Depot and using the resulting DOIs in the NSF PAR database.

- We need long-term (5+ yr) data sets on community recovery. This will help meet the need of improving decision-support tools for community resilience. Resilience is absorb AND recover. We already do the 'absorb' part pretty well. StEER recon. R2D for damage estimation (makes sense b/c NHERI is funded through ECI). But NHERI does not address long-term recovery well (at all?).
- more/better information about international partners
- Helping postdocs transition to faculty positions or other career paths

Q34. Do you have any final comments regarding NHERI services and information?

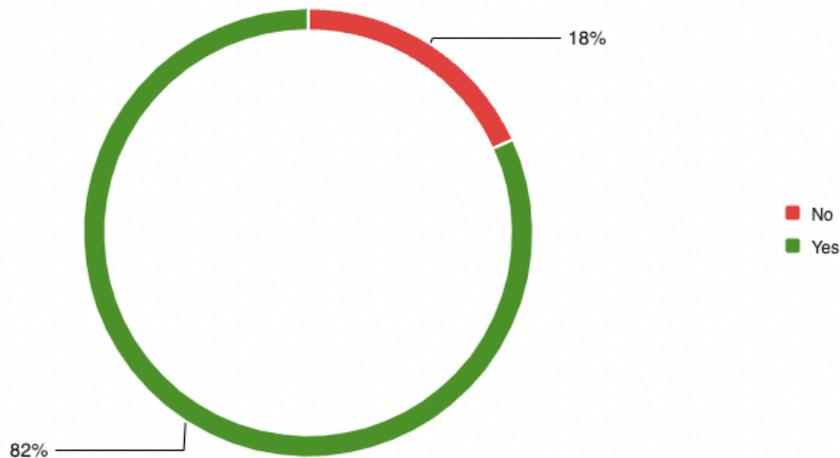
- They are excellent for students, especially if their PI indicates they should use them.
- There are a lot of surveys!

Q35. Do you have any final comments regarding NHERI Facilities and Resources?

- I feel student are open to many using any resource, it is their PI who must also put emphasis take advantage of the resource.
- Staff are helpful.

### APPENDIX C- Summary of Graduate Student Responses to GSC Module Questions

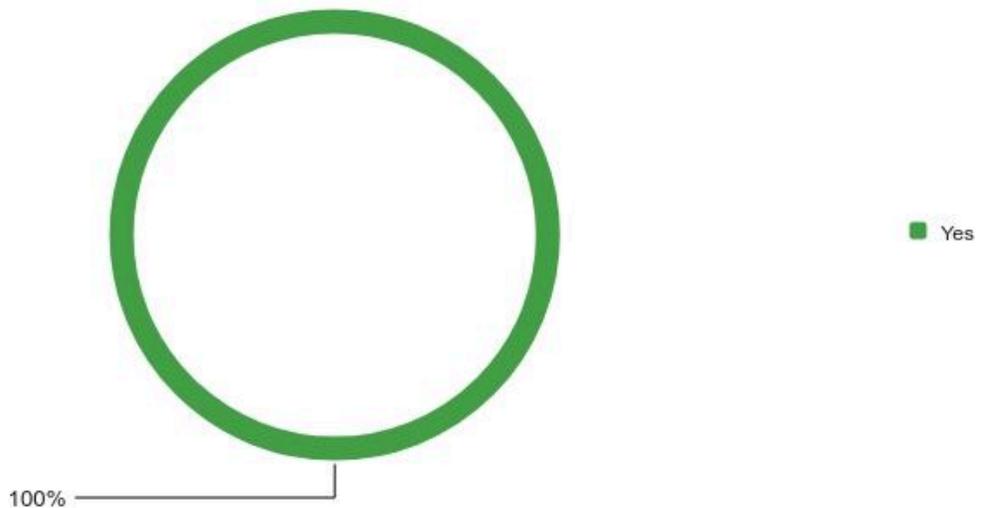
Q4-The NHERI Graduate Student Council (GSC) offers support for graduate students interested in natural hazards research. Are you familiar with NHERI GSC's programming? (N=11)  
Graduate Student Responses:



This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. Both student and non-student respondents who indicated they worked with graduate students were asked about their familiarity with GSC programming. A majority of non-student respondents

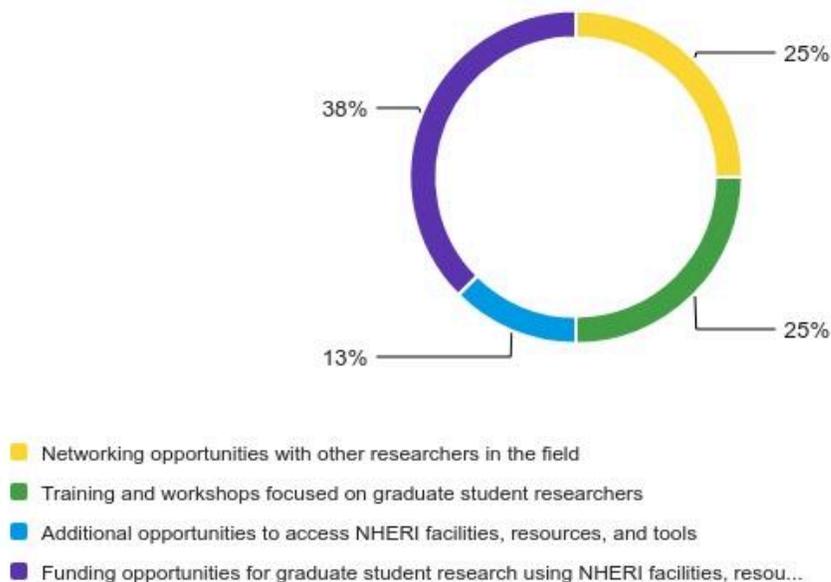
(58.00%) indicated they were not familiar with GSC programming. A majority of student respondents (82.00%) indicated they were familiar with GSC programming (18.00% of student respondents indicated they were not familiar with GSC programming).

Q7-Have you ever attended a NHERI GSC Event, such as the NSF Proposal Writing Workshop, Collaborative Workshops, or the GSC Mini-Conference and Research Challenge? (N=7)



This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. If respondents indicated student status, they received a separate battery of questions. This question was designed to assess their familiarity and engagement with NHERI GSC resources. All respondents indicated they had attended a NHERI GSC Event (100.00%).

Q8-Which of the following types of support would you find most beneficial for your academic/research pursuits? (N=11)



This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. If respondents indicated student status, they received a separate battery of questions. This question was designed to assess programmatic support needs. Responses reflect a range of programmatic support needs, with a majority indicating they would benefit from ‘Funding opportunities for graduate student research using NHERI facilities, resources, and tools’ (38.00%), followed by ‘Networking opportunities with other researchers in the field’ (25.00%) and ‘Training and workshops focused on graduate student researchers’ (25.00%). The fewest proportion of respondents indicated they would benefit from ‘Additional opportunities to access NHERI facilities, resources, and tools’ (13.00%).

Q9-In what specific ways do you think NHERI GSC could better support graduate students in the NHERI community? (N=2)

This question was included in the 2024 NHERI user satisfaction survey instrument as part of a module of questions in response to NHERI Graduate Student Council assessment needs. If respondents indicated student status, they received a separate battery of questions. This question was designed to assess general programmatic support needs in an open-ended manner. Respondents highlighted two priorities for graduate student respondents: (1) Manuscript Preparation/Publication Support and (2) Funding. Regarding (1) Manuscript Development/Publication, graduate student respondents expressed a desire for additional support “Helping student[s] publish” and “Training for [publishing].” Meanwhile, regarding (2) Funding, graduate student respondents indicate funding for “travel to conferences, workshops, [professional] development” as well as “Research awards...for grad student led proposals” and even a “small budget for socials” would be especially advantageous.

## **APPENDIX D- Recommendations from 2019 to 2024**

In line with recommendations made following the completion of the 2023 NHERI User Satisfaction Survey evaluation, in 2024, we completed an assessment of key findings over time on select dimensions of user satisfaction. From this assessment, we identified the following key themes and priorities that can inform future foci for the NHERI network.

Over the course of annual evaluations conducted between 2014 and 2019, several key insights have emerged regarding user satisfaction with NHERI resources. These insights reveal evolving patterns of engagement, challenges with data accessibility, and ongoing needs for interdisciplinary collaboration and early-career researcher support.

### **Familiarity with the Science Plan**

One notable trend is the gradual decline in familiarity with NHERI's Science Plan. This document serves as a foundational guide for research efforts, yet recent feedback indicates a need for more widespread recognition and use. To address this, we recommend additional promotion of the Science Plan across a broader range of platforms, ensuring that both new and established researchers are aware of its significance.

### **Awareness of NHERI Resources**

Another recurring theme involves a lack of awareness regarding the full suite of NHERI resources. This is particularly relevant for early-career researchers, who stand to benefit significantly from these tools. We suggest enhancing outreach efforts with a focus on engaging early-career professionals. Additionally, recurring requests for materials such as a "quick facts" sheet summarizing NHERI's facilities, past research, and interdisciplinary project highlights warrant consideration for development.

### **Data Accessibility and Search Functionality**

Challenges surrounding data accessibility and search functionality have persisted over time. Respondents frequently report difficulties locating and downloading data, underscoring the need for improvements in this area. Recommended enhancements include the implementation of bulk download capabilities, as well as alternative methods like APIs and command-line tools (e.g., wget or curl). Standardizing data formats and metadata across resources also emerged as a critical step to improve usability and support efficient data analysis.

### **Interdisciplinary Collaboration and Emerging Needs**

As NHERI's user base has evolved, so too have the needs related to interdisciplinary collaboration. Respondents have increasingly highlighted the importance of integrating social science data into existing resources. Moreover, the handling of sensitive human subjects data presents a growing challenge. Suggestions to facilitate interdisciplinary collaboration include creating a researcher discussion forum and developing a more robust collaborator-finding tool, both of which would foster connections across disciplines.

### **Engaging Early-Career Researchers and Graduate Students**

User feedback consistently emphasizes the value of NHERI resources for early-career researchers, particularly graduate students and those preparing their first research proposals.

While NHERI offers strong support for principal investigators, the evaluations suggest an ongoing need to tailor resources and training for early-career researchers. Continued investment in workshops, mentorship programs, and accessible training materials would further enhance the utility and reach of NHERI's resources within this critical demographic.

In summary, these findings underscore the importance of proactive communication, improved data accessibility, strengthened interdisciplinary connections, and targeted support for early-career researchers. By addressing these areas, NHERI can continue to foster a robust, collaborative, and accessible research infrastructure informed by insights derived from previous efforts to evaluate user satisfaction across the network.