



MAY 2020

Hispanic Serving Institution STEM Resource Hub:

Year 3 Evaluation Report



The Evaluation Center

UNIVERSITY OF COLORADO
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Prepared by



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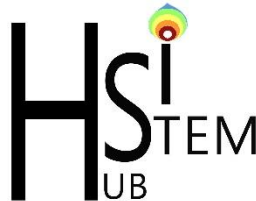
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EXECUTIVE SUMMARY

In September 2018, New Mexico State University (NMSU) and California State University Northridge (CSUN) were awarded a grant from the National Science Foundation (NSF) to establish the first Hispanic Serving Institution (HSI) National Resource Hub (the Hub). The mission of the Hub is to advance the efforts of HSIs to build capacity in science, technology, engineering, and math (STEM) research education with the goal of increasing STEM student retention and degree completion. **The Hub aspires to increase the number of HSIs across the nation who successfully compete for NSF awards**, either alone or through partnerships with diverse organizations in private and public sectors.

Since June 2019, there were two NSF solicitations (19-540 and 20-599) which explicitly requested proposals from 2-and 4-year institutions of higher education with little or no prior NSF funding, the Hub's target audience. In this time, the Hub developed and delivered seven grantsmanship workshops, 16 grantsmanship webinars, and one online self-paced introductory grantsmanship certification program. Additionally, the Hub partnered with other organizations to deliver a data science workshop and launch the inaugural cohort of the Semillas, an intensive grantsmanship training program.

The Hub's reach and programming are contributing to increased NSF submissions as evident in the results of a survey conducted with 203 Hub members and training participants. Twice as many survey respondents submitted a proposal to NSF solicitation 20-599 (n=42) than to proposal to NSF solicitation 19-540 (n=20). This is not surprising given that the deadline for NSF 19-540 came just four months after the HSI STEM Hub launched its first in-person grantsmanship workshop in June 2019.

The resources offered by the Hub were helpful in preparing proposals to NSF and other funding agencies. By February 2021, the Hub had gathered a wide of array of resources on the Hub website, as well as developed and delivered grantsmanship training for a variety of audiences from novice to advanced. In fact, 66% of respondents who applied for NSF 20-599 and 72% of those who submitted other proposals rated the usefulness of Hub resources at a 4 or 5, on a scale of 1-5 (Not at all - Very much).

RECOMMENDATIONS

1. Continue to provide several entry points to grantsmanship.
2. Include resources, expert advice, and coaching on resubmission to a second phase of grantsmanship training.
3. Facilitate networks and partnerships as a means to enhance institutional capacity.
4. Build out resources and training on STEM pedagogy ,and diversity, equity, and inclusion.

Respondents whose proposals were funded said that in addition to understanding what grant reviewers look for, having **institutional support and developing strong partnerships were key to writing a successful proposal**. Similarly, those who were not funded or who did not submit indicated that limited institutional capacity was a challenge. Fifty-two survey respondents indicated that they intended to but ultimately did not reach submission for either NSF solicitation. Of these, 30 indicated that they had made progress towards writing a proposal. With the exception of two, they said **they plan to submit a proposal to NSF in the future**. Factors that influenced their decision to not submit included the time investment required, low support from the respondent's institution, lack of a strong proposal team, and difficulty developing a research concept methodology.

Beyond grantsmanship, Hub members are interested in resources related to **STEM pedagogy; networking and collaboration; and diversity equity and inclusion (DEI)**. These were the most requested Hub resources from all respondents, including those who connect to the Hub for reasons other than proposal submission.

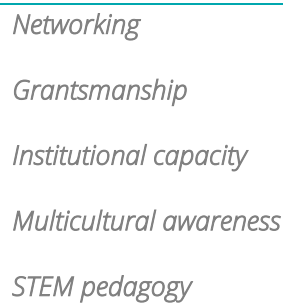


"The HSI Hub has provided one-of-a-kind support for grant writing. I think its impact is enormous, especially for community colleges. Perhaps many outcomes derived from the HSI Hub's work will be seen even past the near future."

"The library, webinars and other resources were really helpful in learning about new lines of research and inquiry as an HSI."

INTRODUCTION

In September 2018, New Mexico State University (NMSU) and California State University Northridge (CSUN) were awarded a grant from the National Science Foundation (NSF) to establish the first Hispanic Serving Institution (HSI) National Resource Hub (the Hub). The mission of the Hub is to advance the efforts of HSIs to build capacity in science, technology, engineering, and math (STEM) research education with the goal of increasing STEM student retention and degree completion. The Hub aspires to increase the number of HSIs across the nation who successfully compete for NSF awards, either alone or through partnerships with diverse organizations in private and public sectors. Specifically, over the five years of the grant, the Hub will build HSI collaborations for STEM research education, develop HSI research capacity, and infuse HSI STEM research education initiatives with innovative, cutting-edge pedagogy. The project goals will be achieved through multifaceted activities that target five pillars essential for grant success:



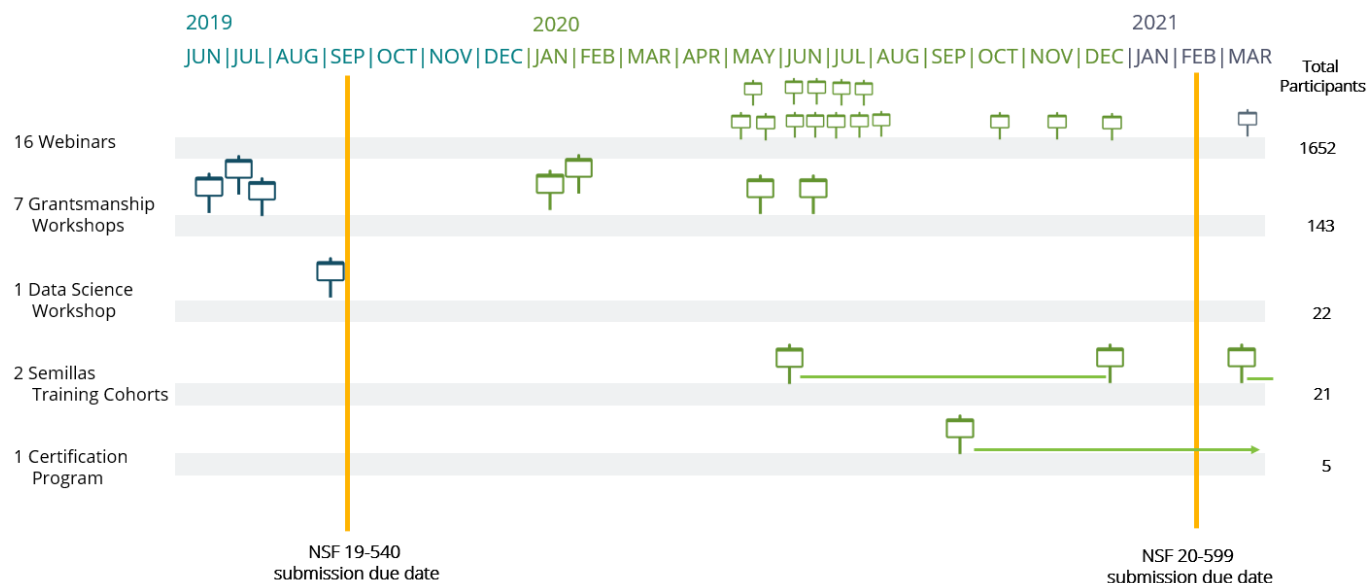
- Networking*
- Grantsmanship*
- Institutional capacity*
- Multicultural awareness*
- STEM pedagogy*

In Year 3 of the grant, the Hub focused on expanding the network, developing a multi-level entry to grantsmanship training, and planning for the impact that COVID-19 is having on STEM pedagogy and educational research.

HUB ACTIVITIES

This section summarizes Hub activities from June 1, 2019 to March 31, 2021. During this time, the Hub developed and delivered seven grantsmanship workshops, 16 grantsmanship webinars, and one online self-paced introductory grantsmanship certification program. Additionally, the Hub partnered with other organizations to deliver a data science workshop and launch the inaugural cohort of the Semillas, an intensive grantsmanship training program. A second Semillas cohort began training on March 19, 2021. Since June 2019, there were two NSF program solicitations (19-540 and 20-599) which explicitly requested proposals from 2-and 4-year institutions of higher education with little or no prior NSF funding, the Hub's target audience.

Timeline of Hub Activities



Across all Hub activities there were 1,830 attendees. In some cases, these attendees were duplicated in the counts since any individual could attend more than one webinar or any combination of activities. The unduplicated count of attendees at any Hub activity was 627. Additionally, there were 367 individuals who did not attend any Hub activity but were members of the Hub to connect to other resources.

Hub Engagement	Unduplicated Count
Network members only	367
Attended 1 type of Hub activity	575
Attended a combination of 2 types of Hub activities	50
Attended a combination of 3 types of Hub activities	2
Total	994

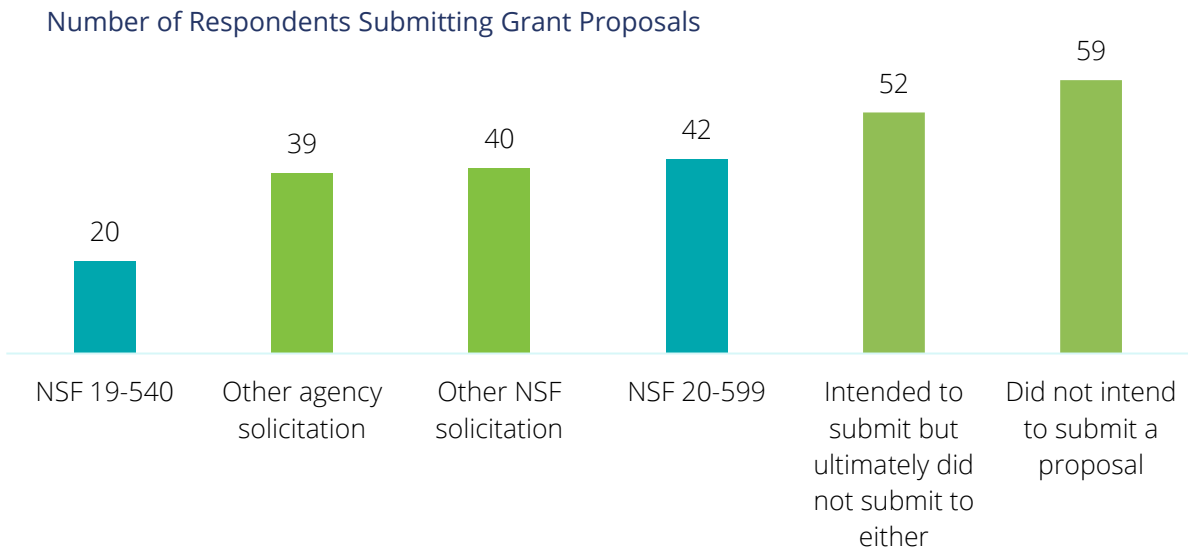
In addition to the training opportunities noted above, the Hub curated online resources related to institutional capacity; program evaluation; STEM pedagogy; diversity, equity and inclusion; and COVID-19 resources regarding remote learning and the academic, mental health, and psychosocial impact on students. The Hub also launched a podcast focused on conversations with STEM experts at various stages in their careers working towards diversifying the scientific enterprise in an equitable way. As of March 31, 2021, the first podcast was recorded and uploaded to the website. Two more have been scheduled for release in

spring/summer 2021. In March 2020, the Hub began a monthly newsletter to include individual interviews with members of the Hub network and external contributors. These are intended to be inclusive of all five pillars, addressing a wide range of topics related to the HSI landscape and grant writing. Metrics related to the reach of the podcast and newsletter are tracked by the HSI Hub program manager and included in Hub reports to NSF.

EVALUATION FINDINGS

In March 2021, evaluators conducted an online survey to gauge the degree to which Hub resources were accessed and how helpful the resources had been in preparing individuals to submit proposals to NSF and other agencies. See Appendix A for a description of the methods.

A primary focus of HSI STEM Hub resources and activities has been on preparing participants to apply for two NSF solicitations: NSF 19-540 (September 18, 2019) and NSF 20-599 (February 10, 2021). Ultimately, 102 respondents indicated they submitted a proposal to these and other NSF solicitations; 29 submitted proposals to other agencies; 52 individuals intended to submit and ultimately did not; 59 people did not intend to submit a proposal and connected to the Hub for other reasons.



NSF 19-540 & 20-599 PROPOSAL SUBMISSIONS

The Hub’s reach and programming are contributing to increased NSF submissions. Half as many respondents submitted a proposal to NSF solicitation 19-540 (n=20) than NSF solicitation 20-599 (n=42). This is not surprising given that the deadline for NSF 19-540 came just four months after the HSI STEM Hub launched its first in-person grantsmanship workshop in June 2019. By February 2021, the Hub had gathered a wide of array of resources on the Hub website, as well as developed and delivered 16 webinars, seven workshops, and completed the first cohort of the Semillas training program.

The 62 individuals who submitted a proposal to either NSF 19-540 or NSF 20-599 were asked to describe the factors they found were helpful in preparing their proposals. Across their responses, several themes emerged. They noted the importance of institutional support, successful partnerships, understanding what grant reviewers look for by seeing examples of successfully funded proposals, and receiving expert advice from NSF program officers, external evaluators, and peers. Additionally, one-third of those who submitted a proposal to NSF in February 2021 stated that webinars and workshops were an essential aspect of support. Respondents who submitted and were not funded and those who did not submit cited lack of institutional support as a barrier. They also noted difficulty in forming or maintaining successful collaborations, described as “weakness of the team.” Struggles with writing such as discussing their ideas effectively, weakness of concept, and difficulties aligning their proposal with the solicitation were also mentioned as challenges.

Respondents who were not funded were asked what supports they needed for resubmission. Three indicated they did not plan to resubmit, three said they needed expert support including mentoring and feedback from external evaluators, and two needed to strengthen project partnerships.

Support & Challenges to NSF Submissions		
SUBMISSION	Funded NSF 19-540 Submissions (September 18, 2019) 20 respondents submitted; eight were funded	NSF 20-599 Submissions (February 10, 2021) 42 respondents submitted; funding decisions are underway at the time of this report. An additional 52 respondents intended to but ultimately did not submit a proposal.
	SUPPORT The eight funded respondents described the essential supports that contributed to successful NSF proposal: Four said institutional support of proposal development, including the availability of campus resources and dedicated grant support services. Four noted the importance of understanding what grant reviewers look for , which came from past experience and examples of successfully funded grant proposals. Two respondents cited working with partners as contributing to their success.	33 of the respondents described the essential supports in preparing their proposal: 13 cited webinars and workshops as an essential aspect of support, including those from the HSI STEM Hub and offerings directly from NSF. 10 specifically identified sessions and conversations with the NSF program officer . 10 indicated the importance of other forms of expert advice , including peer support, external evaluators, coaching, and reviews. Other assistance included examples of successful proposals, partnerships and collaborations, and literature on their topics.

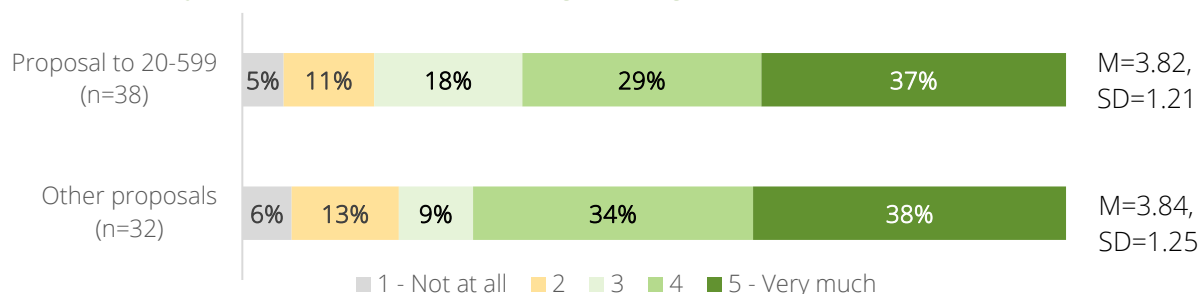
CHALLENGES	<p>Four of the eight funded respondents provided information about what was most challenging in submitting their proposal:</p> <ul style="list-style-type: none"> • <i>Budgeting</i> • <i>Pulling together all the pieces of the proposal.</i> • <i>Completing the abstract to meet all guidelines and formatting</i> • <i>Answering the questions from NSF after the reviews and pending the award</i> <p>11 respondents who submitted a proposal but were not funded provided examples of the barriers they faced in proposal development:</p> <ul style="list-style-type: none"> • <i>Discussing their ideas effectively in writing</i> • <i>Limited institutional capacity</i> • <i>Forming and maintaining collaborations</i> • <i>Developing a budget</i> 	<p>Of the 52 respondents who did not reach submission, 42 identified barriers they faced to submitting their NSF proposal.</p> <ul style="list-style-type: none"> • <i>Time management</i> • <i>Insufficient institutional support</i> <p>Lack of institutional support manifested in several ways: some institutions were hesitant to take on the responsibility of a large grant, some had low capacity to support the applicant throughout the submission process, and some respondents reported inadequate institutional support of STEM.</p> <p>Other examples of barriers faced include:</p> <ul style="list-style-type: none"> • <i>Weakness of their team</i> • <i>Weakness of their concept</i> • <i>Lack of personal grant-writing experience</i> • <i>Struggle to align their proposal with the solicitation.</i>

USEFULNESS OF HUB RESOURCES

Submitters

Those who submitted to NSF 20-599 rated the degree to which they used what they learned from the Hub to develop their proposal to NSF 20-599 and any other proposals on a scale of 1-5 (Not at all - Very much). A rating of 4 or 5 was given by 66% of those who applied for NSF 20-599 and 72% of those who submitted other proposals.

A majority of those who submitted a proposal used what they learned from the Hub to a great degree

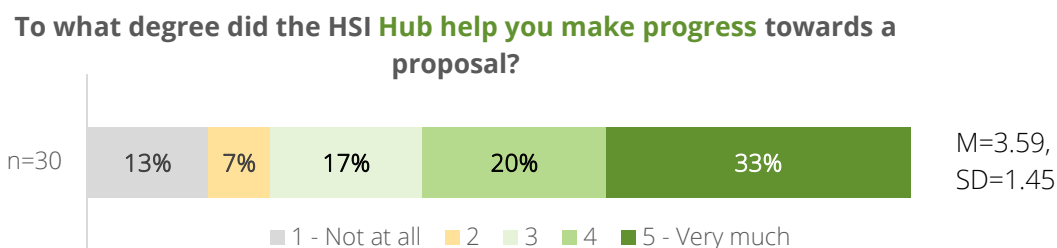


When asked in an open-ended question which HSI Hub resources were most helpful in preparing their submission, respondents said:

- *Webinars and workshops (n=19)*
- *Direct NSF program officer support (n=7)*
- *Examples (n=3)*
- *HSI Hub newsletter and website (n=2)*

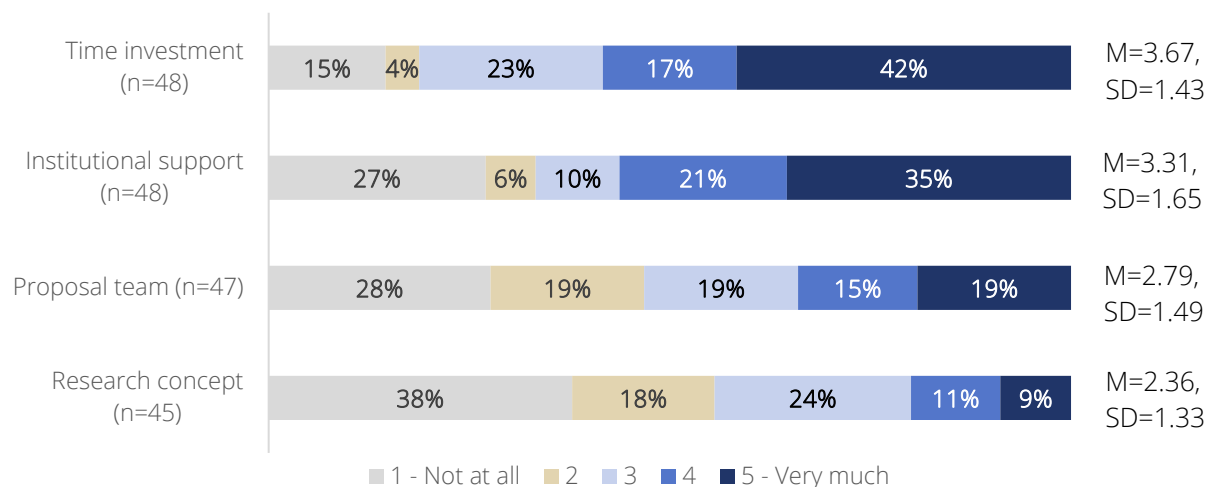
Non-submitters

Fifty-two survey respondents indicated that they intended to but ultimately did not reach submission for either NSF solicitation. Of these, 30 indicated that they had made **progress** towards writing a proposal. With the exception of two, those who had made progress indicated that they plan to submit a proposal to NSF in the future. These 30 were asked to rate the degree to which the HSI Hub helped them make progress towards a proposal; 53% rated help from the Hub at a 4 or 5.



Additionally, these respondents were asked the degree to which several factors influenced their decision to not submit. These factors included: time investment required, low support from the respondent's institution, lack of a strong proposal team, and difficulty developing a research concept methodology.

Degree to which the following factors influenced respondents' decision to not submit an NSF proposal?



Of these respondents, eight provided other reasons for why they did not submit. Other contributing factors included personal and professional impact of the COVID-19 pandemic (n=3), time management and timeline concerns (n=2), the mid-year restructure of the NSF solicitation (n=2), and plans to submit in August 2021 instead (n=2).

When asked in an open-ended question what other training or resources the HSI Hub could provide to help with future submissions, eight respondents indicated that the support the Hub is currently offering is meeting their needs.



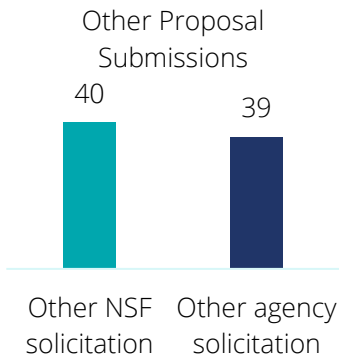
"The HSI Hub has provided one-of-a-kind support for grant writing. I think its impact is enormous, especially for community colleges. Perhaps many outcomes derived from the HSI Hub's work will be seen even past the near future."

"The library, webinars and other resources were really helpful in learning about new lines of research and inquiry as an HSI."

Two people indicated that more [support for forming collaborations](#) would be helpful. Additionally, two respondents said that more [examples of successful proposals](#), particularly for community colleges, would be beneficial.

Three other respondents said they would like support for smaller funding opportunities, support on white papers, and support for reviewing survey instruments and preliminary data to inform project design.

OTHER SUBMISSIONS



Seventy-nine respondents indicated that they submitted a proposal to a solicitation other than NSF 20-599 or 19-540. Forty respondents submitted to a different NSF solicitation, while thirty-nine submitted a proposal to a funding agency other than NSF.

Respondents applied to a variety of other NSF solicitations, spanning 25 NSF initiatives. Respondents also applied to various other funding agencies. With seven submissions, the National Institutes of Health are the most frequently alternative funding agency, followed by the US Department of Education and the US Department of Agriculture.

Other NSF Solicitations included the following NSF initiatives:

- *S-Stem*
- *SL*
- *HBCU-*
- *ITEST*
- *AISL*
- *IUSE*
- *CMMI*
- *FWS*
- *SenSE*
- *INCLUDES*
- *CSforALL*
- *DRK12*
- *B&B*
- *BPINNOVATE*
- *NOYCE*
- *ADVANCE*
- *GeoPaths*
- *ATE*
- *CAT*
- *Cyber training*
- *CMMI*
- *IGE*
- *CC**
- *CAREER*
- *Systematics and genome panels*

Other funding solicitations included the following agencies:

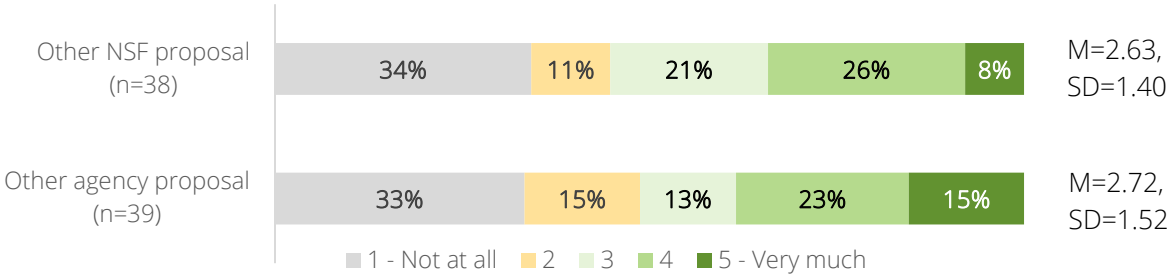
- *NIH (n=7)*
- *Department of Education (n=6)*
- *USDA (n=5)*
- *NASA*
- *Spencer Foundation*
- *Office of Naval Research*
- *FWS*
- *DARPA*
- *TxHSIC Consortium Conference Grant*
- *California Natural Resources*
- *NRT*
- *AERA*
- *NIFA*
- *100K Strong in the Americas*

Of the 39 respondents who submitted to another NSF proposal, 38 provided a response to whether or not they had been funded. Of these 38, 14 were funded, six were not, and 18 are awaiting a notification. Similarly, of the 40 respondents who submitted to another funding agency, 39 provided a response to whether or not they were funded. Of these 39, 12 were funded, seven were not, and 20 are awaiting a notification.

USEFULNESS OF HUB RESOURCES

The 79 respondents were asked to indicate the degree to which they used what they learned and accessed from the HSI Hub to develop and submit this other proposal on a scale of 1-5 (Not at all - Very much). One-third of respondents did not use information from the Hub to develop other proposals; however, about the same proportion (34 – 38%) rated their use at a 4 or 5.

Degree to which respondents used what they learned from the Hub to develop other proposals



When asked in an open-ended question what Hub resources were most helpful in preparing their submissions, respondents noted:

- Webinar and workshops (n=12)
- The Hub network (=3)
- Examples of funded projects (n=2)
- Direct support from NSF program officers (n=2)



CONNECTING TO THE HUB FOR OTHER REASONS

Of the 59 respondents who connected to the HSI Hub for reasons other than support with grant writing proposal submission, 49 described why they engaged with the Hub.

Networking was the primary reason for engaging with the Hub, with 12 respondents noting their goals of expanding their personal network to seek content experts in specific areas of STEM and to connect with other HSIs. Further, three respondents indicated that they engaged with the Hub network because they would like to contribute their own experience and expertise with others.

Others engaged out of general interest. These 11 expressed a desire to better understand the scope and activities of the Hub.

The third most prevalent reason for engaging with the Hub involved interest and learning related to resources, content, and best practices. Eight respondents indicated a desire to build their own capacity for



future submissions, and another eight indicated that they intend to share resources with their colleagues and students. Additionally, four respondents joined because they were [referred to by their colleagues](#).

Of the respondents who engaged with the Hub for reasons other than proposal submission support, 46 provided examples of how they have been helped by the Hub. These included the following HSI STEM Hub resources and activities:

- *Resources, content, and best practices (n=14)*
- *Grantsmanship education (n=14)*
- *Networking (n=11)*
- *General (n=8)*
- *Sharing Hub resources with colleagues (n=4)*



"[The Hub] gave me a great overview of the process and the types of projects that people submit."

"HSI Hub has been a valuable resource that connected me with other initiatives."

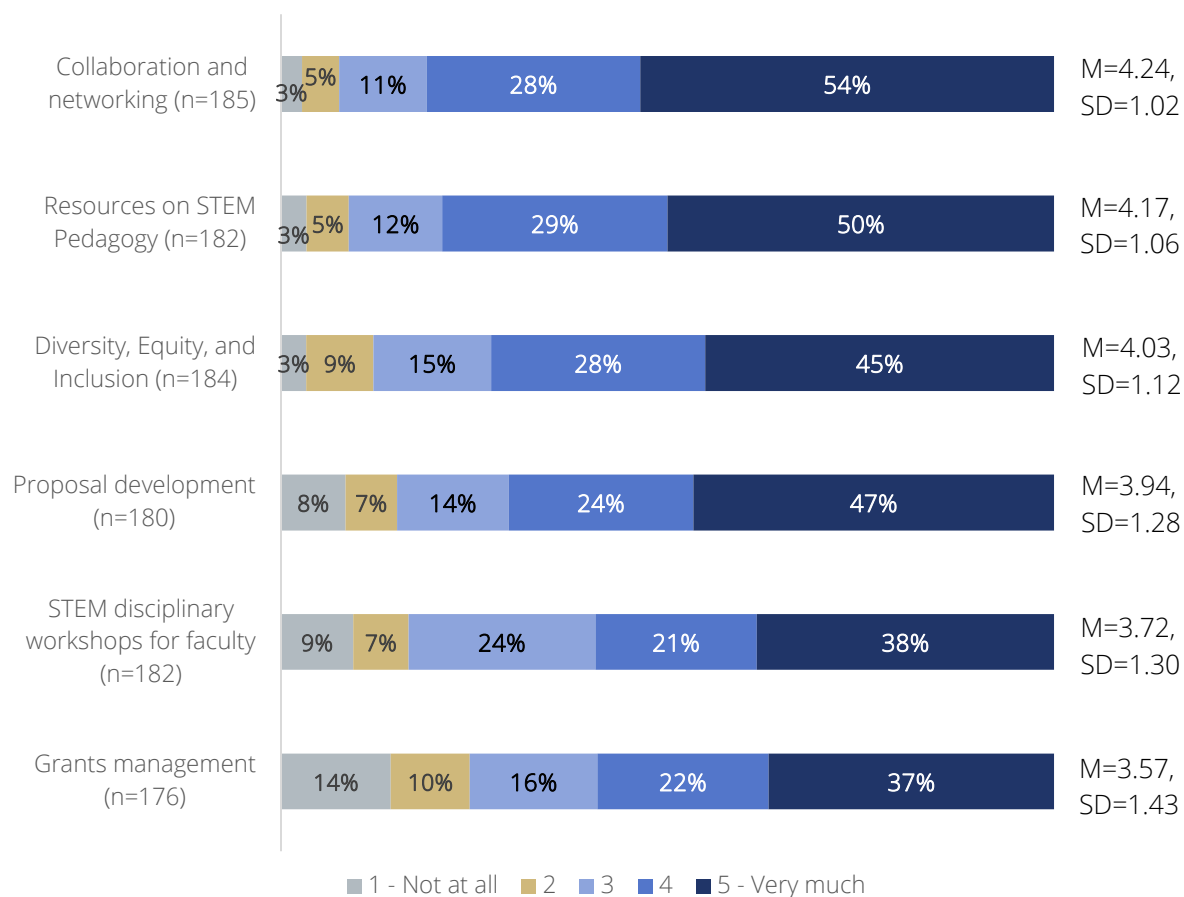
"I have forwarded resources from the Hub to other colleagues at my institution to increase participation in grant activities across the college."

"The network is reassuring as it is so difficult to connect around STEM issues at HSIs."

REQUESTED RESOURCES

Collaboration and networking, as well as resources on STEM pedagogy were the most requested additional resources across all respondents, with at least 50% rating each a 5 on a scale of 1 – 5 (Not at all – Very much)

Other resources that would be helpful at this time



In an open-ended question, respondents were provided the opportunity to describe other resources that would be most helpful. Diversity, equity and inclusion was the most requested type of resource, noted by 15 respondents. Establishing networks and partnerships also rose to the top, detailed by 14 respondents.

Select Illustrative Quotes

Diversity, Equity & Inclusion

[I would like activities that examine] how to make your STEM course fall within DEI parameters. What does it mean to have DEI in STEM classroom? How can you leverage your classroom as source of research?

The proposal that we worked on focused on providing culturally relevant pedagogy to help STEM students. Working on the proposal made me realize how much information STEM faculty are lacking on how to properly address diversity/equity/inclusion issues. It would be great to have a resource related to these areas.

Diversity, Equity, and Inclusion workshops that include CURES approaches and student peer mentoring.

What do we know about effective pedagogy in STEM, including effective pedagogy for first-generation and/or Latinx students?

How to develop a plan for Diversity and Inclusion when you are at a Minority Serving Institution.

More information on becoming a Latinx friendly campus.

Networks & Partnerships

Facilitating collaborative grant planning/ proposal planning and development across disciplines/departments.

How do we meaningfully collaborate with other HSIs so we can begin to understand how high-impact pedagogies affect our VERY diverse Latinx student population.

I would like to participate in an "unconference" which focused on sharing resources, information and perspectives/experience and discovering expertise and possible consultants and collaborators.

I would like to learn how different institutions form partnerships and discuss funding goals that support their mutual needs, and how these partnerships lead to a joint solicitation for an NSF grant. I would love to learn more how these collaborations work between HSI's and non-HSI's, with a focus on Hispanic STEM students and/or a more diverse underrepresented student population.

Maybe a workshop on how to convene a team, set clear expectations and roles, and how to lead project brainstorming and development.

A LAST WORD

When given the opportunity to share any additional thoughts, two individuals noted problems accessing the website; assistance with membership and retrieving online resources was not forthcoming. Three respondents said they were unaware of all that the Hub offers. “Clearly, I’m not taking full advantage of membership with the Hub!” Another stated, “Clearly I need to take more advantage of the HSI Hub. I’m not clear on exactly what it is, how it is connected to NSF, and how it can support my funded program.”

More importantly, 25 individuals used this space to give praise to the work of the Hub.

“I didn’t realize there was a related podcast. Not sure I received newsletters, just email reminders, and haven’t been to the website much. Maybe on presenter screens this information should be placed on the template as a reminder. I could see all of this as valuable, but honestly didn’t realize these resources were available. Are there social media accounts, Twitter as a PLN?”

“This network is a game changer for me and my peers ... as we are in a remote area. THANK YOU!”

“I hope to participate in additional trainings when the current situation improves. The HUB is an excellent resource for small HSIs with no experience with NSF (like mine).”

“Thanks for your service; for the most part I’ve found that everything offered has potential for service and impact.”

“Thank you for being available to help us as a 2-year HSI move more affirmatively into the NSF arena!”

“This is essential and excellent programming. I wish my institution were more open to supporting a variety of proposals.”

“I also use the HSI Hub to help me think through my writing related to STEM in HSIs and HSIs overall. I feel like it’s another resource to help keep me up to date and have a community since no one else at my HSI seems to be thinking about these issues that same way that I am.”

Finally, two individuals had recommendations for improvement.

- *“I think it would be nice to have a session for different kinds of HSIs: community college focus, PhD granting focus, small liberal arts focus, resident college focus, commuter college focus, new HSI focus, more established HSI focus. Different HSIs have different needs and it would nice to collaborate with other HSIs that have the same challenges.”*
- *“It would be helpful if the member directory were in alphabetical order by last name or if there were a sorting feature so I could sort members in that way. Also, would be helpful to encourage members to complete their profiles, otherwise it’s really not that helpful.”*

SPOTLIGHT ON GRANTSMANSHIP

The Hub evaluation includes data collection following the webinars, workshops, and the Semillas program. Hub team members use these evaluation results throughout the year to make modifications to programming. Below are highlights to this year's findings.

WORKSHOPS

Across learning objectives, workshop participants saw a significant gain in knowledge.

There was no significant difference in mean scores between year one and year two participants, nor between in-person and virtual workshop participants. This finding is encouraging given that all learning opportunities are now virtual.

SEMILLAS

Key Takeaways

- The impact of the Semillas program varied across participants. Some indicated the program built their personal ability to prepare a grant proposal and others reported the program strengthened the quality of their proposal.
- Trainees reported the use of specific examples during the webinars and the coaching sessions helped them to understand the different components and requirements of a proposal submission.
- Awardees indicated the Individualized coaching and the mock review were the most valuable strategies used to improve the proposals.
- Overall, awardees felt they experienced personal and organizational growth.

Based on feedback from Cohort 1, the Hub team made several adjustments to the second cohort, including:

- Two pre-launch meetings to ensure presenters and coaches are on the same page
- Prompts for coaches about NSF specific content
- Program coordination conducted by Hub program assistant
- Program schedules and meeting presentations posted well in advance

SUMMER 2020 WEBINAR SERIES

222

Unique **survey respondents** across all 12 summer webinars

43% Said they will definitely submit an NSF proposal

78% Were from an HSI

25% Were from primarily two-year or vocational training institutions

"[My biggest takeaway was] learning about the important details to include in NSF proposals and submission guidelines."

"I learned that you need to have data on the students, and you need to have measurable goals and objectives."

*"[The webinar] de-mystified much of the NSF organization information...for submission.
[I learned] how clear a process it is."*

RECOMMENDATIONS

Respondents who submitted a proposal indicated that the resources and training that they received from the Hub were useful in the development of their proposal. This includes submissions to NSF 20-599, other NSF solicitations, and other funding agencies. Further, those who did not ultimately submit a proposal indicated that the Hub resources helped them make progress towards submission. Some said that they plan on submitting a proposal in the future.



The Hub should **continue to provide several entry points** to grantsmanship, from novice certification programs to advanced intensive training and coaching.

Going forward, the Hub has the opportunity to continue to increase the grantsmanship capacity of individuals who were not funded and who plan to resubmit. Respondents who were not funded said that articulating their ideas effectively in writing was a barrier they faced in proposal development.



The Hub should consider a second phase of grantsmanship to include **resources, expert advice, coaching on resubmission.**

Respondents whose proposals were funded said that in addition to understanding what grant reviewers look for, having institutional support and developing successful partnerships were key to writing a successful proposal. Similarly, those who were not funded or who did not reach submission indicated that limited institutional capacity and the weakness other their team were challenges.



As institutional capacity was a barrier across the board, the Hub should explore how **networks/partnerships** might ameliorate this challenge.

Beyond grantsmanship, Hub members were interested in resources related to STEM pedagogy, networking and collaboration, and diversity equity and inclusion (DEI). These were the most requested Hub resources from all respondents, including those who connect to the Hub for reasons other than proposal submission.



The Hub should focus the next year on **building out resources for STEM pedagogy and DEI.** As noted above, the Hub should leverage the diversity and expertise among the membership to facilitate networking and collaboration.

APPENDIX A: METHODS

Participants

The HSI Year 3 Comprehensive Survey (provided in full, see Appendix B) was distributed to 994 email addresses accrued throughout the year from all HSI STEM Hub activities, including webinars, network account registration, and other events. Of the 994 email addresses, 40 were undeliverable. Evaluators received 217 responses and 203 were considered complete enough for inclusion in analysis for a response rate of 21%.

Instruments

The HSI Year 3 Comprehensive Survey was developed to explore how people are engaging with the HSI STEM Hub, which activities are most utilized, and how satisfied participants are with those resources. Further, it included questions to respondents based on their reasons for engaging with the Hub, including their goals of submitting to NSF 19-540, NSF 20-599, or other proposal solicitations from NSF or other agencies. Respondents also were able to identify reasons other than grantsmanship that they chose to engage with the Hub.

Analysis

Data was deidentified and cleaned, with completion past Question 4 considered enough for inclusion in the analysis. Analysis was conducted using IBM SPSS Statistics 27. Emergent coding was used to analyze open ended data. In the case that an “Other: Please specify” response was determined to align with one of the given options, these responses were re-coded to that option.

APPENDIX B: INSTRUMENTATION

HSI Year 3 Comprehensive Survey

The NSF National Resource Hub for STEM Education for Hispanic-Serving Institutions (HSI Hub) is a collaborative project at New Mexico State University, Doña Ana Community College, and California State University, Northridge. The HSI Hub strives to advance knowledge about how to enhance undergraduate STEM education, build research capacity, and obtain grant resources for these efforts from NSF.

You are receiving this survey because you are a member of the HSI Hub and/or you have participated in HSI Hub activities. Your completion of this program evaluation survey will help us gauge how well we are fulfilling our mission and meeting our goals; and will inform our program design. The survey should take no more than 10-15 minutes to complete.

The information you provide is completely confidential. **No personal demographic data will be gathered.** Further, all data will be password protected and only available to the evaluators. **Data will be reported only in aggregate form** in reports to the agency and in publications and presentations about the effectiveness and outcomes of HSI Hub program activities. Although there are no sensitive questions in the survey, some questions may create some discomfort. If this should occur, you are not obligated to answer such questions. You also have the right to stop at any time without any consequences.

This survey was conferred **Exempt** status by the Institutional Review Board (IRB).

If you have any questions about this survey, please contact [name of evaluator] via email at [evaluator email].

Question	Response options
1a. How would you describe your institution?	<ul style="list-style-type: none">○ Primarily 2-year degree or vocational training programs○ Primarily Bachelor's Degree programs○ Comprehensive Master's Degree programs○ PHD granting institution○ Other: Please describe _____
1b. Is your institution an HSI?	<ul style="list-style-type: none">○ Yes○ No○ I don't know○ It is an emerging HSI○ Other: Please describe _____
2. Please tell us your rank or job title	<ul style="list-style-type: none">○ Administrator/Administrative Leadership○ Full Professor○ Associate Professor○ Assistant Professor○ Adjunct Faculty

	<ul style="list-style-type: none"> ○ Lecturer/Instructor ○ Administrative staff ○ Other: Please describe _____
<p>3. Which of the following HSI STEM Hub resources did you access/attend and how useful were they?</p> <ul style="list-style-type: none"> ○ Webinars (one-hour, drop-it format) ○ Grantsmanship workshop (1 or 2-day intensive workshop, either in person or virtual) ○ Semillas mentored training (intensive training with coaching) ○ HSI STEM Hub website resources (reading materials, links to other webinars) ○ Hub Newsletter ○ STEMiversity Podcast ○ Certification series (self-guided webinar) ○ Hub member network ○ Other: _____ 	<p>Scale 1-5 for each resource</p> <ul style="list-style-type: none"> ○ 1=Not at all useful ○ 5=Very useful ○ NA=Did not access
<p>4. Did you submit a proposal to either of the following NSF program solicitations? (Check all that apply)</p>	<ul style="list-style-type: none"> ○ NSF program solicitation 19-540 (September 18, 2019) [display section A] ○ NSF program solicitation 20-599 (February 10, 2021) [display section B] ○ I intended to but ultimately did not submit a proposal to either solicitation [display section C] ○ Other NSF solicitation [display section D] ○ Other agency solicitation (e.g. NIH, USDA, DOD, DOE, NASA) [display section D] ○ I did not intend to submit a proposal, I connected to the HSI Hub for other reasons [display section E]
<p>A) IF SUBMITTED NSF 19-540 (September 18, 2019)</p> <p>Please answer the following questions about your submission to NSF solicitation 19-540</p>	
<p>5. Was your submission to solicitation 19-540 funded?</p>	<ul style="list-style-type: none"> ○ Yes [skip to Q5a1] ○ No [skip to Q5b1]
<p>IF FUNDED FOR NSF 19-540</p>	
<p>5a1. What would you say was the most essential aspect of support you had in writing your successful NSF proposal?</p>	<p>Open ended response</p>
<p>5a2. What was most challenging?</p>	<p>Open ended response</p>

5a3. To what degree did you use what you learned/accessed from the HSI Hub to develop this proposal?	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much
5a4. Which HSI Hub resources were most helpful in preparing this submission?	Open ended response
5a5. To what degree did you use what you use what you learned/accessed from the HSI Hub to develop and submit other proposals?	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much
IF UNFUNDED FOR NSF 19-540	
5b1. What would you say was the most essential aspect of support you had in writing this NSF proposal?	Open ended response
5b2. What was most challenging?	Open ended response
5b3. To what degree did you use what you learned/accessed from the HSI Hub to develop this proposal?	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much
5b4. How confident were you in addressing the NSF feedback in order to resubmit?	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much
5b5. What supports did you need for resubmitting?	Open ended response
5b6. To what degree did you use what you learned/accessed from the HSI Hub to develop and submit other proposals?	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much <input type="radio"/> I have not submitted other proposals
5b7. Which HSI Hub resources were most helpful in preparing this submission?	Open ended response
B) IF SUBMITTED NSF 20-599 (February 10, 2021)	
Please answer the following questions about your submission to NSF solicitation 20-599	
6a. What would you say was the most essential support to writing this NSF proposal?	Open ended response
6b. What was most challenging?	Open ended response
6c. To what degree did you use what you learned/accessed from the HSI Hub to develop this proposal?	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much
6d. To what degree did you use what you learned/accessed from the HSI Hub to develop and submit other proposals?	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much <input type="radio"/> I have not submitted other proposals
6e. Which HSI Hub resources were most helpful?	Open ended response
C) IF INTENDED TO SUBMIT BUT DID NOT	

The following questions are regarding your response that you did not submit to either NSF Solicitation 19-540 or 20-599	
7a. Did you make progress towards submitting an NSF proposal in the past year?	<input type="radio"/> Yes [display 7b] <input type="radio"/> No
7b. To what degree did the HSI Hub help you make progress towards writing a proposal?	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much
7c. To what degree did the following influence your decision to not submit? <input type="radio"/> Time investment required <input type="radio"/> Low support from your institution <input type="radio"/> Lack of a strong proposal team <input type="radio"/> Difficulty developing a research concept methodology <input type="radio"/> Other, please specify: _____	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much
7d. In your own words, please describe the barriers you faced to submitting an NSF proposal.	Open ended response
7e. To what degree did you use what you learned/accessed from the HSI Hub to develop and submit other proposals?	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much <input type="radio"/> I have not submitted other proposals
7f. What other training or resources could the HSI Hub provide to help you with future submissions?	Open ended response
7g. Do you plan to submit a proposal to NSF in the future?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not sure
D) IF SUBMITTED TO ANOTHER NSF SOLICITATION OR TO ANOTHER FUNDING AGENCY	
The following questions are regarding your response that you submitted to another NSF solicitation or funding agency	
8a. To what other NSF solicitation or funding agency did you submit a proposal to?	Open ended response
8b. Were you funded?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Awaiting notification
8c. To what degree did you use what you learned/accessed from the HSI Hub to develop and submit this other proposal?	Scale 1-5 <input type="radio"/> 1=Not at all <input type="radio"/> 5=Very much
8d. Which HSI Hub resources were most helpful to preparing this submission?	Open ended response
E) IF ENGAGED WITH THE HUB FOR OTHER REASONS	

The following questions are regarding your response that you did not intend to submit a proposal, rather you connected to the HSI Hub for other reasons	
9a. Why did you connect to the HSI Hub?	Open ended response
9b. How has the HSI Hub helped you?	Open ended response
CONCLUDING QUESTIONS (ASKED OF EVERYONE)	
The following questions are about the HSI STEM Hub in general	
10. What other resources will be most helpful to you at this time? <ul style="list-style-type: none"> ○ Proposal development ○ Grants management ○ Collaboration/networking ○ Resources on STEM pedagogy ○ STEM disciplinary workshops for faculty (data science, AI, 3D printing) ○ Diversity, Equity, and Inclusion 	Scale 1-5 <ul style="list-style-type: none"> ○ 1=Not at all ○ 5=Very much
10a. Please tell us specifically what other resources will be most helpful to you? For example, what kinds of 1-2 day workshops would you like the Hub to offer?	Open ended response
11. Have you connected to other members of the network in any of the following ways? (check all that apply)	<ul style="list-style-type: none"> ○ Not at all ○ Yes, exchanged contact information ○ Yes, shared resources ○ Yes, met to discuss work ○ Yes, discussed possible collaboration ○ Yes, we are collaborating
12. Please indicate your agreement with the following statements: <ul style="list-style-type: none"> ○ The website is easy to navigate ○ The website content is informative ○ Membership to the HSI Hub provides access to valuable resources ○ HSI Hub membership network is easy to access ○ The HSI Hub team/staff is responsive to my inquiries/requests ○ I find the information in the HSI Hub newsletter valuable 	Scale 1-5 <ul style="list-style-type: none"> ○ 1=Not at all ○ 5=Almost always ○ NA
13. Is there anything else that you would like to tell us?	Open ended response



MISSION

We strive to make evaluation a valued and widely accepted practice by increasing the use and understanding of evaluation. We collaborate with our clients to support evidence-informed programs, practices, and policies in schools, institutions of higher education, governmental agencies, and nonprofit organizations.



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