International Research Engagement for
Graduate Level Professional Development through the
Limnology and Oceanography Research Exchange (LOREX)

Year 2 Evaluation Progress Report

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Introduction

The Association for the Sciences of Limnology and Oceanography (ASLO) is dedicated to promoting and communicating aquatic science research on an international level. Because bodies of water often transcend national boundaries, the researchers who study them must be equipped with the skills to collaborate with a diverse, global scientific community. These skills include communication, cultural sensitivity, maintaining collaborations, and an understanding of logistical considerations. To meet such needs, ASLO established the Limnology and Oceanography Research Exchange (LOREX) program with funding from the National Science Foundation (NSF award# OISE 1831075).

The goal of the LOREX program is to support students in initiating and carrying out collaborative international research. The project mimics as closely as possible—while providing continuous guidance—the process that scientists interested in initiating and conducting international research would encounter, including conceptualizing ideas for relevant research of global importance, formulating these ideas in a form of a research proposal, seeking international partners, competing for funding, initiating interactions with international collaborators, working as a team to plan, design and execute the proposed project, and disseminating the results to the research community.

As such this program prepares participating students for the challenges they would face in their future careers, providing them with experiences and skills to incorporate collaborative, international research as part of their preparation and development. In addition, the project provides opportunities to build relationships among each cohort of students, between cohorts, between the students and other students and faculty, and between the LOREX program and other similar programs at other higher education institutions through conference meetings and presentations.

LOREX 1 participants were selected in the fall of 2018, and attended in-person orientation with Dr. Adina Paytan and co-PIs at the ASLO meeting in Puerto Rico in February 2019 where they had the opportunity to meet coordinators from their host international sites and other LOREX students working at the same location. Additionally, they received training related to logistics and cultural contexts. After the orientation, Dr. Paytan checked in via email with students regularly. Students traveling to Canada and Sweden traveled abroad from July to September 2019. Students traveled to Australia and Israel from June 2019 to January 2020. Upon return to the U.S., they will be expected to disseminate their research through presentations and publications. LOREX 2 students were selected in fall of 2019 and attended the ASLO meeting in San Diego in 2020 for their orientation and training. Several LOREX 1 students also attended this meeting.

In 2018, Dr. Bernadette Chi was contracted to conduct the external evaluation for the LOREX program. She has extensive experience in research and evaluation of educational and community-based programs over the last 20 years. Dr. Chi worked for ten years at the Lawrence Hall of Science, leading National Science Foundation-funded, multi-year studies of undergraduate and graduate education programs designed to encourage under-represented students to pursue STEM majors and careers. She collaborated with the LOREX PIs on the study design, development of instruments, data collection and analyses, and she collaborated with program staff and participants in the presentation of findings of the LOREX study.

This Year 2 evaluation progress report summarizes findings that address the following questions:

- To what extent has the program been successful in implementing its goals?
- What have been the program accomplishments and areas of improvement?

The report discusses (1) findings from the first LOREX cohort of students (LOREX 1) who completed their international research experiences this past year in Australia, Canada, Israel, or Sweden, and (2) findings from the pre-program surveys of the second LOREX cohort (LOREX 2).

Design and Methodology

The LOREX evaluation utilized a mixed-methods design including pre-post program surveys with Likert and open-ended questions, and semi-structured in-person focus groups to gather qualitative data. The surveys requested participants to rank their previous experiences and confidence levels with international scientific collaboration, research practices and intercultural communication. Survey data was collected anonymously via Qualtrics, an online survey platform, between December 2018 and June 2020, with participants creating an identifier code used to link their responses on surveys. Paired t-tests were used to compare means between pre and post-survey responses.

Focus groups of LOREX 1 and 2 participants were conducted and recorded in groups of five or six students during the ASLO conferences in 2019 and 2020. During the focus groups, students were asked to share the process and motivations behind applying to this program, their relationship with advisors and collaborators, updates to their projects at that time, and any arising questions or issues. For example, students were asked how the LOREX international research project aligned with their current and future academic and career plans. All focus group recordings were transcribed.

Sample

All LOREX participants currently attend or graduated from Masters or PhD programs across the United States and range from first-year Masters students to fifth-year PhD candidates. For LOREX 1, 26 graduate students were invited to participate in a paid research exchange with international research collaborators and institutions. 25 of the 26 students completed their international research experiences during 2019-2020. Of the 26 who submitted the pre-program survey, 70% self-identify as female and 81% self-identify as White/Non-Hispanic, as illustrated in the tables below.

In 2019, 21 participants were accepted into the LOREX program for its second cohort (LOREX 2). Based on data gathered on the pre-program survey (n=17), 76%, or 13 participants, self-identify as female and 59% (10) self-identify as White/Non-Hispanic.

Table 1. Race and Ethnicity of LOREX 1 and LOREX 2 Participants

Race/Ethnicity	**LOREX Cohort 1** N=27 % of sample (#)	**LOREX Cohort 2** N=17 % of sample (#)
Multi-Ethnicity	7% (2)	24% (4)
African-American	0% (0)	6% (1)
Hispanic	4% (1)	6% (1)
Pacific-Islander	0% (0)	6%(1)
Asian-American	7% (2)	0% (0)
White/Non-Hispanic	81% (22)	59% (10)

Table 2. Gender of LOREX 1 and LOREX 2 Participants

Gender	**LOREX Cohort 1** N=27 % of sample (#)	**LOREX Cohort 2** N=17 % of sample (#)
Women	70% (19)	76% (13)
Male	26% (7)	24% (4)
Other	4% (1)	0% (0)

When comparing the two cohorts, the LOREX 2 cohort was more diverse than LOREX 1, with increased representation from more cultural groups (African-American and Pacific-Islander) and a higher percentage of minorities and underrepresented students in the program, though students who are White/Non-Hispanic still represent the majority. Women continued to be the majority in both cohorts, which is positive given the underrepresentation of women in the scientific research community.

Findings for LOREX 1

Finding #1: LOREX 1 students increased their confidence as international research collaborators, improving their research and communication skills.

All LOREX 1 participants spoke positively about their international research experience.

An overwhelming number of the LOREX 1 participants spoke positively of their international research experience, as illustrated by their survey comments:

- *I think it is a valuable experience that will allow growing scientists to improve upon their research community and gain more experience conducting field work and collaborating internationally.*

- *My research experience met my goals and expectations of forming a new collaboration and performing successful field experiments, as well as working with and learning from other LOREX students.*

- *My experience drastically exceeded my expectations. I was able to collaborate and conduct research far beyond that which was planned prior to the beginning of my international research.*

- *I feel less than "very confident" about my ability to acquire and manage funding on my own mostly because I still don't have experience with that. But I think it's BECAUSE the LOREX program took care of the funding that I had the opportunity to grow in all of the other categories, which I think better equips me to continue stepping outside my comfort zone, which will certainly lead to me learning how to navigate funding. Especially since I'm now more motivated than ever to seek out a career of international collaboration.*

From hosts:

- *Me and the LOREX student communicated very well, so it was a very rewarding and nice experience.*

- *(The LOREX student) was an outstanding collaborator, and my lab and I really benefit and enjoy her presence.*

- *LOREX is a good way to (a) educate students to a higher level and otherwise possible and (b) build connections between researchers and institutions.*

Both students and hosts were also very positive about the potential for future collaborations:

From students:

- *We stay in touch and are planning papers/future work together.*

- *I would like to continue collaborating and discussing how my research here in the US can be compared to research in Australia. I would like to publish one paper from my LOREX experience with both my collaborators and US advisor.*

- *We are working on publishing the results of our project and I may end up going back to Australia for my PhD.*

- *I keep in touch and plans are in place to continue the collaboration.*

- *Yes, we plan to publish our work from this summer.*

From hosts:

- *Hopefully we will at least collaborate around a manuscript, provided the data is good enough. That was the plan from the start. Then we will see...*

- *Would like to (continue to collaborate) and it has been discussed but it all depend on if the students get academic positions. We will try to publish the results jointly and there is interest in coming back for post doc.*

- *Our project is still ongoing and I am quite glad how it develops.*

- *We are still analyzing her data, both from her work here in (host lab) and from experiments she had previously performed in her home lab. There is a good chance (LOREX participant) will come back to (host lab) in a few months time to facilitate writing the papers from her work as a LOREX student.*

LOREX 1 Students increased their confidence across all aspects of planning and conducting research overseas.

LOREX 1 students also assessed their confidence on a range of research experiences and their intercultural communication skills, both before and after their international research work. Based on their pre-post survey responses presented in Table 3 below, LOREX 1 students' confidence in their abilities to do research increased significantly *(p-value <0.05)* across ALL areas from the pre- to the post-survey responses. Interestingly, the SD within all responses also decreased from pre- to post-survey responses, suggesting that there is greater clustering or agreement around the mean score.

Table 3. LOREX 1 Student Confidence Levels (Pre- and Post-Program Survey)

Survey question: *How confident are you now in your ability to accomplish the following?*

N=25	Pre-survey mean (SD)	Post-survey mean (SD)	t-value	P-value	95% CI
Connect international research to your primary research at home?	3.64 (1.15)	4.56 (0.51)	-4.13	0.000*	(-1.380, -0.460)
Conduct research outside your home country?	3.24 (1.05)	4.40 (0.65)	-5.07	3.45E-05*	(-1.632, -0.688)
Collaborate with scientists from another country?	3.52 (1.05)	4.32 (0.75)	-4.62	0.000*	(-1.157, -0.4425)
Present at an international research conference?	3.92 (1.00)	4.32 (0.69)	-2.62	0.015*	(-0.715, -0.085)
Make cross-disciplinary connections?	3.44 (1.23)	4.28 (0.74)	-3.67	0.001*	(-1.312, -0.368)
Work with people from an unfamiliar culture?	3.68 (1.07)	4.24 (0.72)	-2.58	0.016*	(-1.0071, -0.113)
Design field work/data collection strategies?	3.8 (0.96)	4.2 (0.65)	-2.19	0.038*	(-0.777, -0.023)
Brainstorm global research questions?	3.40 (1.08)	4.12 (0.78)	-3.39	0.002*	(-1.158, -0.282)
Maintain a long-term professional relationship with scientists?	3.68 (1.18)	4.12 (0.83)	-2.19	0.038*	(-0.854, -0.026)
Maintain productive international relationships (including cultural sensitivity and language barriers)?	3.4 (1.00)	4.08 (0.81)	-3.44	0.002*	(-1.088, -0.272)
Conduct independent research (without an advisor)?	3.36 (1.19)	4.04 (0.89)	-3.30	0.003*	(-1.105, -0.255)
Initiate international collaborations?	3.04 (1.31)	3.96 (0.89)	-3.19	0.004*	(-1.515, -0.325)
Write research proposals?	3.48 (0.92)	3.92 (0.76)	-2.86	0.009*	(-0.757, -0.123)
Manage international research (including permits, funding, cultural and political considerations)?	2.52 (1.39)	3.24 (1.09)	-3.52	0.002*	(-1.142, -0.298)

Scale: 1=Not at all confident/not sure; 2=A little confident; 3=Somewhat confident; 4=Confident; 5=Very confident

**(p-value <0.05)*

In the pre-survey responses, students were most confident in *presenting at an international research* conference (mean=3.92, SD=1.00); *designing field work/data collection strategies*

(mean=3.8, SD=0.96); *working with people from an unfamiliar culture* (mean=3.68, SD=1.07); and *maintaining a long-term professional relationship with scientists* (mean=3.68, SD=1.18). On the post-survey, students were most confident in *connecting international research to your primary research at home* (mean=4.56, SD=0.51); *conducting research outside your home country* (mean=4.40, SD=0.65); *presenting at an international research conference* (mean=4.32, SD=0.69); and *collaborating with scientists from another country* (mean=4.32, SD=0.75).

This increase in confidence was further explained by the students' comments on the survey:

- *(This program) exceeded expectations. I was able to conduct my research to compare my dissertation to, create a network of collaborators, and expand as a researcher by learning more about international research, project design, and organizing a sampling event.*

- *I learned a lot and I developed many skills that are helping me as a scientist.*

- *I feel less than "very confident" about my ability to acquire and manage funding on my own mostly because I still don't have experience with that. But I think it's BECAUSE the LOREX program took care of the funding that I had the opportunity to grow in all of the other categories, which I think better equips me to continue stepping outside my comfort zone, which will certainly lead to me learning how to navigate funding. Especially since I'm now more motivated than ever to seek out a career of international collaboration.*

- *Since I am trying to obtain an international post-doc, I feel confident that I can reach out to international scientists, develop a research project, and conduct it. I didn't have too much experience with managing the research but I am sure I will someday.*

- *I have been part of large consortium groups for research before, so I was already pretty confident working with people outside of my discipline. What this experience proved to me is that I could propose and plan an international research experience, and be successful.*

On both the pre-survey and post-survey, one item had the lowest mean score: *managing international research* (including permits, funding, cultural and political considerations). Although there was a significant increase in the mean response (pre=2.52, SD=1.39; post=3.24, SD=1.09), these relatively low values suggest that more information about permits, funding, cultural and political considerations are needed for the next LOREX cohort. This is further supported by some student responses when asked if there was anything else that they wanted to add:

- *more information regarding visas and permits*
- *permits and shipping requirements*
- *more about cost of living and financial things in advance*
- *the funding situation could have been explained in greater detail in the application process*

LOREX 1 Students' Beliefs about Intercultural Communication were generally unchanged as a result of their international research experiences, with a couple of interesting exceptions.

LOREX 1 students also rated themselves on various elements of intercultural communication on pre-post surveys. Based on survey responses presented in Table 4 below, most LOREX 1 students' beliefs about intercultural communication did not change significantly as a result of their LOREX experience. There is likely a selection bias in that the program attracts individuals already interested in international research and intercultural communication, thus contributing to a ceiling effect (and limited possibility for change) for some of these items.

Table 4. LOREX 1 Student Beliefs on Intercultural Communication (Pre-/Post) (n=25)
Survey question: *Below is a series of statements concerning intercultural communication. There are no right or wrong answers. Please work quickly and record your first impression by indicating the degree to which you agree or disagree with the statement.*

Statements	Pre-test mean (SD)	Post-test mean (SD)	t-value	P-value	95% CI
I enjoy interacting with people from different cultures.	4.64 (0.49)	4.76 (0.44)	-1.14	0.265	(-0.337, 0.097)
I am open-minded to people from different cultures.	4.68 (0.48)	4.76 (0.44)	-1.00	0.327	(-0.245, 0.085)
I respect the values of people from different cultures.	4.88 (0.33)	4.72 (0.46)	2.14	0.043*	(0.006, 0.314)
I respect the ways people from different cultures behave.	4.60 (0.50)	4.52 (0.59)	0.63	0.538	(-0.184, 0.344)
I try to obtain as much information as I can when interacting with people from different cultures.	4.36 (0.64)	4.32 (0.69)	0.30	0.770	(-0.239, 0.319)
I find it very hard to talk in front of people from different cultures.	3.92 (0.70)	4.28 (0.54)	-2.38	0.026*	(-0.673, -0.047)
I often get discouraged when I am with people from different cultures.	4.20 (0.50)	4.28 (0.61)	-0.49	0.627	(-0.415, 0.255)
I often feel useless when interacting with people from different cultures.	3.92 (0.91)	4.20 (0.65)	-1.77	0.090	(-0.607, 0.047)
I tend to wait before forming an impression of people who speak a different language from me.	4.00 (1.00)	4.20 (0.58)	-1.00	0.327	(-0.613, 0.213)
I am very observant when interacting with people from different cultures.**	4.17 (0.56)	4.17 (0.64)	0	1.00	(-0.305, 0.305)
I often show my understanding of people from different cultures through verbal/nonverbal cues.	3.84 (0.94)	4.08 (0.70)	-1.44	0.162	(-0.583, 0.103)

I feel confident when interacting with people from different cultures.	3.84 (0.90)	3.92 (0.86)	-0.44	0.664	(-0.455, 0.295)
I often give positive responses to people who speak a language that is different from my own.	4.08 (0.81)	3.92 (0.86)	1.28	0.212	(-0.100, 0.418)
I am sensitive to subtle meanings when I interact with people who speak a different language than I do.	3.56 (0.96)	3.88 (0.78)	-1.88	0.073	(-0.672, 0.032)
I can be as sociable as I want to be when interacting with people from different cultures.	3.64 (1.15)	3.80 (0.96)	-0.89	0.382	(-0.531, 0.211)
I always know what to say when interacting with people from different cultures.	2.72 (0.74)	2.84 (0.90)	-0.77	0.450	(-0.442, 0.202)

Rating scale: 1= Strongly disagree; 2= Disagree; 3= Uncertain; 4= Agree; 5= Strongly agree
**(p-value <0.05)*
***n=24*

In both the pre-survey and post-survey responses, the same items held the highest mean scores and the lowest mean scores. The items with the highest averages included:

- *I enjoy interacting with people from different cultures (pre=4.64, post=4.76)*
- *I am open-minded to people from different cultures (pre=4.68; post=4.76)*
- *I respect the values of people from different cultures (pre=4.88; post=4.72)*
- *I respect the ways people from different cultures behave (pre=4.60; post=4.52)*

Within both the pre-survey and post-survey, the item with the lowest mean score was:

- *I always know what to say when interacting with people from different cultures (pre=2.72; post=2.84).*

Most items showed no significant change in the responses. Only two items were found to have statistically significant differences on the pre- and post-surveys (*p*-value <0.05*)*. There was a significant increase in response to the item: *I find it very hard to talk in front of people from different cultures* (pre=3.92, SD=0.70; post=4.28, SD=0.54). The SD also decreased in the post-survey, indicating greater agreement across respondents. The increase in reported discomfort talking in front of people from different cultures could be due to LOREX 1 participants new to international travel and work experiences underestimating the challenges of talking and working in a new culture and in different languages at their host institutions.

In addition, there was a significant decrease in response to one item: *I respect the values of people from different cultures* (pre=4.88, SD=0.33; post= 4.72, SD=0.46) with the SD also increasing in the post-survey. While this might be somewhat surprising, the significant decrease could point to the difference between a generic notion of respecting values of other cultures prior to travel, and the reality that participants face living and working in other cultures. For example, when traveling, people generally experience heightened awareness of one's gender, race and/or sexual orientation preferences, and how other cultures may perceive them as different or less accepting than Americans. Before going on this international experience, participants may have had expectations of their host country that may not have been met which could also help to explain these responses.

The change may also be due to challenging experiences by some of the LOREX 1 participants during their international research.

Within the post-program survey, there was not a comment box for participants to explain their responses to this question about intercultural communication, which could be added in future surveys to provide more insight into participants' perspectives.

Opportunities for communicating findings takes time and can utilize a variety of formats.

Participating in the LOREX program offered opportunities to disseminate findings through a variety of formats, including research papers, blogs, social media, conferences presentations and university seminars. On the post survey, 91% (n=21) of participants plan to publish findings from their LOREX project through a research paper. 57% (n=13) of the participants reported already having shared their research experiences and findings through blogging and/or other forms of social media (Table 5).

Table 5. LOREX 1 Participants' Dissemination of Research (Post-Survey)

Survey Question: *In what ways have you already disseminated or plan to disseminate the results of your research experience?*

Dissemination Options	Have already disseminated results in this way	Plan to disseminate results in this way	Do not plan to disseminate results in this way	*Mean (SD)*	*Total (n)*
Research papers	4% (1)	91% (21)	4% (1)	2.00	23
Blogs	57% (13)	17% (4)	26% (6)	1.63	23
Social media	52% (12)	17% (4)	30% (7)	1.79	23
Conference presentations	30% (7)	70% (16)	0% (0)	1.63	23
University seminars	26% (6)	70% (16)	4% (1)	1.75	23
Presentations to the public	9% (2)	59% (13)	32% (7)	2.22	22
Other	0% (0)	22% (2)	78% (7)	2.78	9

100% (n=10) of hosts plan to share their work with LOREX 1 participants through a research paper. 70% of the participants (n=16) and 70% of the host are planning to communicate the projects through conferences. 70% (n=16) of the participants and 50% (n=5) of the hosts are planning to share through university seminars. 59% (n=13) of the participants and 30% (n=3) of the hosts are planning to share their findings in public presentations (as shown in Table 6 below).

Table 6. LOREX Hosts Dissemination Strategies

Survey Question: *In what ways have you already disseminated or plan to disseminate the results of your research experience?*

Dissemination Options	Have already disseminated results in this way	Plan to disseminate results in this way	Do not plan to disseminate results in this way	*Mean (SD)*	*Total (n)*
Research papers	0% (0)	100% (10)	0% (0)	2.00 (0.00)	10
Blogs	22% (2)	0% (0)	78% (7)	2.56 (0.69)	9
Social media	25% (2)	25% (2)	50% (4)	2.25 (0.69)	8
Conference presentations	20% (2)	70% (7)	10% (1)	1.90 (0.29)	10
University seminars	0% (0)	50% (5)	50% (5)	2.50 (0.25)	10
Presentations to the public	0% (0)	30% (3)	70% (7)	2.70 (0.46)	10
Other	0% (0)	0% (0)	100% (5)	3.00 (0.0)	5

LOREX hosts were not planning to share findings through blogs (78%, or 7 of 9) or social media (50%, or 4 of 8). 70 percent (7 of 10) of hosts are not planning to communicate through presentations to the public.

The differences between how the hosts and participants plan to share their findings is interesting one to consider. Participants are inclined to disseminate their research findings using tools such as social media and blogs in addition to more traditional ways such as research papers and conferences. In contrast, over 90% of the host researchers preferred to share results through traditional academic modes of conferences and papers. These differences reflect how science communication may been adapting to different modes to share science and the interest of younger scientists to have greater potential influence on more diverse audiences and non-scientific communities.

Finally, the timing of the post-research survey might need to be reconsidered, or a new survey developed, to more accurately capture how findings are communicated after the LOREX international research experience:

- *This survey is being answered 1 month after departure. A lot of selections have been halted due to COVID-19 restrictions (living/traveling outside of home country).*

- *The international part of my LOREX participation just ended a few months ago. I haven't had time to do much more than get over jet lag and wash my equipment.*

- *It has only been 3 months since my field experience. I worked with scientists outside my discipline before traveling abroad and have continued that work afterwards. I also worked with international scientists before traveling abroad and have continued that work afterwards.*

- *Not much time has passed since I participated in this program so I believe if you reach out in a year, my responses will be different. I am finishing up my PhD program and am looking for a post-doc position. I already have contacted someone outside of the country and we are planning on discussing my research ideas.*

Finding #2: Participating as a host for LOREX 1 students brought both benefits and a few challenges to the international research collaborators.

According to surveys submitted by the international host collaborators, sponsoring a LOREX student brought many benefits and a few challenges to the international hosts.

Benefits for hosts:

The program met hosts' expectations. Through the post-program survey, 100% (n=10) of host respondents expressed that the program met their expectations as a host for LOREX students, and they all expressed their interest and commitment to continue to serve as a host for other LOREX participants, as explained by some of the hosts on the survey:

- *I thought it was [a] good opportunity to expand the research networks of all involved.*

- *LOREX is a good way to (a) educate students to a higher level and otherwise possible and (b) build connections between researchers and institutions.*

- *It is an excellent way to get talented students to visit and exchange ideas. It is also an excellent way to motivate these students to get involved in oceanography.*

9 out of 10 of the host survey respondents recommended the LOREX program. The one response that withheld the recommendation cited the following on the host survey as an explanation: *This ended up taking a bunch of our own funding so depends on their funding status.*

Participation in the program was mutually beneficial for the participants and the hosts. For some collaborators this was the first opportunity they had to host an international student and conduct a research plan. Thus, the LOREX program was an appropriate platform that permitted growth and a positive impact on both, host and participant professional development. Several survey responses from the hosts expressed the reciprocal gains:

- *(LOREX was a) very good opportunity for me and students to interact and make new interesting research that combined different backgrounds. Also good for potential collaborations in future with the students and students colleagues back home.*

- *I found that the LOREX program was an important catalyst that helped move our planned collaboration forward much more quickly and smoothly that it would otherwise. Also, I think that being in such a program motivated (LOREX participant) to try things outside her comfort zone and be more involved in the oceanographic aspects of our collaboration.*

- *I haven't any international exchange students directly working with me so this was a good first experience.*

- *It is a gain both ways, I think. Not only the students get to see and do something new, that applies also to the hosts. It is always interesting to meet new people and see how they do things…*

The hosts appreciated LOREX PIs communication via video and/or phone calls. Host survey respondents thought the email and phone conversations from the PIs to be very helpful. Feedback on how to improve other sources of support were not detailed by the hosts. Future surveys will focus more explicitly on identifying what to add or how to improve such resources.

Table 7. Helpfulness of Communication from LOREX 1 Hosts

Survey Question: *How helpful were the following communications about the LOREX program?*

Question	Not at all helpful	Slightly helpful	Moderately helpful	Very helpful	Extremely helpful	Mean (SD)	Total
Email communication from LOREX PIs	0% (0)	0 % (0)	11 % (1)	67 % (6)	22 % (2)	4.33 (0.94)	9
Phone calls with LOREX PIs	0% (0)	0 % (0)	0 % (0)	100 % (2)	0 % (0)	4.00 (0.00)	2
Information from the onsite coordinator	0% (0)	38 % (3)	25 % (2)	38 % (3)	0 % (0)	3.00 (0.87)	8
Information from the ASLO webpage	10% (1)	0 % (0)	50 % (5)	40 % (4)	0 % (0)	3.20 (0.87)	10
Video chats	0% (0)	0 % (0)	0 % (0)	100 % (3)	0 % (0)	4.00 (0.00)	3

Scale: 1= Not at all helpful, 2= Slightly helpful, 3= Moderate helpful, 4= Very helpful, 5 = Extremely helpful

For some of the hosts, continuing the collaboration with the LOREX students depend on several variables. At least half of the LOREX hosts expressed their interest in continuing the collaboration with LOREX participants, and the remainder expressed some uncertainty about continuing the collaboration due to the nature of the project, availability of funding and supervision of the participant, and the findings from the research with the LOREX participant:

- *It depends on the project, the supervisor and the student. I am not the kind of professor who needs technical help from students, so for me, a student is a time-sink rather than a time-gain. Others, especially biologists and chemists, are different, because their students may be doing routine work, so more hands make the work go faster.*

- *Our project is still ongoing and I am quite glad how it develops.*

- *We are still analyzing her data, both from her work here in (host lab) and from experiments she had previously performed in her home lab. There is a good chance (LOREX participant) will come back to (host lab) in a few months time to facilitate writing the papers from her work as a LOREX student.*

Challenges for hosts

Greater clarity and communication of the LOREX program expectations for hosts and students would be helpful. The hosts felt that more information about expectations as a LOREX host would have been helpful to fulfill their responsibilities as a LOREX host and mentor. In addition, at least one of the hosts shared that having information beforehand about all the participants that would be participating in the LOREX program would have been helpful. Perhaps this host was unaware that this information actually was available on the LOREX website. From this host's perspective, knowing about the whole student cohort would provide the host a better idea of the status of each student and their experience to help build a sense of community across the students and research hosts. Moreover, since one of the purposes of the LOREX program was to provide a mentorship platform, reminding hosts about this information beforehand would be helpful for them to work more effectively as a mentor:

> *I would like to see more information about the whole cohort of LOREX students. We had some meet and greet sessions but I would have liked to see a little document with photos of the students, something about their research plans, and something about their hobbies, etc. We do that with the incoming MSc/PhD class in our department, and it is a great way to build community. This, it seems to me, would be especially relevant for students who are only to be here for a short time.*

Finding #3: Reactions to the training and orientation activities for LOREX 1 participants were mixed, with most students finding most helpful the communications from PI and interactions with other graduate students with international experience.

LOREX 1 students participated in several orientation and training activities to prepare them for their international exchange, including webinars covering topics such as the LOREX program orientation and how to create a successful abstract; and opportunities at the ASLO 2019 meeting in San Juan, Puerto Rico including communication workshops (with Brian Palermo), situational management orientation (Critical Incident Analysis) and presentations from the International Research Experiences for Students (IRES) fellows. LOREX 1 students were asked on the post-program survey to assess the helpfulness of the training and orientation opportunities, as summarized in Table 7 below.

Table 7. Training and Preparation for LOREX 1 Participants

Survey question: *How well did the following LOREX events or training prepare you for your international research experience?*

Question	Not at all helpful	Slightly helpful	Moderately helpful	Very helpful	Extremely helpful	Mean (SD)
Webinars	0% (0)	32% (7)	50% (11)	14% (3)	5% (1)	2.94 (0.84)
Workshop on collaboration with Brian Palermo	13% (3)	39% (9)	35% (8)	9% (2)	4% (1)	2.54 (0.92)
Orientation workshop on Critical Incident Analysis	52% (12)	26% (6)	22% (5)	0% (0)	0% (0)	1.71 (0.8)
Presentation from IRES students in San Juan	9% (2)	13% (3)	17% (4)	43% (10)	17% (4)	3.58 (1.30)
Direct communication with program PI's prior to travel	0% (0)	0% (0)	17% (4)	26% (6)	57% (13)	4.97 (1.22)

Scale: 1= Not at all helpful, 2= Slightly helpful, 3= Moderate helpful, 4= Very helpful, 5 = Extremely helpful

83 percent (n=19) of LOREX 1 students rated the direct communication from the program PI's as very helpful (26%; n=6) or extremely helpful (57%; n=13) in preparation for their international research experience. In addition, 60% (n=14) of LOREX 1 participants rated the opportunities to physically meet and interact with LOREX peers at the ASLO 2019 meeting as beneficial for their international travel arrangements, as illustrated by the following comments on the survey:

- *The most helpful preparatory opportunity was getting to meet all the other LOREX students at the ASLO conference in PR, especially the ones going to my same LOREX site. It gave me a network to use in preparation for my international experience.*

- *Hearing the stories and experiences from the IRES students was very helpful because many of them brought up issues I would have never considered. Also,*

having these events in advance of the actual research travel got me excited, and thinking about my own plan well in advance of my trip.

- *I thought the workshop in San Juan was extremely useful, particularly hearing from past students. Even if things weren't applicable to my experience at least being aware of different types of issues that could arise was useful.*

- *I felt the most productive things to prepare me for my international research experience was having candid conversations about expectations with my collaborator and talking with my other LOREX colleagues who were also working with the same collaborator (about equipment, sampling locations, etc).*

50 percent (n=11) of participants assessed the webinars as moderately helpful. However, 78% (n=18) of LOREX 1 participants reported that the Critical Incident Analysis was only slightly helpful or not helpful at all, and 52% (n=12) of participants rated the workshop with Brian Palermo as slightly helpful or not helpful at all, as explained by one of the participants on the survey:

While the workshop with Brian was a fun ice breaker activity, I feel it did not actually help prepare me for my research experience. I found the Critical Incident Analysis reports were good as a principle/idea in a classroom setting but in practice didn't help.

Participants shared other suggestions for the LOREX program to improve the training and orientation for participants, including the following:

- *I would've liked to learn more about the details of dealing with funding, permitting and establishing international connections. The training we had was fairly shallow…I think grad students can handle higher level discussions than we had.*

- *I would've liked to have more panels with scientists who have experience with this type of work. I also would've liked to hear more from international scientists because many of the speakers were based in the US.*

Additional discussion about the types of resources and training that could be helpful for future LOREX cohorts will be discussed in the Recommendations section below.

Findings for LOREX 2

Finding 4: Similar to the LOREX 1 cohort, LOREX 2 participants were well-traveled and experienced in scientific research, though only about half had experience designing and executing their own research plans.

Based on their pre-program survey responses (summarized in Table 8 below), LOREX 2 participants entered the program with the following experience:

Well-traveled individuals. Two-thirds of LOREX 2 participants have lived outside their home country, with 23.8% (5) having lived outside their home country for three months or more. One-third of the LOREX 2 cohort has had no experience living outside their home country.

Relatively experienced scientists. LOREX 2 was composed of relatively experienced scientists. 95.2% (20) had worked with scientists (not their advisor) within their discipline. Almost three-quarters of the cohort expressed how they had worked with members of the scientific community outside of their discipline (23.81%). There was more of a range within the cohort regarding their experience collaborating with a scientist to design and execute their own research plans, with 14.29% (3) of participants having no experience with this to almost half of the students (47.62%, or 10 participants) having more than a year of experience doing so.

Well-traveled *and* relatively experienced scientists. 57.14% (12) of LOREX participants had worked with scientists (not their advisors) outside of their home country, and 52.38% had worked with scientists outside of their respective disciplines.

Table 8. Students' Prior Experiences from LOREX 2 (Pre-Program Survey)

Survey Question: *Prior to participating in this program, how much time have you spent doing the following?*

LOREX 2 (N=21)	No experience	Less than 3 months	3 to 6 months	7 to 12 months	More than a year	Mean
Living outside your home country?	33.3% (7)	42.9% (9)	4.8% (1)	4.8% (1)	14.3% (3)	2.24
Working with scientists (not your advisor) WITHIN your home country?	0.0% (0)	19.1% (4)	0.0% (0)	19.1% (4)	61.1% (13)	4.24
Working with scientists (not your advisor) OUTSIDE of your home country?	42.9% (9)	14.3% (3)	19.1% (4)	4.8% (1)	19.1% (4)	2.43
Working with scientists (not your advisor) WITHIN your discipline?	4.8% (1)	14.3% (3)	4.8% (1)	4.8% (1)	71.4% (15)	4.24
Working with scientists (not your advisor) OUTSIDE of your discipline?	23.8% (5)	28.6% (6)	4.8% (1)	9.5% (2)	33.3% (7)	3.00
Collaborating with a scientist to design and execute your own research plan?	14.3% (3)	4.8% (1)	28.6% (6)	4.8% (1)	47.6% (10)	3.67

Scale: 1=No experience, 2=Less than 3 months experience, 3=3 to 6 months experience, 4=7 to 12 months experience, 5=More than a year experience

Comments on the pre-survey offer examples of participants' experiences:

- *(I) previously studied at St. Catherine's College (University of Oxford) for a term as part of Oxford's Visiting Student Programme. I also spent a term studying abroad at Stellenbosch University in South Africa. Participated in Cal Poly's STAR (STEM Teacher and Researcher) Program working with scientists for 9 weeks during the summer-- I did this program for 3 summers.*

- *I spent a year working on coral reef monitoring and restoration outside of my home country. This is not my current field of research, but did allow me to meet and collaborate with some members of my field with whom I am still in contact with today.*

- *I have been a part of an international Arctic research group: the Arctic Science Integration Quest for the last two years.*

- *Prior to grad school, I have lived and worked in Indonesia (6 months) and China (12 months) before, doing different science jobs. In grad school I collaborate with a few different scientists and engineers, therefore engaging with different types of scientists frequently.*

The LOREX 2 cohort had fewer students with no international experience in comparison to the LOREX 1 cohort (48.15% versus 57.14%, respectively). In contrast, the LOREX 1 cohort had students with more experience outside of their research discipline (62.96% vs 52.38%, respectively).

LOREX 2 Students' Goals for LOREX

When asked on the pre-program survey to describe their goals for the LOREX experience, LOREX 2 students described goals that addressed one or more of the following themes:

Improve research-related skills such as project design and technical skills via working with international collaborators, working in different labs, and working in a new location. 20 of 21, or 95%, of LOREX 2 students reported their goals to improve various research-related skills and gain experience while working in international research labs as they advance through their programs and careers. These skills ranged from designing investigations, collecting and analyzing data in new ways, presenting findings and writing papers with collaborators, as illustrated by survey comments:

- *Gain experience working with an unfamiliar ecosystem and at a university outside of the United States*
- *[Learn] molecular techniques from experts outside my discipline*
- *Implement remote sensing tools for science applications*
- *Develop research planning skills*
- *See my own project through from beginning to end*
- *Learn about international research*

Create or expand their international network. 18 of 21, or 85.7%, of LOREX 2 participants expressed a strong desire to build their international networks. Participants also shared how these opportunities to work with international collaborators would not have been possible without the LOREX program.

- *Collaborate with scientists I wouldn't have otherwise gotten the chance to*
- *Start lasting collaborations with international scientists*
- *Develop professional relationships (specifically international relationships)*
- *Gain experience working with a new collaborator, outside my home country, and on a completely new and exciting project!*

Connect the LOREX research to their dissertation or current research. At least five of the LOREX 2 participants also shared their hopes of using this experience as a way to both improve and generate new dissertation work:

- *Generating data necessary for the second chapter of my thesis*
- *Complete research project to count towards dissertation*
- *Getting the opportunity to test ecological theories I've been working on for my PhD in a new ecosystem.*

Gain international experience, travel and challenge oneself. 9 of 21 LOREX 2 participants reported goals that related to challenging themselves personally and gaining international experience:

- *Get out of my comfort zone.*
- *Gain experience in working in other countries.*
- *Experience living out of the US for longer than a few weeks*

Figure 9. Word cloud of LOREX 2 cohort goals

Finding #5: LOREX 2 participants are relatively confident in their research skills and enjoy interacting with people from other cultures. Their confidence is relatively low in initiating international collaborations.

LOREX 2 Student's Confidence Levels compared to LOREX 1 (Pre-survey)

For the LOREX 2 pre-survey responses, the top three items with the highest average responses were designing field work/ data collection strategies (mean=3.81; SD=0.87); maintaining a long-term professional relationship with scientists (mean=3.81; SD=0.81) and connecting international research to your primary research at home (mean=3.71, SD=1.10).

Table 10. LOREX 2 Student Confidence Levels

Survey question: *How confident are you now in your ability to accomplish the following?*

Question	Not at all confident/ Not sure	A little confident	Somewhat confident	Confident	Very confident	Mean (SD)
Collaborate with scientists from another country?	5% (1)	19% (4)	24% (5)	43% (9)	10% (2)	3.33 (1.06)
Work with people from an unfamiliar culture?	5% (1)	14% (3)	19% (4)	48% (10)	14% (3)	3.52 (1.08)
Brainstorm global research questions?	0% (0)	14% (3)	48% (10)	29% (6)	10% (2)	3.33 (0.86)
Conduct research outside your home country?	0% (0)	10% (2)	43% (9)	43% (9)	5% (1)	3.43 (0.75)
Make cross-disciplinary connections?	0% (0)	14% (3)	29% (6)	48% (10)	10% (2)	3.52 (0.87)
Conduct independent research (without an advisor)?	0% (0)	24% (5)	5% (1)	48% (10)	24% (5)	3.71 (1.10)
Connect international research to your primary research at home?	0% (0)	5% (1)	29% (6)	48% (10)	19% (4)	3.81 (0.81)
Maintain a long-term professional relationship with scientists?	10% (2)	33% (7)	38% (8)	14% (3)	5% (1)	2.71 (1.01)
Initiate international collaborations?	24% (5)	29% (6)	38% (8)	10% (2)	0% (0)	2.33 (0.97)
Manage international research (including permits, funding, cultural and political considerations)?	10% (2)	24% (5)	33% (7)	14% (3)	19% (4)	3.10 (1.26)
Maintain productive international relationships (including cultural sensitivity and language barriers)?	0% (0)	10% (2)	43% (9)	29% (6)	19% (4)	3.57 (0.93)
Present at an international research conference?	0% (0)	10% (2)	43% (9)	29% (6)	19% (4)	3.57 (0.93)
Write research proposals?	5% (1)	19% (4)	19% (4)	43% (9)	14% (3)	3.43 (1.12)
Design field work/data collection strategies?	0% (0)	10% (2)	19% (4)	52% (11)	19% (4)	3.81 (0.87)

Scale: 1=Not at all confident/not sure; 2=A little confident; 3=Somewhat confident; 4=Confident; 5=Very confident

The items with the lowest average responses were *managing international research (including permits, funding, cultural and political considerations)* (mean=2.33, SD=0.97); *initiating international collaborations* (mean=2.71; SD=1.01); *maintain productive international relationships (including cultural sensitivity and language barriers)* (mean=3.10; SD=1.26) and *brainstorming global research questions* (mean=3.10; SD=0.77).

Student responses supported these findings:

> *I am confident that I can collaborate with and work with scientists outside my discipline and in different countries. I also understand, though, that there are challenges that will come up that are unique to each situation, so I cannot say that I can know what to expect.*

There were some commonalities between the LOREX 1 and LOREX 2 cohort pre-survey responses. Both cohorts had strong confidence in designing field work/data collection strategies and maintaining a long-term professional relationship with scientists. In addition, both cohorts had the least confidence about managing international research and initiating international collaborations.

LOREX 2 Student's Beliefs on Intercultural Communication

Table 11. LOREX 2 Student Beliefs on Intercultural Communication

Survey question: *Below is a series of statements concerning intercultural communication. There are no right or wrong answers. Please work quickly and record your first impression by indicating the degree to which you agree or disagree with the statement.*

Question	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	Mean (SD)
I enjoy interacting with people from different cultures.	66.7% (14)	33.3% (7)	0.0% (0)	0.0% (0)	0.0% (0)	1.33 (0.47)
I am pretty sure of myself in interacting with people from different cultures.	28.6% (6)	61.9% (13)	4.8% (1)	4.8% (1)	0.0% (0)	1.86 (0.71)
I find it very hard to talk in front of people from different cultures.	0.0% (0)	4.8% (1)	4.8% (1)	76.2% (16)	14.3% (3)	4.00 (0.62)
I always know what to say when interacting with people from different cultures.	0.0% (0)	4.8% (1)	42.9% (9)	42.9% (9)	9.5% (2)	3.57 (0.73)
I can be as sociable as I want to be when interacting with people from different cultures.	9.5% (2)	33.3% (7)	33.3% (7)	23.8% (5)	0.0% (0)	2.71 (0.93)
I respect the values of people from different cultures.	66.7% (14)	33.3% (7)	0.0% (0)	0.0% (0)	0.0% (0)	1.33 (0.47)
I feel confident when interacting with people from different cultures.	33.3% (7)	47.6% (10)	19.0% (4)	0.0% (0)	0.0% (0)	1.86 (0.71)
I tend to wait before forming an impression of people who speak a different language from me.	33.3% (7)	42.9% (9)	19.0% (4)	4.8% (1)	0.0% (0)	1.95 (0.84)
I often get discouraged when I am with people from different cultures.	0.0% (0)	0.0% (0)	4.8% (1)	57.1% (12)	38.1% (8)	4.33 (0.56)

I am open-minded to people from different cultures.	71.4% (15)	28.6% (6)	0.0% (0)	0.0% (0)	0.0% (0)	1.29 (0.45)
I am very observant when interacting with people from different cultures.	42.9% (9)	42.9% (9)	14.3% (3)	0.0% (0)	0.0% (0)	1.71 (0.70)
I often feel useless when interacting with people from different cultures.	0.0% (0)	4.8% (1)	4.8% (1)	57.1% (12)	33.3% (7)	4.19 (0.73)
I respect the ways people from different cultures behave.	52.4% (11)	38.1% (8)	4.8% (1)	4.8% (1)	0.0% (0)	1.62 (0.79)
I try to obtain as much information as I can when interacting with people from different cultures.	38.1% (8)	42.9% (9)	19.0% (4)	0.0% (0)	0.0% (0)	1.81 (0.73)
I am sensitive to subtle meanings when I interact with people who speak a different language than I do.	23.8% (5)	33.3% (7)	33.3% (7)	9.5% (2)	0.0% (0)	2.29 (0.93)
I often give positive responses to people who speak a language that is different from my own.	19.0% (4)	33.3% (7)	47.6% (10)	0.0% (0)	0.0% (0)	2.29 (0.76)
I often show my understanding of people from different cultures through verbal or nonverbal cues.	19.0% (4)	52.4% (11)	23.8% (5)	4.8% (1)	0.0% (0)	2.14 (0.77)

Rating scale: 1= Strongly disagree; 2= Disagree; 3= Uncertain; 4= Agree; 5= Strongly agree

All LOREX 2 students strongly agree or agree that they enjoy interacting with people from different cultures, respect the values of people from different cultures, and are open-minded to people of different cultures. Most students strongly disagree or disagree that they often get discouraged when they are with people from different cultures and they find it very hard to talk in front of people from different cultures.

Student responses support these findings:

- *I thoroughly enjoy meeting people from different cultures and learning from them, I am looking forward to the international component of the LOREX program and am just very happy and excited for this opportunity to make science more international.*
- *I often interact with people from different cultures, however, I think that I could also improve how I can interact and understand where others are coming from. Therefore, I am excited to be outside of the US again so that I can learn more about a different part of the world.*

In both LOREX 1 and LOREX 2 pre-program survey responses, students strongly agree or agree that they enjoyed interacting with people from different cultures. On the other hand, in both pre-program surveys, students responded that they were not very confident when interacting with people from different cultures. Comparisons between the two cohorts will be more detailed following the post-research survey for LOREX 2.

Post-Graduate Career Plans

66.67% (n=14) of LOREX 2 reported that they knew a moderate amount regarding potential career paths. 10 of 14 comments on the survey indicated on how they would like to learn about jobs

outside of academia including careers in government, academia, education/outreach, and a general inquiry about the transition between careers:

- *I would love to be more informed about different paths outside of academia, including how to be a scientist and collaborate with non-profits and other scientific research outside of academia.*

- *Careers outside of academia that focus on the intersection of science policy, research, and social and environmental justice.*

- *I want to learn more about the private sector and work outside of academia that I can do with a PhD. I am hoping to learn from this exchange how it works to do research at other institutions.*

- *The proportion of people who go into / succeed in Academia, and what sort of careers they find themselves in outside of Academia.*

- *Most of scientific work is based in government or government contracting. It would be nice to learn more about.*

- *I am interested in learning more about post-docs abroad.*

- *I want to learn more about international educational opportunities, as in: 1) How much of an emphasis does international research and educational institutions care about education/outreach activities for job hires? Is it institution by institution specific or are there general guidelines? 2) Are those types of education/outreach skills and experiences valued by international research institutions? If so, how do they recommend graduate students develop them?*

- *I know a lot about different paths, but am unsure at this point about which paths might be dead ends, or hard to transition away from (ex. moving from industry to academia or vice versa)*

Finding #6: Challenges regarding logistics and funding continue to require more information and clarity up front.

In the previous evaluation report, LOREX 1 participants expressed a range of challenges on the pre-program survey that they faced prior to traveling to their international research sites, including uncertainty about housing, funding, access to materials at their host site, and questions about the LOREX program structure and timeline. On the post-research survey, LOREX 1 participants shared two types of challenges that they faced during their research experience:

Visas and Permits: LOREX 1 students confronted issues with travel-related issues such as uncertainty regarding visas and permits for each of the host labs and countries. Participants felt that the information provided beforehand was not enough to prepare for international travel and

suggested more accurate resources and communication of information regarding the required visas, sample collection permits, and sample shipment policies or restrictions.

Clarity of Funding: As noted earlier, participants and hosts expressed some confusion about what the LOREX funding covered, particularly during the application phase. Students in experienced uncertainties about travel expenses including baggage fees, internal travels within the host country, etc. As explained by one of the students:

> *The funding situation could have been explained in greater detail in the application process (and) more conversations in site-specific groups would have been helpful-perhaps site-specific webinars.*

It should be noted that the LOREX program does offer information about funding in detail but because those opportunities are offered prior to the application, many applicants do not participate in the pre-application orientation webinars, and details about funding need to be consistently addressed in the pre-research preparation phase. In addition, site-specific webinars have been offered, and it is possible that this particular student did not know about or participate in those webinars. It is likely that the need for such site-specific information will be further addressed in other resources as described in the following section.

Recommendations

Consider revisions to the evaluation instruments. Based on comments from participants and hosts, comment boxes to allow for additional feedback will be included to provide a space for respondents to share their reasoning. In addition, the timing of the participants post-research survey may need to be reconsidered, or a new annual survey of all LOREX participants be initiated to capture in what ways they are disseminating their research results and findings. Finally, on the current LOREX surveys, participants can gender identify themselves as Female, Male, or Other. Consistent with calls to NSF from research associations such as the American Education Research Association, demographic options in the LOREX evaluation instruments could be expanded to increase the gender identity and sexual orientation of participants. For example, in addition to male and female, options could include Transgender women, Transgender man, Non-binary, Bisexual, Lesbian, Gay, Pansexual, Queer, and among others.

Create more structure for mentorship and networking. The Qooper mentorship platform was recently initiated that allows LOREX participants to match with students in other cohorts as well as host collaborators. The platform allows people to match based on research interests and will be useful to inform and orient future LOREX participants. LOREX participants can create groups on the platform and connect with other members of their cohort and other cohorts. In addition to these online interactions, sending students to the ASLO meetings before and after their LOREX experiences was considered very valuable. Being able to connect with their peers and host collaborators face-to-face and talk through questions provided a strong basis towards maintaining these long-term relationships.

Offer more opportunities for students to better understand the work and culture of their host countries. To better prepare students for their international experiences, LOREX should provide numerous opportunities for participants to be oriented to and immersed in their host institution countries and cultures, and encourage the students to research their host location and country prior to traveling. In addition to the Qooper platform which will enable further communications across cohorts to share their experiences, a dynamic, real-time handbook is being created that includes discussion of cultural differences at each of the study sites. Former LOREX students will share information on cultural differences and additional information that might be helpful for future cohorts. In addition, LOREX 1 participants have used this platform to create a support group for Black, Indigenous and People of Color (BIPOC) members. This group allows for open and honest communication about experiences at the various study locations.

Clarify site-specific logistics of the international research experiences. Based on survey results, student confidence levels were still low for permits, funding, etc. To address this, host-specific webinars and workshops can be offered during the travel preparation period to explain and define which are the country and host-institution requirements in terms of forms, visas and permits. The Qooper LOREX Mentorship Platform could also be used to address questions about logistics with LOREX mentors (host), LOREX PI's and participants.

Clarify funding needs and restrictions. LOREX participants and hosts both reported that use of LOREX funding could be more clear about what it does and does not cover. They also asked for more clarification be offered about distribution of the funds. For example, students shared that

they experienced unexpected costs while traveling including baggage expenses, visas, and research supplies. Some hosts expressed that they had to cover unanticipated student research expenses as well, and in some cases, neither party was aware of the other's financial expenses. For the future, hosts also suggested potentially providing funding for the host institutions to cover the cost of materials, supervision, use of equipment, etc.