

# Report for Participants: Faculty Perspectives on how to Reimagine International Research for Students in a Virtual World

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## Project Purpose

The purpose of this study was to identify the approaches that international research program leaders used in adapting their programs to the virtual environment and explore how these innovations could inform the design of these programs going forward. We conducted eight focus groups with over 40 U.S.-based faculty who had experience running these programs to understand the benefits, challenges, and future potential of incorporating virtual elements into international research programs for students. This report shares the results of these focus groups and provides suggestions for future program design based on best practices and innovations identified through the development of virtual programs.

## Research Questions

1. What are the benefits and challenges of running international research programs in a virtual format?
2. What can we learn from the experience of shifting international research programs to a virtual modality that can inform the design of such programs going forward?

## Methods

To collect data for this project, we conducted eight focus groups with principal investigators (PIs) who had experiences running international research programs. We recruited participants for this study by searching for IRES and PIRE grants on the NSF website. We filtered for projects that had been initiated between 2010-2019 because we wanted participants who had at least a year of their IRES/PIRE program completed and who had been involved in one of these programs recently. In total, we had 42 participants across eight focus groups. We analyzed the focus group data by listening to the focus group audio files, reading the transcripts, and discussing observations as a research team. Then, one researcher iteratively coded the focus group transcripts and the other team members reviewed the results. Through this process, we identified three high-level themes that are summarized in the Results section.

## Results

We organize the results around the three higher-level themes we found in the focus group discussions. These themes and related topics are summarized in Table 1.

*Table 1: Focus Group Conversation Themes*

Theme	Common Topics
Benefits of Virtual Programs	New and enhanced collaboration opportunities Improved accessibility for students New program elements
Challenges of Virtual Programs	Coordinating cultural and social activities Strain on international collaborators Obstacles to doing some types of research remotely
Future Ideas for International Research Programs	Hybrid international research programs Providing more support to international collaborators

### *Benefits of Virtual Programs*

Despite the many challenges of running virtual programs, focus group participants identified a number of benefits from using this format. Three common topics within this theme are highlighted below.

- **Virtual programs provided opportunities for new or enhanced collaboration opportunities.** Most PIs said that virtual programming allowed for longer relationships with foreign collaborators since their interactions were not restricted to a limited period when the student participants were abroad. In addition, some PIs explained that by connecting virtually, they gained access to collaborators they otherwise might never have worked with (e.g., high-level government officials).
- **Virtual programs provided improved accessibility compared to traditional international research programs.** Caretakers, minoritized groups in STEM, and students who were not U.S. citizens were some of the groups mentioned who faced barriers to participation in a typical program structure (i.e., traveling abroad for a whole summer) but were able to participate in a virtual international research program.
- **Virtual programs spurred ideas for new program elements.** PIs discussed creative approaches they had developed to help their U.S. students learn about their collaborator's culture, such as visiting restaurants, festivals, or cooking together over Zoom. PIs recognized that similar approaches could be used in future in-person programs to help prepare students to travel abroad.

Although PIs agreed that virtual experiences could not replace the experience of traveling abroad, they suggested that future in-person or hybrid programs could incorporate some of these virtual elements to achieve the benefits highlighted here.

### *Challenges of Virtual Programs*

Focus group participants shared many difficulties regarding the shift from in person to virtual international research programs. The top three challenges that came up across focus groups are highlighted below.

- **Virtual programs cannot replicate the cultural and social experience of going abroad.** A common sentiment was that completely virtual international research programs were “better than nothing,” but significantly lacking compared to programs where students could go abroad. In addition to the cultural and social aspects, many faculty mentioned that students missed out on the personal growth opportunities associated with spending a summer in a different country.
- **Virtual programs can place additional strain on international collaborators.** This strain was often the result of time zone differences and lack of internet infrastructure to support remote work at the international locations.
- **Virtual programs make it challenging or impossible to conduct certain types of research.** This challenge was primarily experienced by researchers who did field work to collect their data. Many of the focus group participants who required field work for their

research said they would not consider doing a 100% virtual international research program because of how much their work relied on in-person data collection techniques.

### *Future Ideas for International Research Programs*

Focus group participants discussed how their experiences leading virtual international research experiences can inform the design and implementation of future programs. Most of the suggestions fell into one of the two categories outlined below.

- **Virtual programs highlighted opportunities to design hybrid international research experiences for students.** Several suggestions were proposed, including:
  - The most common suggestion was to incorporate virtual pre-travel and post-travel activities, which would allow the international research program to extend beyond the limited time abroad. Focus groups members felt that this would benefit both students, who would be better prepared for their time abroad, and international collaborators, who would be more likely to get publications from an extended program.
  - Some PIs described how adding virtual components to an international research program could improve accessibility for different populations of students.
  - Others suggested that virtual components could lead to different program schedules (i.e., not limited to the summer) that could better support the needs of the research projects.
  - Overall, many focus group participants saw adding virtual components to international research programs as an opportunity to add flexibility to the schedule and provide support to students as they prepared to travel abroad.
- **Virtual programs emphasized the significant amount of work international collaborators contribute to international research programs and the need to better recognize and support these contributions.** This problem was present even before the COVID-19 pandemic, but virtual programming put additional strain on international collaborators. The current IRES and PIRE guidelines do not allow foreign collaborators to be paid for their involvement. Every focus group participant who mentioned this situation said it was a problem, and some suggested potential changes, including:
  - Several participants suggested an exchange model to try to create more benefits for their international collaborators.
  - Alternatively, some participants said that strain on the international collaborators could be reduced by allowing PIs to pay an international postdoc or graduate student to help oversee the international research program on-the-ground.
  - Support for international collaborators was especially important for PIs whose collaborators are located in countries without large grant offerings to fund their own research or where virtual connections were more challenging to set up.
  - Overall, nearly every focus group participant wanted explicit support and acknowledgement of their collaborators' contributions to be possible as part of future international research programs.

## **Conclusions**

The results for Research Question 1 (benefits and challenges) indicated that virtual programs can help address many of the reasons STEM students are unable to study abroad, such as strict schedules and lack of support for intercultural learning within these fields. Focus group participants noted that virtual international research programs offered more flexibility and a lower barrier for entry into intercultural learning than programs requiring travel abroad. The flexibility of virtual programs can also open doors to new collaborations abroad that were not feasible in person and provide opportunities for ongoing collaboration outside the traditionally limited time window. On the other hand, students in virtual programs need extra support connecting with colleagues and learning about cultural differences. Although such support is recommended in international education generally, virtual programs offer unique challenges in this regard. Program leaders in our study implemented creative approaches to address this challenge, such as leveraging local opportunities to engage with the collaborator's culture (e.g., restaurants or festivals), however they frequently noted that these experiences could not compare to actually traveling abroad. Virtual programs also presented challenges for certain types of research that could not be conducted remotely and placed additional strain on collaborators abroad, especially in low-resource settings. Overall, our focus group participants identified a range of both benefits and challenges to virtual international programs.

Our results for Research Question 2 (design of future programs) suggests that incorporating virtual elements can open the door to new structures for international research programs going forward. Based on the results of this study, we suggest that future IRES programs continue to creatively explore how virtual and hybrid program elements can support a wider range of program structures. In particular, we are excited about the possibilities identified through this study to increase accessibility for a variety of marginalized populations in STEM fields by exploring alternative program structures. Structures like extending program lengths through the use of virtual collaboration can also improve the likelihood of publications, which is an important outcome for collaborators. However, our focus group participants consistently highlighted that formal support and recognition for collaborators would significantly improve international research programs, especially with the additional strain that comes from operating virtually. Our future work on this topic will include a survey of the broader community of PIs who have experience running international research programs and interviews with students who have participated in virtual or hybrid programs.

### **For more information on our current and prior research:**

Visit the following website for reports, conference papers, and webinars based on our ongoing research of IRES programs: <https://global.eng.vt.edu/Resources/IRES.html>

Future reports and publications based on the current project will also be added to this website.