Building capacity and promoting health through online volunteering

Michele Upvall[1], Lisa Vu[2], Ho Thi Thuy Trang[3], April Pinner[2]

Abstract

Purpose: Significant changes to in-person volunteering were necessary during the COVID-19 pandemic. Health Volunteers Overseas (HVO) responded to the pandemic by developing an online education platform and pivoting to online volunteering. This qualitative study explores the dynamics of online volunteering and provides visibility to this novel trend in the training of health professionals in resource-scarce countries.

Methodology: Barriers and facilitators, actual and potential outcomes, and recommendations for online volunteering were addressed through a comparative case study approach focusing on three HVO global projects: physical therapy in Rwanda and Ghana, oral health in Nepal, and anesthesiology—a multi-country collaboration between Bhutan, Cambodia, and Laos.

Findings: A total of 15 participants, including project directors, host country representatives, and teaching volunteers, were interviewed online. Three themes emerged through the online interviews with HVO volunteers, project directors, and host country directors: Creating Space, the Future is Hybrid, and Geographical Expansion.

Research implications: Online volunteering provides a new opportunity for volunteers to expand their networks, learn new skills, and meet the needs of the host country participants. There is also an opportunity to expand projects beyond national boundaries, but logistical, cultural, and linguistic challenges must be considered.

Practical implications: Online volunteering is a feasible approach for building teaching and research capacity globally, and volunteer agencies should consider a hybrid model combining online volunteering with in-person volunteering.

Originality: Online volunteering provides support to meet the needs of both volunteers and in-country program participants.

Limitations: This study focused on the volunteer, project director, and host coordinator experience and not on the learner. More research is needed to investigate how online and in-person dynamics coalesce.

Keywords: online volunteering, capacity building, health education, COVID-19

[1] Barry University, School of Nursing

[2] Health Volunteers Overseas

[3] Hue University of Medicine and Pharmacy, Hue University

Corresponding author: Prof Michele Upvall, Professor & PhD Program Director, Barry University, School of Nursing, 11300 NE 2nd Ave. Miami Shores, FL 33161. Phone: +1 412-874-6799 mupvall@barry.edu

INTRODUCTION

Remote or online experiences, which increase the workforce capacity through educational opportunities in underserved areas and promote health equity, emerged before the COVID-19 pandemic (Ackermann & Manatschal 2018; Seddighi & Salmani 2019) but accelerated after 2020. Organizations relying on in-person volunteering were forced to withdraw from on-site, face-to-face activities quickly as COVID-19 raged across the globe. While some organizations stopped all volunteering efforts, others shifted to remote or online volunteering, in a similar way to how businesses and universities used online platforms for remote work.

Health Volunteers Overseas (HVO), a nonprofit organization with over 30 years of experience, is dedicated to increasing healthcare providers' educational capacity in countries with too few resources (Pinner & Kelly 2017). HVO pivoted from in-person volunteering to online within a short timeframe during the COVID-19 pandemic. While some HVO volunteers have returned to face-to-face capacity building, online educational opportunities remain important to HVO's work. The purpose of this study is to explore the dynamics of online volunteering that promotes health education and to provide visibility to a novel trend in the training of health professionals in resource-scarce countries. Specifically, this study aims to:

1. describe the barriers to, and facilitators of, online volunteering to increase education capacity

2. assess the actual and potential short-term outcomes of online volunteering for healthcare educators

3. develop recommendations for facilitating online volunteer opportunities for organizations building educational capacity.

AN OVERVIEW OF THE VOLUNTEER EXPERIENCE PRE- AND POST-COVID-19

Healthcare providers (HCPs), who are committed to service, seek opportunities to give their time and expertise to benefit others. They work through either formal organizations or local community efforts, within various contexts, including disaster response and short or long-term development efforts, to build education and research capacity. These opportunities are unpaid, encompassing the definition of volunteerism (Ackermann & Manatschal 2018) and may be fostered early in HCP careers through service–learning opportunities. Volunteer commitment may also be influenced by the age of the volunteers, whether they have an established career, their financial ability at the time of recruitment, and psychological engagement (Dalmida et al. 2016; Ackermann & Manatschal, 2018).

Before COVID-19, the number of formal and informal volunteers worldwide was estimated to be over 800 million (United Nations Volunteers 2022). Organizations promoting voluntourism or combining volunteering with holiday time and medical missions fueled the desire to volunteer, while debates regarding the ethics and effectiveness of short-term volunteer visits escalated. Lasker's (2016) comprehensive study of short-term volunteering provided recommendations to ensure a positive volunteer experience for both the volunteer and host country participants. These included a focus on mutuality, continuity, collaborative assessment and

evaluation practices, health prevention with diverse healthcare services, building local capacity, and strong volunteer preparation with longer on-site experiences, which remain important principles for global volunteering.

Lasker's (2016) concepts and principles apply to the volunteer educator as well as those providing clinical services. Host organizations desire long-term commitment and strong partnerships. However, they face significant challenges in maintaining meaningful volunteer collaboration in terms of time and bridging cross-cultural gaps. The host is not passive in the volunteer experience, but their voice is too often unheard (Tiessen, Lough & Grantham 2018). Significant resources expended by the host organizations, especially the time commitment, logistics, and preparation for volunteers, go unrecognized.

The COVID-19 pandemic shifted the dialogue significantly as organizations could no longer provide on-site volunteering regardless of their outreach focus. Online volunteering, virtual volunteering, or e-volunteering emerged in the early 2000s (Cravens 2006). Mukherjee (2011) defines the online experience of volunteering as a 'type of civic engagement where volunteers perform their tasks using the internet either from their home or other offsite locations'. Online volunteering allows individuals to volunteer their skills and time remotely without having to travel to a physical location, which can be especially beneficial for those who cannot travel due to financial or physical constraints or for those who live in areas with limited volunteer opportunities. Educators with limited time due to professional and personal obligations who desire to volunteer appreciate the flexibility of online volunteering (Ackermann & Manatschal 2018; Seddighi & Salmani 2019). At the same time, organizations have access to a broader pool of volunteers with various skills and expertise, transforming the relationship between volunteers and organizations (Ihm & Shumate 2022).

CONTEXT: HEALTH VOLUNTEERS OVERSEAS

Since its inception in 1986, HVO has offered an effective short-term volunteer model for resource-scarce countries, providing professional educational mentorship to healthcare providers (MacNairn 2019). The hallmark of HVO's success is its partnership with institutions in resource-scarce countries and the use of an organizational logic model to determine each project's inputs, throughputs, and outcomes. The institutions, as partners, are fully engaged in each step of the process, which facilitates institutional goals related to capacity development (Pinner & Kelly 2017). Typical institutional goals include teaching and clinical training of local healthcare providers: physicians, nurses, and allied health professionals. Training and mentorship opportunities are extended to faculty, students, clinicians, and hospital administrators. Table 1 provides the most current information related to projects and volunteers.

Table 1. HVO at-a-glance.

Characteristic	N
Number of active projects	
• In-person only	26

• Online learning only	13
• Hybrid	21
Programmatic areas:	17
Project locations:	
• One country	21
• Multiple countries	4
Number of current partner institutions	73
Number of e-volunteers (volunteers who participated in multiple online projects were only counted once)	
• 2020	105
• 2021	160
• 2022	155

Key indicators of successful international partnerships identified through the years of HVO's experience include mutual goal setting; transparent communication among all institutional partners; mutual benefit to the organizations, project partners, and volunteers; active partner engagement across the project cycle; flexibility; clearly defined leadership roles among the institutional partners and volunteers; and a locally based project champion (Pinner & Kelly 2017). In essence, all project partnerships are, by nature, dynamic and constantly evolving with programmatic input coming from involved parties. HVO's ability to respond to changes within all stages of the organizational model was prescient as COVID-19 emerged in 2020.

Prior to the COVID-19 pandemic, HVO facilitated in-person volunteering only; virtual volunteering occurred sporadically in the form of volunteers corresponding with contacts made during their trips, to provide mentorship or research assistance on an as-needed basis. There was no formal structure within HVO to encourage and facilitate e-learning. During the pandemic, HVO pivoted to facilitating virtual volunteering, organizing online activities such as lectures, case conferences, and tumor boards. In 2021, HVO designed and implemented an online learning platform, named the Remote Education Interface (REI), as part of its efforts to continue offering education and training amidst travel restrictions.

The REI is a digital platform that provides a streamlined, centralized location for partners and volunteers to engage in training and to access resources. Each REI site is custom-designed with input from project directors and partners abroad to ensure that it meets the particular needs of each site. HVO staff can customize an REI site for individual projects in order to meet the unique educational needs and technological capacities of the target learners. To date, the organization has created 25 REI sites, with more under development. HVO's REI sites have rapidly evolved despite their recent adoption. Initially, each REI was designed to support a single project

with resources available to a single partner. Now, a volunteer's presentation can be accessed across multiple teams and institutions around the world, increasing the number of practitioners benefiting from a single volunteer's efforts. The opportunity to conduct case conferences and lectures with health professionals from different locations also expands the professional networks and facilitates the exchange of ideas and knowledge among learners.

The REI has also been adapted to support multiple education initiatives at one institution. For example, HVO developed an REI to support the education of oral health professionals at Dhulikhel Dental School in Kathmandu, Nepal. The REI facilitates case consultations between residents and faculty at Dhulikhel Dental School and the University of Minnesota. Soon, faculty and residents at Augusta University will be joining the team. The same REI also supports lectures for the dentistry and dental assistant programs at Dhulikhel. With such success and support from the HVO community, HVO will continue improving the REIs and maximize their utility and accessibility. Adopting the REI has facilitated the ability of online educators to deliver quality programming, and a comprehensive understanding of facilitators and barriers to building educational capacity was seen as the next step for program development.

METHOD

A comparative case study approach (also known as a multiple-case study design) was used to explore online volunteering practices associated with the delivery of education for healthcare providers. Qualitative data, using a minimum of three individual cases from HVO, facilitated rich and thick descriptions of both unique and shared patterns for more robust results (Stake 2005; Yin 2018). The intent of the research was to compare patterns across cases, seeking unique themes.

CASES

The parameters used for selecting the cases were geographic region, health specialty, and the presence of a current, robust online volunteer program. That is, the cases represent a variety of health professions and countries, and all cases consist of online programs that are ongoing. Purposive sampling was used to identify individuals actively participating in the projects.

The following cases were used for comparative purposes:

1. Physical Therapy, Rwanda-Ghana. Volunteers provide synchronous lectures once a week to physiotherapists in Rwanda and Ghana. A pre-test and a post-test accompany each lecture.

2. Oral Health, Nepal. This project consists of monthly case seminars and online lectures. The case seminars originally involved residents and faculty members from a United States of America (USA)-based university and their counterparts from a dental school in Nepal. Alternating each month, the USA-based team and the Nepal-based team present cases online and discuss related literature and treatment options. Two additional USA-based teams eventually joined the project to support the Nepal team. The online lectures are scheduled based on

the availability of volunteers. Thirteen online lectures were delivered between April 2021 and September 2023.

3. Anesthesiology, multi-country collaboration between Bhutan, Cambodia, and Laos. Volunteers pre-record lectures that are 10–20 minutes long, which are then played at the start of each meeting and followed by discussions. Presenters for this lecture not only include those from the USA but also clinicians from Cambodia and Laos. The project was structured as such in order to foster regional collaboration and build training capacity. In 2022, the group met every other week, and the schedule was revised to once a month due to the demand on participants' time.

After receiving university institutional review board approval, HVO volunteers, project directors based in the USA, and host project coordinators were interviewed using a semi-structured interview guide. An online synchronous approach, with each session recorded for accurate transcription, facilitated discussion and allowed the researchers to collect rich, qualitative data without constraint from geographical boundaries (James & Busher 2016). Interviews ranged from 30 to 60 minutes.

The characteristics of the participants are outlined in Table 2, which illustrates the variety of ages and years of experience across cases. The greatest number of interviews (n=6) was from participants in Nepal, the largest program area. However, all USA-based program directors and host country representatives were interviewed. While most participants had one to five years of experience (n=8), at least six participants had ten years or more of volunteer experience. Diversity among age groups was noted, with a range from 33 to 76 years of age.

Table 2: Participant characteristics.

Characteristic	N
Country:	
• Rwanda	2
• Ghana	1
• Nepal	6
• Cambodia	3
• Laos	3
Role:	
• USA-based volunteer	7
• USA Project Director	5
• Host Country Coordinator/Representative	3

Age range:	
• 30–39	4
• 40–49	3
• 50–59	2
• 60–69	3
• 70–79	3
Gender:	
• Female	5
• Male	10
Program area:	
• Oral Health	9
• Physical Therapy	3
• Anesthesia	3
Years of experience:	
• 1–5	8
• 6–9	1
• 10–15	4
• 15–20	0
• >20	2
Total participants	15

RESULTS

Using a thematic analysis approach (Miles, Huberman & Saldaña 2020), each interview was coded using the Dedoose qualitative data analysis software. A total of 48 codes were identified and applied to 561 lines of text. Codes were further collapsed into 11 categories, resulting in three major themes encompassing all three cases. At least two research team members discussed any disagreements in coding and analysis for resolution. The original intent of the research was to find the unique themes for each case. However, the results were homogenous, and similarities in patterns were noted across all cases.

The three major themes that emerged were: Creating Space, the Future is Hybrid, and Geographical Expansion.

The first theme, Creating Space, was the culmination of categories related to the volunteer's contributions to capacity building, perceptions of the project director/in-country host coordinator and volunteer responsibilities, the perceived value of volunteers and the volunteering experience including facilitators and barriers to the online experience, and recognition of issues related to culture and context. In essence, online

volunteering in the education and professional development realm not only involves the delivery of a different modality of learning, but also creates a space to reflect on attitudes and practices related to building capacity. In the case of HVO, the availability of online volunteering simultaneously feeds volunteers' existing desires to build educational capacity and provides an avenue to do so. Engagements that occur in the online space are imbued with similar cultural expectations as in-person encounters. Furthermore, we found that the provision of learning in an online environment engenders flexibility among volunteers.

Capacity building related to education is an integral part of HVO's mission, and draws volunteers to the organization. Volunteers, project directors, and in-country host coordinators shared their stories of the HVO volunteer experience with the following exemplar statements:

> *...it's leading to boosting local capacity, workforce and education and sustainability...*

> *...everything is capacity building. And that's where when you do these trips, you realize that you're just putting a Band-Aid on a bigger problem. You have to train, you have to teach.*

E-learning provided an opportunity for HVO volunteers to pursue their interest in capacity building amidst disruptions to in-person activities due to COVID-19. The data reveals that while HVO was re-orienting itself to provide e-learning, some of the host sites were also adapting to the changing conditions. Without prompting from HVO, one of the host coordinators from Cambodia held active discussions with staff and began introducing them to online platforms such as Zoom (Zoom Video Communications Inc San Jose, CA), Microsoft Teams (Microsoft Corporation Redmond, WA), and Google Classroom (Google LLC Mountain View, CA). This host coordinator helped his staff become familiar with these technologies in the span of one to two months, which highlights the determination of the people at an HVO site to continue exchanging information at a time when in-person activities were disrupted. It also underscores the continued importance of having skilled individuals who can navigate existing technology. HVO's REI platform found a receptive audience because it simplified the online learning experience by centralizing e-learning resources and countering problems associated with learners having to remember their passwords, update software, and solve technical issues associated with each individual online platform.

Beyond making it feasible to convene and learn online, our study reveals that the type of technology deployed shapes online interactions. For example, one volunteer notes that in a Zoom call, it was difficult to engage with participants, but the same participants were more eager to engage with the volunteer on Facebook (Meta Platforms Inc.): '*... they all wanted to be Facebook friends with me*'. The implication for organizations that seek to connect people through technology is to pay careful attention to the type of platforms being utilized, since the same technology may be utilized differently across cultures. For example, while Facebook may be utilized more for casual or informal networking in the USA context, it may be used by those in other countries for more professional outreach.

Technology, while being a facilitator of e-volunteering, can also present challenges. A persistent issue related to technology was unstable networks that prevented students from keeping their cameras on during sessions.

This limited the virtual volunteer's ability to assess learner reactions and address immediate questions from the learners. On a positive note, the online format provides the luxury of time to space out lectures. This time is not available during a trip abroad that is limited by a finite number of days at a site. As one project director observed,

> *Oh, I think what we found is that e-volunteering fills a niche in terms of being able to provide lectures. I think, you know, when I go over for three weeks and I just try to do four to five hours of lecture a day, I'm not sure that's so effective. I think it's better to do, you know, an hour of lecture with, and the way that we format it is 45 minutes of discussion with clinical application, and I think that's much more effective than just trying to do a blast with all these lectures, you know. And I, you try to get them involved, and I put them on the whiteboard and have them write things and do things as part of that.*

The facilitators of and barriers to online volunteering were often two sides of the same issue. For example, while technology allowed projects to continue during COVID-19, it could be unreliable. Logistic issues persisted, such as the need to accommodate volunteers' and learners' schedules. Research participants noted the cost of in-person volunteering, issues with jet lag, and difficulties with sustaining projects. However, there was a greater willingness for volunteers to participate in projects because of the online option. As one volunteer stated, *'it was great to be able to help virtually and not have to travel. You know, there's like no need to waste all the money and energy and carbon footprint on traveling'*. Another volunteer offered the following observation about online volunteering, *'I think it has tremendous promise because there are places that people will not go. You know, for whatever the reason is. And I think you can teach a lot online. I really that. So I think it has a lot of promise'*.

Regarding the online encounters, the data reveals that cultural expectations were carried over into the virtual space. For instance, the politeness and deference to teachers found in some cultures was conveyed to volunteers by learners, while the USA-based volunteers continued to expect a more egalitarian relationship with their learners. One volunteer's attempt to include learners in the process of shaping the lesson's content was met by the learners' deference to the volunteer's expertise. *'They were so, "yes, we're so grateful, whatever you can provide would be great", you know? And we say "no, but specifically what [should we] do?"'*. Another volunteer found it difficult to elicit feedback from the learners. *'The … people are so appreciative and so, you know, grateful. They have a lot of gratitude. I never heard anything, you know, criticism or any suggestion from them. Everybody says, "Oh sir, this is so good, thank you so much …"'* While e-learning can be seen as bridging physical distance among participants, the experiences captured in these quotes highlight that differing cultural norms and expectations are not automatically bridged and require negotiating in the online environment.

For in-person volunteering, logistical issues related to visas, accommodations, and schedules need to be solidified far in advance, whereas online activities can be rearranged more quickly. Online volunteering is often described as offering more flexibility to participants, but this research reveals that it also engenders flexibility among volunteers. One project director noted a change in personal behavior and a willingness to try new teaching methods to facilitate the project's success. *'I had to develop some skills and on the, on the fly, you know? I was face-to-face in the*

classroom ... Engaging and offering opportunities for students to provide feedback was, yeah, the skill that really needed development.'

This may explain why the flexibility that is inherent to online volunteering also engenders the same characteristic for a volunteer: when operating within a more flexible space offered by online education, the volunteer internalizes the fluidity and becomes more willing to seek alternative solutions. The interviewees demonstrated this flexibility through their willingness to utilize different teaching strategies, including pre-recorded teaching sessions and virtual live sessions, online quizzes, case studies, and active discussions at the end of sessions. Volunteer networks expanded with the REI platform and information could now be recorded for future continuing education, allowing current learners to revisit information as needed. One volunteer stated, *'I found my presentations which I uploaded were very selective. Like I, I made sure that it was more of clinical photos so that they can actually learn and grasp better. Because sometimes language, most of the time there's a language barrier as well.'*

Research participants looked beyond any constraints or barriers found with online volunteering in the second theme, *The Future is Hybrid,* with hybrid referring to the combination of in-person and online delivery of educational content. Essentially, participants recognized the benefits of both online and in-person contact. The categories contributing to this theme included perceptions of face-to-face teaching, information technology, recommendations for online teaching, and the future of online volunteering. Twelve participants would consider both online and face-to-face interactions while three participants would only consider online activities.

One volunteer shared,

I definitely don't think I would be doing what I'm doing without that initial visit, you know, that I had. So I think it's very important. I think it can still be valuable without going first, but I think it also helps tremendously. And even getting to know the population that's receiving treatment, you know, you get a feel of what those people want from their dentist and what they want when they come here and what, you know, what they don't want.

For this volunteer, the in-person experience allowed for more understanding about patient expectations. The volunteer's statement encapsulates a repeated sentiment among interviewees, which is that online engagements are adequate, but the online interactions should be paired with in-person activities for better outcomes.

Reflecting on the in-person experience, volunteers noted that being face-to-face allows for deeper engagement with learners: *'it's not a preference; it's about what's the content. And what, and what's the objective of the teaching session'.* Yet in-person engagement was viewed by another volunteer as contributing to illusions of impact: *'But these people come for a week or two weeks ... and they barely, they give a lecture or two, they feel good and they leave. And nothing has changed.'*

Other volunteers provided a unique perspective from a hybrid model where some volunteers taught on-site while others supplemented information online. These volunteers stated:

Here's another thought that I've had recently, and it would be really kind of fun, is that the idea of remote means that we could actually, for instance, even set up volunteer opportunities where we do have someone on the ground and we have someone remote and we have clinic and mentorship. It, you know, it, it really could expand the intensity and the number of people involved in volunteering.

There are certain clinical techniques which you need to be physically present, but there are certain lectures which you can deliver from anywhere in the world, you know, in that way that is very, very efficient.

Meeting learning needs through a hybrid approach facilitates the connection between theory and practice. While online volunteering may be the limit for some volunteers, others may have the capacity to be on-site and also teach online as needed. The delivery of educational content online does not necessarily need to be discontinued after the COVID-19 pandemic but modified to meet learning needs.

The third theme, *Geographical Expansion,* illustrates the potential of the online modality to have a greater impact than anticipated with the original project. Two categories contributed to this theme's development: project expansion and collaboration between countries. Project directors in all sites noted the ability to expand opportunities in-country and beyond national borders. Additional projects were either developed or were project extensions with Ministries of Health, other universities in the country and the USA, and national organizations within countries. One volunteer in Ghana stated, *'it was also an opportunity for us to also network at a regional level because, I mean, we could never have gotten a chance to just be in the comfort of our homes or at our places and connect with people in Rwanda'.* Challenges were noted when collaborating across countries, *'West Africa and East Africa, right? There's definitely cultural differences and probably linguistic differences'.* Another volunteer collaborated with three different sites, encompassing two countries in southeast Asia and the USA, with active involvement from each site. *'And what we've done is, we've had not only people from, you know, the high-income countries present, but we've also had people from ... present, and that's actually been a real highlight of this program is actually having them do the presentations. And what we do is, it's scheduled for just fifteen-minute presentations and then forty-five-minute discussions and it's, it's worked out quite well.'*

Online content, delivered through the creative use of technology, can provide a greater impact, with online conferences and seminars offered in one site to others across the country and across national borders. Project directors and host country coordinators, with experience and collegial networks, were willing to include others in a collaborative process extending the reach of the project. Yet, convening people from various countries presents its own challenges, including the need to navigate language differences and differing cultural contexts and healthcare systems. The most challenging issue for some interviewees was the difference in time zones, especially when more than one country was participating online. These issues may limit the potential for expansion across countries with greater potential for collaboration within countries.

DISCUSSION AND CONCLUSION

Our research, exploring the dynamics of transitioning to online education delivered by volunteers during COVID-19, provides a path forward in global health promotion and education. There was consistency across cases that contributed to each theme. In the first theme, *Creating Space,* online education created space for learners to continue their journey with HVO projects and ongoing capacity building. Online education also created space to expand volunteer networks and the responsibilities of project directors and host coordinators. Volunteers now had the opportunity to contribute in new ways and develop their online teaching skills while navigating the technical issues that could interfere with learning. Similarly, Lachance (2021) demonstrated the potential of online platforms in providing opportunities for virtual roles and projects, both in the short-term and on a long-term strategic basis. Therefore, organizations, including HVO, could leverage online platforms to optimize their workforce management, enhance collaboration, increase productivity, and reduce costs.

Looking toward the future, the hybrid model of in-person and online learning was considered a positive method of facilitating the connection between clinical practice and theory. However, logistical, cultural, and linguistic challenges exist when collaborating across borders.

While some of the concerns of on-site engagements are remediated through online opportunities for volunteer educators, challenges remain. Challenges for on-site and online volunteering intersect within the context of cultural differences and language barriers. Transparent expectations and clear communication are essential, regardless of the modality for delivering educational content. Also, ethical issues remain the same if the volunteer experience is not grounded in principles of mutuality and partnership. Trust and understanding are required in any volunteer experience. A significant challenge to the delivery of education online, distinct from on-site delivery, is the digital divide or the unequal distribution of technology and internet access. Internet access and technological skills may be highly variable between the volunteer and the learners.

Despite potential limitations and challenges to online education delivered by volunteers, this study supports exemplars of successful transitions during COVID-19 and adds to the existing literature on the provision of education by virtual volunteers. For example, virtual global experiential learning promoted environmental sustainability and provided opportunities for low-income students in one Canadian university (Steckley & Steckley 2021), while a study-abroad experience was transformed into a clinical community health course between American and Kenyan nursing students (Lugger & Koonmen 2022). In clinical practice, The Systems Thinking for District Health Systems initiative was developed to adapt systems thinking tools for district healthcare management in Botswana, Pakistan, and Timor Lester, with the Swiss Tropical and Public Health Institute providing technical support. This initiative resulted in equitable partnerships with the co-production of knowledge and an expansion of collaboration and training across additional institutions (Sant Fruchtman et al. 2022). The exemplars further support the ability of organizations, including HVO, to successfully transition to online platforms to support virtual volunteers. Online volunteering alone or combined with in-person volunteering can make a significant contribution to the promotion of global health and development of the capacity of healthcare providers.

A limitation of this study was the focus on the volunteer, project director, and host coordinator experience and not on the learner. Studies focusing on the learner's perceptions of online education will be valuable in creating optimal learning experiences. Also, a framework for a hybrid model to deliver educational content should be developed that considers the possibility of expansion within countries and across borders. The cross-cultural impact needs additional study. More research is also needed to investigate how online and in-person dynamics coalesce. Thus far, HVO's hybrid model has occurred in distinct phases, with in-person activities happening before COVID-19 and e-volunteering happening after COVID-19. How these projects evolve, once in-person activities resume and occur simultaneously with online activities, is a topic for further investigation. Lastly, monitoring and evaluation processes should also be an integral part of the framework, with the roles of the project director and in-country host coordinator clearly defined.

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