Future Potentials for International Virtual Exchange in Higher Education Post COVID-19: A Scoping Review

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Abstract: (1) Background: International virtual exchanges (IVEs) are here to stay. The coronavirus pandemic of 2019 (COVID-19) necessitated global virtual interactions to solve wicked problems. Within industry during the pandemic, the use of online technologies expanded at a never-before-seen rate to form global partnerships At the same time, higher-education institutions lessened traditional international offerings, reimagining "campus" education using "just in time online education". Still others leveraged international partnerships to fully embrace IVEs. Adopting virtual learning technologies to support global exchange in this way develops the knowledge and skills required in a post-pandemic world. To continue to shape knowledge that supports international collaboration toward addressing increasingly complex societal issues, higher education must learn to leverage IVEs, addressing issues of access, equity, and cost. (2) Methods: This research was conducted according to the "Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews" (PRISMA-Scr) guidelines. It systematically analyzed the literature published since the start of the COVID-19 pandemic, exploring methods, models, and the outcomes of IVE in higher education. (3) Results: The findings demonstrate the potential for IVE to be scaled across higher education to promote the knowledge and skills required by a global ecology.

Keywords: virtual exchange; scoping review; online learning; higher education; internationalization; intercultural education

1. Introduction

International virtual exchanges (IVEs) are here to stay. The coronavirus pandemic of 2019 (COVID-19) necessitated IVEs to solve wicked problems. As O'Dowd [1] notes, within industry during the pandemic, the use of online technologies expanded at a never-before-seen rate to form global partnerships. Yet, at the same time, institutions of higher education lessened traditional international offerings, refocusing on how to reimagine "campus" education with "just in time online education". Still others leveraged international partnerships to fully embrace IVE.

Since the 1990s, higher-education institutions have been leveraging virtual or online learning to promote IVE between geographically distanced students and instructors, particularly in relation to online intercultural education aimed toward "linguistic accuracy, intercultural awareness, intercultural skills and electronic literacies" [2] p. ix. More recently, this pedagogical approach by scholars in the field to promote cross-disciplinary collaboration on effective implementation within universities has been termed virtual exchange [1]. Thus, IVE relates to leveraging virtual technologies to bring together internationally distributed classes to engage in academic collaboration and cooperation for reciprocal benefits [2]. The benefits of IVE, particularly in relation to language learning,

were noted well before the COVID-19 pandemic, including promoting language learning and global citizenship, preparing students for an increasingly international and global focused workforce, and facilitating access to diverse cultures and geographies for learners who might not otherwise have access to the physical or financial means needed for these types of interactions [1,3].

COVID-19 necessitated the adoption of virtual collaboration on an unprecedented scale across industries (e.g., healthcare, business, and politics), with many advances in technologies, policies, and processes to achieve a level of collaboration and cooperation previously achieved in face-to-face settings. Similarly, academic institutions adopted "just in time" IVEs to augment the loss of traditional international exchange programs and potentially allow students to still benefit from these types of global learning opportunities. However, it is important to recognize IVE as an essential tool within higher education requiring more than the "just in time" adoption of online education platforms or virtual technologies to provide a "space" for interaction across geographical distances. It is also important to recognize its potential to extend beyond the context of language learning to develop the requisite knowledge and skills for global interactions in other fields. So, we must evolve beyond "just in time" IVE to planned, pedagogically sound online programming that develops the knowledge and skills students require to engage in cross-cultural collaboration and cooperation toward solving wicked global problems. Challenges to recognizing this vision in higher education relate to the "notable shortcomings in virtual exchange research and practice" [3] p. 401.

To continue to shape knowledge that supports international collaboration toward addressing increasingly complex societal issues, higher education must learn to leverage IVE while addressing issues of access, equity, and cost. This scoping review queries the literature published since the start of the COVID-19 pandemic to explore how IVE has been operationalized or modified in higher education in response to COVID-19 and potential outcomes. To address this overarching goal, articles were analyzed to consider the following sub-questions:

- How does the literature consider the potential of IVE to address challenges related to the digital divide and equitable access to the use of technology?
- How does the literature represent the application of IVE to facilitate intercultural awareness?
- How does the literature consider the potential of IVE to promote higher-order collaborative engagement and thinking?

2. Materials and Methods

The purpose of a scoping review, as [4] describe, is to identify types of evidence, clarify key definitions and concepts, examine how research is conducted, identify key characteristics, and identify knowledge gaps in a specific topic or within a certain field. We adopted [5] as our methodological framework to conduct this scoping review. This approach details a five-stage process: (1) identify the research question, (2) identify relevant studies, (3) select studies and extract data, (4) chart the data, and (5) collate, summarize, and report the results [5]. We were also guided by the "Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews" (PRISMA-Scr) [6]. The description of the methods below aligns the stages indicated by [5] while including the requisite items in the PRISMA-Scr.

2.1. The Scoping Review Question

Given our interest in describing the application of IVE in higher education post COVID-19, the following question guided this review: what is known in the existing published literature about the application or modification of IVE models within higher education and their related outcomes since COVID-19 (March 2020)?

2.2. Identifying Relevant Studies

We conducted a scoping review using keywords and free-text terms related to IVE and higher education. Search string terms included "Global virtual exchange" or "virtual exchange" or "COIL" or "global classrooms" or "transnational virtual exchange" or "international virtual exchange" or "telecollaboration" and "Higher education" or "university" or "college" or "tertiary education" or "post-secondary education".

We searched in three databases relevant to higher-education research including EBSCO Host, the Education Resource Information Center (ERIC), and Google Scholar. The searches were limited to open-access, peer-reviewed articles published in English from March 2020 to the time of the search (August 2023). Table 1 details the results of the finalized search string for each database and the number of articles identified using these inclusion criteria. It is worth noting that the initial results were influenced by the differing ways that the search string term "COIL" was applied across disciplines, which yielded articles in fields outside of higher education.

Table 1. Search results by database.

Database	Articles Relating to Initial Search String	Duplicate Articles with Other Databases
EBSCOHOST	111	0
ERIC	178	0
Google Scholar	15	0
Total Articles for Title and Abstract	304	

2.3. Selecting Studies and Extracting Data

The initial search yielded 304 results, with no duplicates between databases. In our screening process, publications were excluded if they were (1) not open access, (2) not published in English, (3) not peer-reviewed, (4) not on the subject of IVE, (5) not directed related to a higher-education setting, or (6) did not address new or expanded applications of IVE due to COVID-19. Our criteria to only include open-access, peer-reviewed work was guided by [7] recommendation on open educational resources, which affirms the right of all people "to seek, receive and impart information and ideas through any media and regardless of frontiers, as well as the right to education (Article 26)", in the Universal Declaration of Human Rights. As an emerging medium and given inequities that currently exist in international education broadly, access to resources is necessary for more equitable awareness of IVE and effective practices for program development and implementations. While refining the search beyond publications utilizing English as a lingua franca would further these aims of equity, this was beyond the capacity of the current research team. Our hope is that this scoping review will connect with future discussions of IVE that extend these aims.

For title and abstract screening, each article was reviewed by two of three researchers (G.L., G.W., and P.M.) for inclusion or exclusion based on the criteria set. Disagreements were decided by the third researcher, who did not review the given article. During the title and abstract screenings, 222 results were excluded. Prior to a full-text review, we excluded 25 additional articles due to open-access issues in gathering the full text for consideration. Therefore, the full-text screening process involved 57 articles. The same process for screening was applied for a full-text review between G.L., P.M., and T.W. During the full-text review, 36 articles were excluded, yielding 21 articles available for data extraction and charting. Figure 1 presents the search decision flowchart during the review process.
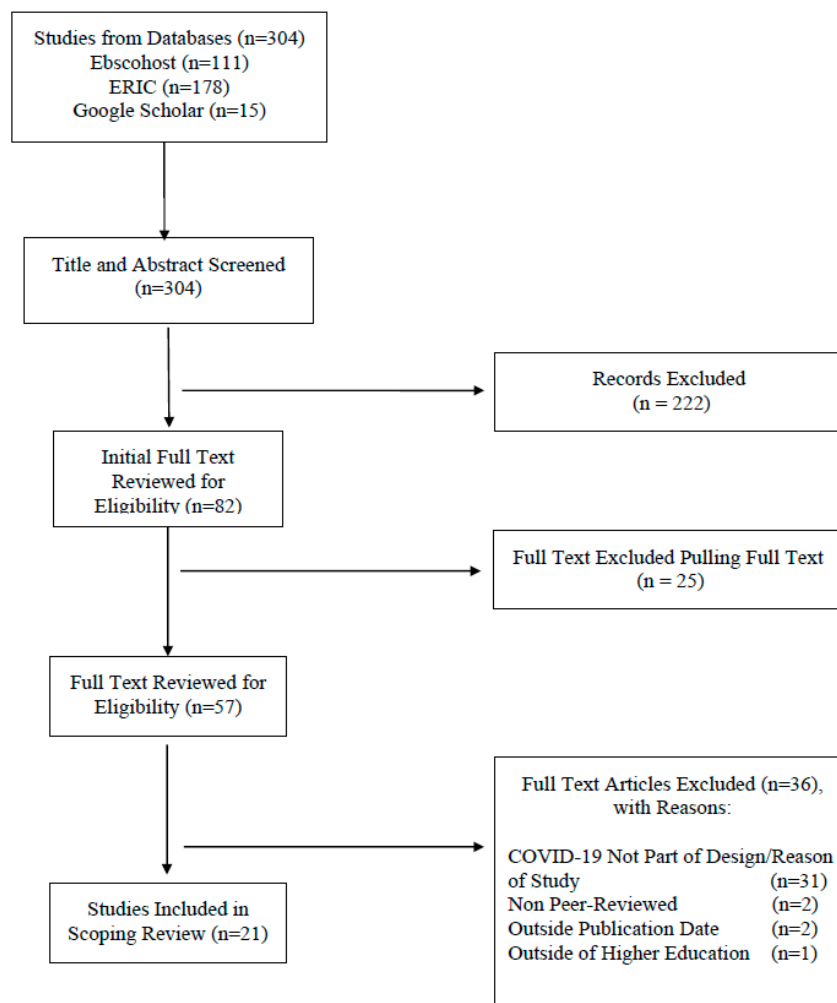
Figure 1. PRISMA diagram.

2.4. Charting, Collating, and Analyzing the Data

Four researchers participated in extracting data from the resulting articles for analysis (G.L., G.W., P.M., and T.W.). Each researcher reviewed the articles to identify data relevant to the scoping review question for further consideration. To facilitate data analysis, data were extracted and entered into a Google template. Columns within the template were labeled to facilitate data extraction for analysis and included the following headings: authors, publication title, publication year, article type, discipline of application, countries involved, level of higher education, course of application, competencies targeted, model details, study type, durations of intervention, study population, study aims, methodological overview, results, and the question of how this article relates to the scoping review. Once all data were entered into the Google template, information was transferred by column into Jamboard pages by creating sticky notes for each entry The titles for each Jamboard corresponded to the titles from the Google template used for data extraction. This process allowed the full research team to visualize the data together, both asynchronously and in successive Zoom meetings, to collaboratively develop descriptive and thematic results. For descriptive results, one researcher consolidated the information on a given Jamboard page (P.M.), wrote a narrative description of the findings, and gained consensus from the team on the graphic representation of those findings. Then, another researcher (G.W.) created graphics representing the descriptive findings. For the thematic analysis, three researchers each took one of the three sub-questions posed (G.L., G.W., and P.M.), analyzed the Jamboard related to the question, wrote an initial summary of the findings, and gained consensus from the research team.

3. Findings

3.1. Descriptive Analysis

3.1.1. Article Types

Various article types were considered in this review, as shown in Table 2. Five of the twenty-one were theoretical or conceptual articles [8–12]. The majority of the articles, 13, were peer-reviewed research studies [13–25]. Of these studies, eight employed qualitative methods [13,15–17,19,23,25,26]. Within these eight studies, specific qualitative methods ranged from thematic analyses of open responses in surveys and entries in student journals to a content analysis of bibliographic search data, interviews, an appreciative inquiry, and autoethnography. One article employed a quantitative pre/post survey design [18]. Eight studies adopted mixed-methods approaches combining descriptive statistics or an analysis of surveys/questionnaires with either qualitative interviewing, a thematic analysis of open-ended survey/questionnaire responses, a thematic analysis of student reflections, or a document analysis [10,14,20–22,24,27,28].

Table 2. Article types.

Articles	Year	Theoretical	Research	Qualitative	Quantitative	Mixed Methods
Ala-Kortsma et al. [13]	2023		X	X		
Alami et al. [14]	2022		X			X
DeKlerk et al. [8]	2022	X				
delaGarza et al. [9]	2022	X				
Devereux et al. [10]	2022	X				X
Giralt et al. [15]	2022		X	X		
Gleason et al. [16]	2021		X	X		
Golubeva et al. [17]	2022		X	X		
Guimarães et al. [26]	2021			X		
Inada [18]	2022		X		X	
Ismailov [27]	2021					X
Jacobs et al. [19]	2021		X	X		
Krengel [11]	2021	X				
Lenkaitis [20]	2022		X			X
Liu and Shirley [21]	2021		X			X
Nyunt et al. [12]	2023	X				
Oggel et al. [28]	2022					X
Poe [22]	2022		X			X
Weaver et al. [23]	2022		X	X		
Whatley et al. [24]	2022		X	X		X
Wimpenny et al. [25]	2022		X			
Total		5	13	8	1	8

3.1.2. Populations of Focus

Of the research studies in this review, an analysis revealed three populations in focus. Three articles researched IVE at the institutional level [15,24,25]. These studies varied from typologies [24] to the accreditation of IVE offerings [15] and decentralizing hegemonic norms in global North/South tensions [25]. Two articles focused on instructors and ad-

ministrators [15,23]. These studies aimed to investigate inclusive program design [15] and faculty capacity-building and prior international experiences [23].

3.1.3. Publications by Year

Of the twenty-one studies considered in this review, six were published in 2021 [11,16,21,26,27]. Thirteen articles were published in 2022 [8–10,14,15,17,18,20,22–25,28]. Two articles reviewed were published in 2023 [12,13].

3.1.4. Countries Involved in IVE Application

Twenty-two countries were represented in sixteen of the articles that addressed the application of IVE in specific courses or programs [10–13,16–25,27,28]. The United States was most represented in 10/16 articles; South Africa was represented in 3/16; Argentina, Brazil, China (including Hong Kong), Germany, Japan, Netherlands, Turkey, and the United Kingdom were represented in 2/16; and Canada, Colombia, India, Iraq, Italy, Jordan, Liberia, Poland, Russia, Spain, and Sweden were represented in 1/16.

Seven of the articles for review did not consider the application of IVE in a specific program or course; rather, they critiqued or provided theoretical insight for the application of IVE across higher education [8,9,12,14,15,19,26]. Three considered the Collaborative Online International Learning (COIL) model of VE to be appropriate across higher-education entities [8,19,26] with [8] specifically noting how COIL aligns with all students with disabilities. Jacobs and colleagues [19] presented faculty reflection on developing COIL partnerships during the pandemic, emphasizing future curricular innovation and partnering with a focus on decolonization. Similarly, delaGarza et al. [9] considered GVE across Latin American countries regarding the decolonization of film education. Alami et al. [14] consider the application of IVE across geopolitical sectors in South and Central America. Finally, Nyunt et al. [12] addressed how to use theory to enhance faculty development toward deepening student learning in IVEs.

3.1.5. Academic Disciplines

Thirteen articles considered the application of IVE in specific courses or programs [9–12,16–21,23,27,28].The disciplines represented were Agriculture [10], Business [18,21], Communication [13,17], Computer Science [23], Education [11,16,20,23], Engineering [21], Film studies [9], Language Studies [17,28], and Social Psychology [17,28]. Among these publications, four articles represented interdisciplinary applications in varied exchanges based upon institutional partners [17,21,23,28]. The remaining nine articles considered applications within similar courses by exchange partners. (Table 3).

Table 3. Academic disciplines.

Articles	Year	Agriculture	Business	Communication	Computer Science	Education	Engineering	Film Studies	Language Studies	Social Psychology	Interdisciplinary
Ala-Kortsma et al. [13]	2023			X							
Alami et al. [14]	2022										
DeKlerk et al. [8]	2022										
delaGarza et al. [9]	2022							X			
Devereux et al. [10]	2022	X									
Giralt et al. [15]	2022										
Gleason et al. [16]	2021					X					
Golubeva et al. [17]	2022			x					x	x	X
Guimarães et al. [26]	2021										
Inada [18]	2022		X								
Ismailov [27]	2021										
Jacobs et al. [19]	2021	X									
Krengel [11]	2021					X					
Lenkaitis [20]	2022					X					
Lui and Shirley [21]	2021		X				x				X
Nyunt et al. [12]	2023										
Oggel et al. [28]	2022								X	x	x
Poe [22]	2022										
Weaver et al. [23]	2022				x	X					x
Whatley et al. [24]	2022										
Wimpenny et al. [25]	2022										
Total		2	2	2	1	4	1	1	2	2	4

3.1.6. Competencies Targeted

Ten articles focused on intercultural competencies (language skills, cultural sensitivity, and global appreciation) [13,16,17,19,20,22,23,27,28]. Others focused on another set of competencies related to career readiness (collaboration, facilitation, leadership, social entrepreneurship, and team building) [11,12,17,18,21,23,27]. Moreover, there was a focus on developing digital and technical competencies for intercultural and global collaborations [16,17]. Our thematic analysis addresses how the competencies of focus relate to the questions posed for this review. (Table 4)

Table 4. Competencies.

Articles	Year	Intercultural	Career Readiness	Digital and Technical for Intercultural and Global Collaborations
Ala-Kortsma et al. [13]	2023	X		
Alami et al. [14]	2022			
DeKlerk et al. [8]	2022			
delaGarza et al. [9]	2022			
Devereux et al. [10]	2022			
Giralt et al. [15]	2022			
Gleason et al. [16]	2021			
Golubeva et al. [17]	2022	x	x	X
Guimarães et al. [26]	2021			
Inada [18]	2022		X	
Ismailov [27]	2021	x	X	
Jacobs et al. [19]	2021	X		
Krengel [11]	2021		X	
Lenkaitis [20]	2022	X		
Liu and Shirley [21]	2021		X	
Nyunt et al. [12]	2023		X	
Oggel et al. [28]	2022	X		
Poe [22]	2022	X		
Weaver et al. [23]	2022	X	X	
Whatley et al. [24]	2022			
Wimpenny et al. [25]	2022			
Total		8	7	1

3.2. Thematic Analysis

3.2.1. Facilitations of Intercultural Awareness

For this theme, ten articles focused on the application of IVE for increased individual awareness of different cultural perspectives [13,16,17,19,20,22,23,26,28,29]. While [13,16,22,23,28] demonstrate how IVE can promote intercultural awareness, communication, and knowledge.

In particular, several of the authors focused on the student learning aspect, utilizing existing frameworks. Lenkaitis [20] utilized technology to build teacher competence in exercising cultural sensitivity with students and knowledge of global issues, using the United Nations' (UN) Sustainable Development Goals (SDGs) framework as a reference. Similarly, Golubeva et al. [17], with the aim of improving intercultural curricula, applied the Reference Framework of Competences for Democratic Culture (RFCDC) to analyze existing student assignments for emerging competencies represented.

Additionally, Gleason et al. [16] emphasized forming connections at the personal level through finding common ground and understanding different perspectives on a global scale. Similarly, Weaver et al. [23] emphasized the need for humility (both culturally and professionally) in interpersonal interactions, and Poe [22] demonstrated how IVE can result in a reduction in bias and increased affinity for people outside of a home country.

With Wimpenny et al. [25] even went so far as to suggest that IVE can create a new pedagogy that overcomes cultural North/South divergence, creating a "Third Space" that allows for the creation of an environment for cultural understanding. From an institutional perspective, Jacobs et al. [19] argued for global approaches to promoting interactions among course facilitators for the purpose of implementing IVE in a decolonial and reciprocal manner. And Guimarães et al. [26] also highlighted how IVE can allow for the development of global citizenship and the potential for a "Third Space".

While these studies indicate that COVID-19 spurred the acceleration of IVE application, collectively, these articles address facilitators of intercultural awareness in the context of COVID-19, but these facilitators are not bound to be solely used or applied within a pandemic. Rather, the use of IVE can be applied as a blueprint for the utilization of IVE beyond its use during the pandemic to address topics of global citizenship development, interconnectedness, and common understanding to address the bifurcation within the North/South cultural divergence.

3.2.2. Collaborative Engagement and Thinking

Three articles provided considerations for the potential of IVE as a means to promote higher-order collaborative engagement and thinking, particularly relating to topics of decolonization and biases related to inequities in the conceptualization and implementation of IVE between the global North and South [14,25,26]. While Guimarães andFinardi [26] noted that "neutral White, global North, middle class, male normativity" (p. 2) is still the centered norm and offers the possibility of a "glonacal" (p. 3) focus, that is, accounting for the role of the state (at the national level), as well as global and local contexts, as an alternative Third Space that can encourage critical reflexivity and which disrupts Western-focused notions of knowledge, identity, and values.

Wimpenny et al. similarly discerned that the IVE model seeks to aid in "developing a series of attributes, qualities and capabilities that enable students to address and reflect upon the challenges of living and working in contemporary societies as global citizens and professionals" [25] (p. 280). Leveraging digitalization in a cross-disciplinary and multicultural strategy while working to address social challenges allows for IVE offerings to situate themselves as Third Spaces which can contest the dominance of traditionally hegemonic Western ideologies and pedagogies. However, the authors also caution being mindful of how inequities can be replicated if educators are not intentional in their program design.

Alami et al. [14] observed that the COVID-19 pandemic demonstrated both how a lack of technological access exacerbated inequalities and simultaneously created additional inequalities through exclusion and marginalization. One particularly interesting finding was that for the regions North America, Europe, and Africa, the top challenge for IVE programs was that there are often no incentives for implementation despite the numerous benefits described in the previous section. There is often a clear power imbalance in how IVE is typically conceptualized—with a Western university (particularly from an English-speaking country). Authors suggested training on IVE pedagogies across disciplines and contexts to help remedy this imbalance.

Collectively, these articles attest to the possibilities IVE offers as a medium for collaborative engagement and thinking while simultaneously cautioning against unreservedly viewing IVE as a simple solution to long-standing inequities. In this sense, they continue long-standing critiques of Allport's [29] contact hypothesis and advocate for intentional program design and implementation. Though more institutions are now conceptualizing IVE as a viable strategy for internationalization at home, attention to factors such as digital capital alongside other capitals of resonance such as cultural and social capital will be

necessary considerations. IVE as an internationalization-at-home strategy is still not as accessible as some studies suggest (particularly between the Global North–South), and in addition to the significant time and effort needed to build quality IVE partnerships, awareness of IVE and institutional incentives for partnerships remain uneven across all regions. Future IVE programs and research will likely continue to interrupt Western and Global North-dominant paradigms, create a greater awareness of IVE as a possible medium for inclusive educational collaboration, and aid in the refinement of competencies such as global citizenship.

3.2.3. IVE and Equity

With many study-abroad programs canceled during the COVID-19 pandemic, IVE offered the potential for intercultural exchange to continue and to perhaps expand to increase access to a broader demographic of students. Yet articles within this review also indicate cautions to ensure equitable access moving forward. The content of four articles related to how the application of IVE during the COVID-19 pandemic addressed challenges related to the digital divide and access to the equitable use of technology [8,14,24,25]. An analysis did not identify any articles that specifically researched the outcomes of IVE in relation to the digital divide. However, in examining the Global North/South application of IVE, Wimpenny et al. [25] cautioned for adopting digitization practices promoting access and the careful consideration of the technological requirements for participation. As previously noted, these authors suggest the potential of IVE to emancipate higher education from hegemonic pedagogy and provide an inclusive "Third Space" (p. 279) where in which new ways of knowing and learning can thrive. However, they also emphasize the importance of non-hierarchical relationships (academic–academic; student–student) and valuing collective development as the ideal starting point for equity and inclusion in the application of IVE.

Three additional articles either investigated equitable participation in IVE or made recommendations to increase access to minoritized populations. Where Whatley et al. [24] presented a case study that described a typology of the application of IVE across two community colleges in colleges in North Carolina. Structured applications of IVE included collaborative, project-based applications, videoconference dialogue, open enrollment, asynchronous exchange, and one-on-one language learning practice aligned to specific academic credentials and outcomes. Less-structured applications included open-enrollment international exchanges, at times open to the local community, which were often funded by the community college on the students' behalf, which increased the opportunity for participation. The predictors of participation in IVE, as compared to traditional study-abroad programs, related to racial/ethnic identity, the receipt of Pell funding, and students' degree programs (an Associate degree in Arts or Science influences participation in IVE). The finding that students from lower economic status (recipients of Pell grants) were more likely to participate in IVE suggests the potential future application of IVE to ensure access to students who may not be able to afford traditional study-abroad programs. The findings related to degree declaration suggest that expanding IVE offerings across traditional degree programs would also expand access and encourage participation. To encourage equitable participation, this expansion should include programs with enrollment from diverse racial/ethnic and socio-economic backgrounds.

Alami et al. and deKlerk et al. [8,14] address inclusivity and IVE. In a mixed-methods study, Alami et al. [14] considered the challenges to applying IVE as a mechanism for more inclusive international education, considering five geo-political regions. According to their findings, the top five global challenges were the time and effort required to develop VE, an incompatibility of partners' preferred technologies, a lack of incentives for implementation, national or international political regulation, and a "lack of processes for curricular change" (p. 66). While there was variation in challenges by region, the study yields recommendations that can be applied globally, such as increasing global recognition of VE benefits and providing training in IVE design and implementation for faculty and administration,

with a focus on inclusivity and equitable participation by minoritized populations. A specific suggestion includes the development of IVE ambassador roles to assist faculty with curriculum internationalization processes and implementing policies and incentives for designing IVE initiatives. Similarly, deKlerk et al. [8] theorize the potential for increased equity and inclusivity in the application of IVE, with a focus on students with disabilities. The authors theorize how open distance learning (ODL), when aligned with appropriate pedagogy, can create transformational learning experiences for students living with disabilities. The broader application of IVE could allow students with disabilities the opportunity to collaborate in learning environments that are currently inaccessible. When creating these ODL opportunities, institutions should adopt inclusive technologies that enable access for this student population.

Collectively, these articles indicate IVE application during the pandemic from global to local contexts, suggesting insights into how to increase equity and inclusivity in higher education in the post-pandemic landscape. Case studies indicate that creating IVE opportunities across degree programs might encourage participation by diverse student populations and confirm that IVE can be a conduit to international learning for students of low economic status. Similarly, when institutions of higher education adopt inclusive technology and align IVE with collaborative and transformative pedagogy, it can empower students with disabilities to experience education in new ways and, potentially, life-changing ways. Yet institutions must also carefully consider the technology and pedagogy guiding the increased adoption of IVE for these purposes and must also properly prepare faculty and administrators for IVE design and adoption.

4. Discussion

The emergent themes presented within this scoping review continue to illuminate the role of IVE in serving as a modality for developing intercultural awareness, global collaborative engagement, and the ongoing adoption of technology for international education exchange. However, the literature indicates new adaptations, innovations, and equity considerations that emerged in response to the disruptions caused during the pandemic which continue to have lasting effects today. Moving forward, these results have implications for practice and research beyond pandemic practices and can serve as a needed roadmap beyond the pandemic.

Within this scoping review, it became clear that adaptations of both mobility-based programs and on-campus curricula were carried out to respond to disruptions to global learning during the pandemic. With these adaptations, new technological tools and infrastructure emerged to carry out and scale IVE with a focus on facilitating the exploration and resolution of wicked problems or those related to international development goals (i.e., UNSGDs). However, the future utilization of this technological infrastructure and its usage for advancing curriculum and pedagogical change are yet to be explored. Future studies should both consider innovations present in the dynamic space of technological innovation and examine the effects of technological fatigue and "back-to-normal practice" that occurred during this period that can limit the growth of IVEs.

The articles represented here indicate two important aspects of global connectivity. First, the articles highlight the ways in which technology can be used to strengthen existing partnerships in traditional locations. It was clear from the literature that IVE can not only maintain and create sustainable ties with international partners that add depth and richness and move beyond brief, extractive sojourns but also have the opportunity to create meaningful, lasting collaborative spaces for the ongoing expansion of global activities. Secondly, the research here shows that technology is allowing for connections to locations typically outside mobility-based programming that can provide new avenues to address and disrupt North/South power dynamics. Through IVE, new cultural communities can be incorporated into internationalization practices including both new locations within commonly traveled destinations (e.g., outside of a Western capital city) as well as new countries and locations long on the periphery of international exchange. These new

destinations offer an opportunity to complicate notions of who is included in global reckoning with colonial legacies embedded within international education, but they can also create new complications related to the digital divide. Addressing challenges related to the digital divide, incentives for engaging in IVE, and access to the equitable use of technology should each be a central focus of the research to come.

These articles move research and practice beyond the course- or case-specific examples of pedagogical innovations that were seen in pre-pandemic studies on IVE to focusing on mechanics, tasks, partnerships, scaling, and diverse outcomes. At the curricular level, the research represented here highlights the efforts undertaken to move beyond singular or small curricular innovations to expanding reflective approaches to create just and sustainable programs at scale. Additional research addressing the need for pedagogical innovations that incorporate IVE and the use of education technology are needed as the field seeks to enhance student learning and move towards transformational pedagogy in the current era. This research offers future facilitators and implementers a roadmap for creating lasting, equitable partnerships that are part of a comprehensive approach to internationalization which intentionally integrates global learning into the curriculum and strengthens the model and empirical evidence needed to advance the field of IVE.

Limitations are present within this scoping review. Given the need to capture a timely event in history, this review provides only a snapshot of the emerging innovations occurring in IVE. Many studies on IVE that showcase innovations that address equity considerations or the application of IVE for intercultural awareness were removed as their research or adaptation was not directly associated with the pandemic. A further review of the more than 300 articles that emerged in the first rounds of this analysis will likely provide new insights into the literature outside the scope of this review that addresses innovations during the COVID-19 pandemic. Additionally, many of these studies focused on qualitative data at the institutional level. While these are helpful, a more diverse body of research will need to emerge to understand the vastness of innovations in this area. Lastly, it is likely that many articles about innovations in IVE during this timeframe remain in the pipeline as the pandemic disruptions continue to have lingering effects. An updated scoping review in the future will be needed to capture future studies more comprehensively as we seek to understand the lasting impacts of the COVID-19 pandemic on IVE and, more broadly, on internationalization practices.

5. Conclusions

This scoping review provides the field with a rich set of innovations in IVE practice within the classroom for intercultural awareness amongst collaborative partners and within the evolving nature of the systems needed to sustain and scale IVE. At the same time, we can see that IVE does not resolve all the issues embedded in the current international education exchange practice but creates its own set of challenges, particularly around equity and access, that will need to be addressed in future research, policy, and practice. What is clear is that IVE is now its own modality that is an integral part of global learning practice embedded within the emerging arena of *digital internationalization* [30]. The use of technology to advance innovative, international curricular and programmatic adaptations during the pandemic launched IVE into mainstream practice, and IVE is here to stay. The articles in this review highlight the potential of IVE in higher education as a mechanism for the knowledge and skill development required by a global ecology.

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