

## **Learning Across Borders through Immersive Virtual Technologies**

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### **Abstract**

Due to the impact of COVID-19 in 2020, higher education institutions swiftly shifted to online education and canceled all university sponsored travel, including field experiences and study abroad programs. Faculty transitioned to virtual activities to provide students essential access to international engagement. Immersive learning experiences promote cognitive gains and enhance student motivation. Using immersive learning to create virtual international experiences, students receive meaningful educational opportunities that further develop their global mindfulness levels and skills necessary for international marketability. Because immersive virtual experiences can provide international engagement to a wider range of students, this literature review explores how institutions incorporated them into their in-person curricula.

*Keywords:* international education, experiential learning, virtual technologies, global mindedness, intercultural competence

This literature review explores how faculty tackled planned study abroad programs through immersive virtual technologies during the COVID-19 global pandemic beginning in the Spring of 2020. This review will ask questions about the importance of global engagement during the unforeseen pandemic as well as what technologies were used to support faculty and students as they were required to immediately transition from in-person study abroad travel to virtual experiences. Articles will be reviewed to inquire about the value and effectiveness of virtual study abroad trips during the pandemic and in the future. Additionally, current literature will be analyzed through a global lens as well as through a lens of effective technology integration into teaching and learning.

Students develop insights that broaden their content knowledge and worldviews when given access to countries beyond their geographical locations. Educational institutions are progressively integrating global perspectives into their mission statements to “prepare students for a world that is becoming ever more connected...thus expanding opportunities for students to engage in global learning experiences” (King et al., 2021, p. 790). Kuh (2008) referred to these essential experiences as “high-impact educational practices” (HIP), noting that global learning allows students to explore cultures, worldviews, and life experiences different than their own, thus developing a more knowledgeable and well-rounded sense of world concerns. HIP focuses on diversity, and global learning allows students to explore difficult subjects, including racial, ethnic, and gender inequality, as well as the struggle for human rights, power, and freedom (Kuh, 2008), through the leadership and guidance of a knowledgeable and supportive faculty member. Research indicates that high-impact practices develop a student’s critical thinking skills in

addition to their intercultural effectiveness (Kilgo et al., 2014). Furthermore, while the benefits of HIP are demonstrated for students, universities also benefit. Including HIP within a discipline's curriculum, such as a study abroad or field experience, positively correlates with student retention and engagement in their degree programs (Kilgo et al., 2014).

However, while interesting to many, travel across the globe is only sometimes a realistic possibility for students. Even outside of the global pandemic, students may question the need for international travel during the pursuit of an academic degree. Travel costs, work obligations, caregiving roles, and the time commitment for in-country study abroad trips present potential limitations for students who might otherwise be interested in and likely to benefit from these immersive experiences (King et al., 2021). Only 5.3% of students study abroad during their undergraduate degree programs. Additionally, in the 2019-2020 academic year, before the onset of the COVID-19 pandemic, only 1,075,496 students traveled to America to study abroad, which is approximately 5.5% of the total higher education population in the United States. Further, only 0.9% of students studied abroad during the spring semester of the 2019-2020 academic year, creating a 99% decrease in participation from the previous year (Open Doors, 2021). Therefore, higher education institutions seek alternative methods to present opportunities for global engagement to their students and thus see an increase in the demand and development of virtual experience programs.

To address financial, time, and physical concerns, the literature explored in this review indicates the possibilities for learning through virtual travel studies. Virtual experiences provide a broader range of students access to international education, resulting in an opportunity for contextualized learning through simulated authentic environments. Immersive interactions further promote student curiosity and understanding of diverse cultural, educational, and political structures. Student interactions with virtual technologies have demonstrated increased learning gains and content interest (Markowitz et al., 2018; Mead et al., 2019; Radianti et al., 2020; Wallgrun et al., 2022). Throughout the COVID-19 pandemic, increased excitement in exploring immersive experiences resulted when international travel halted and presented challenges for global learning exchanges (Liu & Thomas, 2021; King et al., 2021). Liu and Thomas (2021) expressed that international learning activities were particularly impacted because of the challenges, restrictions, and limitations that resulted from the global pandemic.

The literature consistently demonstrates that students gain insight into the importance of global citizenship and increase their knowledge of how their discipline is applied in diverse geographic locations through engagement in international contexts. By becoming global citizens, students demonstrate respect for diversity and make an effort to advance society toward peace and prosperity (Byker & Putman, 2018). However, having a vision for creating innovative curricula and learning experiences is vital in determining the instructional approaches and strategies needed to achieve it (Ferguson, 2019). Cross-cultural experiential learning is not a new concept for educators since schools have become more diverse, and greater emphasis has been placed on the value of global education (Lee, 2011).

Experiential learning encompasses activities in which students learn by doing and reflect on their experiences. Mainly, experiential learning consists of critical reflection, observation, pragmatic, active experimentation, and contextually rich concrete experiences (Morris, 2019). Access to other cultures through direct observation provides students with unique opportunities to develop knowledge, skills, and values focused on expanding their worldviews. Since faculty and students do not always have the means to travel to different contexts, cutting-edge technologies deliver unique access for students to develop their learning beyond their classrooms. Insight into other countries promotes cultural sensitivity development and encourages commitment to understanding and appreciating cultural differences. Universities that were forced to become creative in their international initiatives are now using immersive learning to continue providing students with impactful global studies. These educational programs offer students who would not have been able to study abroad a new access to experimental learning, resulting in increased cultural competence and content knowledge (Liu & Thomas, 2021).

### **International Education**

This literature review also uncovered the value of international education through the development of cross-cultural curricula and learning outcomes. Literature indicates that universities often pride themselves on developing commitments to diversity and global consciousness (Matheus & Gaugler, 2020). These learning outcomes and goals are generally integrated throughout university initiatives, including international education, research projects, and curricula updates. Many universities offer immersive activities focused on exploring other cultures to provide students with direct engagement in international experiences. Short term immersive international studies are perceived as valuable and beneficial in expanding students' worldviews (Coker et al., 2018). Engaging in international experiences provides students with additional opportunities to develop global awareness, which is integral in preparing them to develop diverse perspectives of the world and understand complicated issues that impact individuals across the globe. Global education addresses real-life problems and focuses on academic areas linked to global citizenship (Matheus & Gaugler, 2020). Through active engagement in global education, students develop skills in interacting effectively with global peers and begin to act as citizens of the world. Global awareness can be defined as possessing knowledge of global issues and having functional knowledge of how to interact in other cultures (DeLoach et al., 2019). Although learners can acquire some of this knowledge through traditional classroom lectures, Leung et al. (2021) found that the inclusion of interactive technologies in educational environments further fosters students' development of global perspectives.

In recent years, there has been an increase in many institutions' offerings of short-term international programs (Medora et al., 2022; Shimmi & Ota, 2018). Universities are innovative in extending these opportunities to ensure a broader audience can participate. For example, higher education institutions often integrate in-person and virtual global engagements and include diversity and social justice outcomes throughout their curricula. Participation in these

learning engagements often provides learners with the most powerful and meaningful experiences. For instance, field experiences and study abroad activities integrate experiential learning. This teaching approach seeks to engage learners through direct experience to increase students' skills, values, and capacity to contribute to their communities (Gavillet, 2019). Specifically, experiential learning helps achieve the institutional goals of guiding students to become culturally competent practitioners. Another positive outcome of experiential learning is that students often experience higher levels of success in job attainment (Coker et al., 2018).

### **Career Outcomes**

While study abroad experiences are often personally enjoyable for students, this review sought to uncover the long-term benefits of these experiences and further the necessity of continuing these experiences during a global pandemic. Research indicates that international engagement and learning experiences positively impact students' marketability and career prospects. The Institute of International Education (2017) found that students who partook in international experiences developed a broad range of cognitive, intrapersonal, and interpersonal skills; expanded their career opportunities; developed enhanced levels of self-awareness and problem-solving skills; and established a tolerance for ambiguity. Through his editorial work with the American Institute for Foreign Study, Tillman (n.d.) expressed that "we live in a challenging era with increased pressures on our workforce due to globalization and the demands of political, social, and economic forces" (p. 7). Particularly, students are preparing to enter a perpetually changing workforce that encapsulates global differences. The increasingly integrated nature of our global economies also highlights the importance of academic study to professional work connections (Easki-Smith, 2021). Involvement in global learning presents students with opportunities to develop the expertise necessary to work in a global network and interact effectively with colleagues worldwide.

Research has also demonstrated that immersion in a university's international experiences results in numerous learner benefits. For example, NAFSA (n.d.) shared that student engagement in study abroad results in improved grade point averages and language acquisition, builds enlightened nationalism, which NAFSA defines as allowing for more effective collaborative work experiences between individuals of other countries, expands understandings of complex global issues, and results in greater intercultural learning, and increases employability and career skills. International electives are perceived as providing high-impact practices for many degree programs, including healthcare (Imafuku et al., 2021), entrepreneurship (Han et al., 2020), and technology (Payne et al., 2020). HIPs show significant relationships with degree attainment (Dinh & Zhang, 2020). These types of practices are integrated into study abroad learning (Johnson & Stage, 2018), resulting in increased engagement and successful learning for students across diverse backgrounds.

In today's interconnected world, there is a demand for university students to obtain high levels of intercultural competence. Acquisition of these competencies allows students to stand out in a competitive marketplace and become interculturally sensitive leaders. Cultural sensitivity is described as one's emotional involvement in other cultures and the ability to

effectively interact with people of other cultures (Bennett, 1993). Ruth et al. (2018) also discovered that student involvement in study abroad presents additional benefits, including professional connections and enhanced worldviews, particularly for female students. Notably, researchers have found that female students experience greater gains in global competency and intercultural development and express more confidence in working in culturally diverse teams compared to males who study abroad (Petrie-Wyman et al., 2020; Vande Berg et al., 2012). Reasons for these findings could stem from more females selecting courses focusing on languages and culture (Cordua & Netz, 2022).

### **Virtual Field Experiences**

This literature review also sought to explore the value of virtual field experiences during the height of the COVID-19 pandemic and in the future. Recent literature indicates that virtual field experiences provide students with opportunities to practice learning for situations that may be too expensive, dangerous, or impractical to encounter in the real world (Makransky & Mayer, 2022). One example is that students can travel to destinations that may be perceived as unsafe due to political unrest, natural disasters, or health related conditions. Online immersive learning can also be more practical and cost efficient for students who are unable to travel. Because international travel can be costly and problematic due to professional and personal responsibilities, students may desire to partake but find it difficult to commit. Still, virtual experiences allow students to travel across the globe without departing from their classrooms. Through virtual engagement, students interact in learning situations that allow adaptive feedback and authentic experiences that enhance exploration, analysis, and discovery of new locations (Mead et al., 2019). Further, Wallgrun et al. (2022) discovered that immersive virtual experiences increased spatial awareness, motivation, and interest.

Utilizing advanced technologies in university curricula allows for access to immersive learning and overcoming physical limitations in visiting specific destinations (e.g., other countries and historical landmarks). Immersive technologies additionally provide place-based learning by mimicking natural interactions and allowing for beyond-reality experiences by integrating contextual information. Makransky and Mayer (2022) described immersion as involving objective features of instructional technology, which allows for a vivid virtual environment.

### **Benefits of Global Mindedness**

The faculty member's role on a field experience trip involves more than simply accompanying the students overseas. Rather, to provide a rich learning environment for students, faculty should serve as "cultural informants" by providing "context and answer[ing] questions accurately and appropriately in the moment" (King et al., 2021, p. 791). The faculty members' role, both abroad and virtually, is crucial in garnering the full benefits of the field experience program, including the development of global mindedness of their students. Global mindedness provides individuals with the knowledge of how to work harmoniously with others located across the world and promotes respect and compassion throughout interactions. Matheus and

Gaugler (2020) described global mindedness as encompassing one's desire to "demonstrate civic engagement, take responsibility for the good of people and the environment on a global level, and develop a sense of self-awareness by empathetically understanding how individuals contribute to the world" (p. 160). Involvement in classroom activities focused on fostering global connections augments global competencies that include self-efficacy, adaptability, openness to differences, and positive attitudes (Boudreau, 2020).

By engaging with virtual reality, students can receive many of the same positive learning effects of active engagement in an in-person immersion situation (Markowitz et al., 2018). Interacting with others globally through any medium allows students to deepen their content knowledge. In addition, virtual student experiences can motivate students to acquire new knowledge and dispel misconceptions. Indeed, Compton and Davis (2010) found that virtual field components positively impacted learners, clarified prior misconceptions, and increased their interest in the topic. However, for these experiences to be successful, they shared that certain key elements are integral, including increasing awareness through external and internal informational methods (e.g., information provided by faculty, stakeholders, international partners), self-paced and guided observations, and experiential learning activities. More recently, Liu and Thomas (2021) discovered that virtual cultural exchanges enhance students' levels of intercultural competence and provide meaningful access to course topics. Further, Vu and Fisher (2021) revealed in their study that students completing virtual field components experienced similar academic performance gains as their peers in face-to-face experiences.

### **Technology Mediated Learning**

Technology-mediated learning is an impactful tool that has transformed teaching and learning. Bower (2019) explained that technology-mediated learning highlights how information is conveyed and how individuals are linked. This learning environment emphasizes a holistic framework for "developing and analyzing situations where technology mediates learning" (Oliveira et al., 2021, p. 1361). Söllner et al. (2018) also described this learning environment as activities that are inclusive of interactions that occur among students and/or with their teachers through advanced technologies. Student exchanges with technology-mediated interactions provide educators with crucial feedback that informs their consequent pedagogical actions (Bower, 2019). Esaki-Smith (2021) expressed that student skill development of computer expertise is portrayed as important soft skills given the ever-increasing technology-based workplace approaches.

Educators' integration of technology-mediated learning is a major trend in academia. Experiential learning allows interactive learning that aligns with students' career goals and provides value-added skills that permit overseas experiences and employment (Tillman, n.d.). Researchers have found that technology-supported experiential learning systems further promote students' problem-solving competencies, academic outcomes, attitudes, and collective efficacy (Cheng et al., 2019). Additionally, technology-mediated learning environments result in effective

student-content interactions (Owusu-Agyeman et al., 2018) and improvement in cognitive skills, educational practices, and the classroom atmosphere (Yat Wa Liu et al., 2020).

### **Innovative Technologies**

Ferguson (2019) proclaimed that many pedagogy innovations are rooted in technology. Specifically, the integration of trending technologies supports and enables effective pedagogical approaches. As a result, many new technologies are being used for instructional and learning processes. These technologies provide benefits to students (e.g., increase motivation, result in higher academic gains) and faculty (e.g., greater access to resources, increased collaborations) and complement teaching activities (Pérez-delHoyo et al., 2020). McSurley et al. (2022) noted that technological innovations will have a key role in shaping and expanding global engagement options and providing greater access to a variety of international opportunities. Further, they shared that utilizing technology-based global programming is likely a powerful tool for expanding internationalization efforts (McSurley et al., 2022).

### **Applications**

Faculty members who offer students international and global experiences need to consider how to develop content that is memorable, meaningful, exciting, and intellectually stimulating (Medora et al., 2022). In traditional in-person international exchanges, Medora et al. (2022) cautioned that faculty often consider the target country most practical to visit. However, with the advent of newer technologies, locations for international focus are unbounded, allowing for visits to places otherwise not practical for university planning. Many technologies are available for faculty to create robust virtual field exchanges. For example, live streaming options allow students to watch real-time events occurring in another location. In addition, students can participate in video visits recorded and narrated by a host. Scheduled and guided visits can also be conducted at other schools, historical sites, or museums. Likewise, faculty can arrange virtual sessions through video conferencing platforms.

Innovative technologies such as virtual reality provide immersive life-like exposure to other cities and countries. Interactions in virtual spaces often mimic how individuals respond in natural environments (Markowitz et al., 2018). Particularly, virtual simulations allow learners to experience content visually, similar to how they would within the real world. Students are granted safe spaces to make mistakes and augment skill sets within these virtual environments. Researchers suggest that students feel more comfortable and less pressured when performing in virtual settings (Binfet et al., 2022; Fitch et al., 2016; Hanson et al., 2020; Lanzieri et al., 2021; Lara, 2020; Li et al., 2022). Virtual immersion provides abundant benefits, including reducing cognitive dissonance, improving reflection skills, bridging theory and practice, and creating positive learning conditions (Vu & Fisher, 2021).

### **Considerations in the Development of Virtual Field Experiences**

Radianti et al. (2020) indicated that there is an influx of interest in virtual reality integration in higher education environments. Virtual reality has made advancements in

education, but Markowitz et al. (2018) cautioned that it is underutilized due to financial constraints and implementation challenges such as scheduling conflicts (Bueno-Alastuey & Kleban, 2016; Mead et al., 2019; Seymour et al., 2018), time zone concerns (Lee & Markey, 2014; Morrison-Smith & Ruiz, 2020), and comfort levels associated with using new technologies (Juarez & Critchfield, 2021; Lee & Markey, 2014; Mead et al., 2019). In their own experiences of creating a virtual field experience between students in the United States and India, Krishnan et al. (2021) noted that the ten-hour time difference was a challenge, and the ability to send text messages to international student partners was also problematic. Therefore, they found that video chats were much more successful. Recent publications on the topic indicate the need for faculty to be creative, flexible, and open to serving as problem-solvers during the immersive virtual field experience.

In addition to being mindful of technology concerns, curriculum designers must include academic rigor and consider cultural competencies and meaning. Instructors' curriculum design approaches should "focus on topics that [can] be reflected in the interactional experience with effective assignments aligned to course outcomes that are authentic, scaffolded, varied, and achievable within the time frame" (King et al., 2021, p. 791). Reflecting on their experiences transitioning from in-country to virtual field experience, Lugger and Koonmen (2022) noted the importance of replicating as much of the originally planned short-term immersion experience as possible, as well as mapping assignments to the course objectives.

There are a variety of learning assignments that instructors can consider when developing an immersive virtual field study. Based on a review of recently published literature, case studies are a popular approach for virtual study abroad (King et al., 2021; Krishnan et al., 2021; Lugger & Koonmen, 2022). Case studies can be completed through either an asynchronous or synchronous reading and discussion or a presentation focused assignment using PowerPoint, Prezi, Canva, or other related platforms. Further, King et al. (2021) noted the value of utilizing case studies with a student-centered approach, such as think-pair-share, role-plays, concept mapping, and project-based learning. Case study based assignments allow students to explore cultures through the lens of specific individuals, events, or situations and analyze experienced or potential outcomes.

Developers should assess the use of reflective learning activities in their coursework and the benefit to students of reflecting on their learning throughout the course (Krishnan et al., 2021). Reflection activities allow students to apply what they have learned about a new culture or geographical area to their settings, personal beliefs and habits, and professional goals. Another beneficial option is the inclusion of service-learning projects. These, even in virtual field experiences, allow the learner to give back their own time and resources to the community they are learning from, thus creating a more profound sense of connection and appreciation for the culture being studied (King et al., 2021; Lugger & Koonmen, 2022). An additional design consideration is a recommendation that, due to the need to, as well as the often difficult nature of building community in the online setting, active participation in all course activities, including any live sessions, should be considered as part of the student's grade in the course (Lugger &

Koonmen, 2022). In summary, King et al. (2021) proclaimed that equivalent to an in-country experience, faculty members tasked with leading a virtual field exchange:

take responsibility for pre-immersion, immersion, and post-immersion activities...[and] to prevent cultural dominance and promote broad learning experiences; faculty must be mindful that instructional materials and lectures should emanate from, and be reflective of, each culture group taking part in the experience (p. 792).

Thus, faculty should consult with in-country partners, university instructional designers, and seek student feedback to ensure that cultural concerns are addressed, technology is integrated effectively, and student learning interests and goals are also considered.

### **Concluding Thoughts**

Researchers have long recommended engagement in global immersive educational programming (Cushner, 2007; Ferrillo & Watson, 2019; Getz, 2020; Hellmich, 2018; Lee, 2011; Smith-Miller et al., 2010; Willard-Holt, 2001). The development of global competencies consistently correlates with not only a student's personal growth but also their lifelong success (King et al., 2021). Institutions of higher education can leverage innovative technologies through immersive learning spaces. Engagement in meaningful, creative, and structured activities results in improved learning outcomes (Oliveira et al., 2021). As higher education in today's world focuses extensively on preparing students to enter an ever-evolving workplace (Van Mol et al., 2021), institutions are pressured to demonstrate employment outcomes (Esaki-Smith, 2021). Through international education, students develop transferrable skillsets and positive employment gains (Institute of International Education, 2017).

Boudreau (2020) recommended integrating contextualized learning activities and providing opportunities for students to become curious about other cultures and diverse perspectives. Learning is also impacted by one's emotions, both positive (e.g., enjoyment, excitement) and negative (e.g., frustration, stress), influencing cognitive processing, engagement, and learning outcomes (Lanzieri et al., 2021). Student engagement in international experiences results in positive impacts leading to more opportunities in education and career pathways, language development and proficiency, and personal growth (Bluth, 2018; Garbati & Rothschild, 2016; Harper, 2018; Iskhakova et al., 2022; Lee, 2011; Matheus & Gaugler, 2020; McDowell et al., 2012; Stebleton et al., 2013). Further, students hone skills associated with linguistic, sociolinguistic, and sociocultural differences and develop strategies for meaning-focused coping, communication management, relationship building, and management of learning opportunities (Imafuku et al., 2021).

While the spread of COVID-19 may have been the catalyst for creating the current demand for immersive virtual field experiences (King et al., 2021; Lugger & Koonmen, 2022), the buildout of these programs can continue to meet the needs of students well beyond the days of the pandemic. This literature review indicates that the development of both creative and rigorous immersive virtual field experiences brings the world to students who may be unable to experience a traditional study abroad course. In addition, research published throughout the

pandemic demonstrates that students who are unable or uncomfortable traveling due to finances, medical concerns, caregiver roles, or work responsibilities can now participate in international learning with their peers, thus developing the much-needed global competencies and critical thinking skills needed to be successful in modern institutions and workplaces.

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