

Creating a Sense of Global Community and Belonging Through Collaborative Online International Learning

Amy Versnik Nowak

University of Minnesota Duluth

Marzell Gray

University of Minnesota Duluth

Damilola Omodara

Nottingham Trent University

Linda Gibson

Nottingham Trent University

Abstract: A sense of belonging has been shown to enhance retention and degree completion among undergraduate students. Helping students feel a sense of belonging in a community should be a focus of today's educators. In professions, such as public health, that seek to address global issues that affect people around the world, feeling connected to a global community is becoming increasingly important. A technology-focused educational intervention was developed to enhance a sense of global belonging/community among two groups of undergraduate public health students from the United States and the United Kingdom using a 7-week collaborative online international learning (COIL) unit. Guided by the intercultural knowledge and competence rubric, one of several rubrics developed by the American Association of Colleges and Universities to assess the achievement of essential skills on college campuses in the United States and abroad, instructors sought to determine if public health students experienced a change in their intercultural competence. A significant change in students' knowledge of cultural worldview frameworks was noted (pretest $M = 2.50$, $SD = 0.68$ vs. posttest $M = 2.93$, $SD = 0.52$, $p < .001$, $d = 0.560$). After the unit was completed, 83% of participants reported an adequate or sophisticated level of understanding people from other cultures, an increase of 39% from prior to the COIL unit. COIL can increase students' knowledge of cultural worldview frameworks, which enhances their intercultural competence and sense of belonging in a global community. Effective learning approaches with technology should be used to enhance student belonging, retention, and degree completion in higher education. Future research should further assess COIL and technology-based learning interventions for positive impacts on belonging.

Keywords: collaborative online international learning, COIL, intercultural competence, belonging, higher education

Helping undergraduate students feel a sense of belonging in a community should be a focus of today's educators. Belonging refers to the extent to which a student feels accepted, valued, and supported in their academic community. When students have a strong sense of belonging, they are more likely to be engaged in their studies, feel motivated to learn, and have a greater sense of satisfaction with their overall experience (Pedler et al., 2021). When students from diverse backgrounds feel they belong, they are more likely to contribute their unique perspectives and experiences to the academic community (Pedler et al., 2021). The quality of relationships with peers, faculty, and staff can help undergraduate students develop social connections and support systems, which are important for overall learning experiences and well-being (Dost & Mazzoli Smith, 2023).

As undergraduate education increasingly transitions onto online platforms, educators are actively seeking ways to engage learners and foster a sense of social identity and belonging in digital learning contexts, as emphasized by Lowenthal and Dennen (2017). The theory of social presence, established through the pioneering work of Short et al. (1976) in the 1970s, remains a subject of continual investigation. Scholars contend that one's identity is intricately linked to the multifaceted versions of self one presents in diverse online settings. A substantial portion of the literature (around 20%) concentrates on defining social presence in terms of connections, belonging, and community—a triad of essential components vital to effective online learning experiences.

Richardson and Swan (2003) conducted an inquiry into the role of social presence in the context of online learning and its influence on student perceptions of learning outcomes. They suggested that although some learners may feel disconnected in the absence of face-to-face interactions and facial expressions, interactions can be effectively fostered in virtual environments through the cultivation of a sense of community and social presence. Hughes (2010) delved into collaborative online learning and the pivotal role of building a sense of belonging or "congruence" within groups based on factors such as gender, age, ethnicity, and socioeconomic status. Hughes highlighted the significance of recognizing the diversity of learners' preparation and opportunities to negotiate identity congruence. Students who lack a sense of belonging are susceptible to disengagement, which emphasizes the importance of pedagogical approaches that facilitate transformative identity shifts to enhance academic success. Hughes further advocated for collaborative online international learning (COIL) as a means of fostering congruence by bringing together diverse groups and novel ideas, underscoring the value of diversity in group learning dynamics.

As a form of virtual exchange and learning methodology, COIL harnesses the power of digital technology and communication (synchronous or asynchronous), making it a positive and practical way to instill a sense of global citizenship among students stepping into an increasingly multicultural world (Evolve, 2022; Strickland et al., 2013). COIL allows students from different countries and cultural backgrounds to work together on academic projects, discussions, and other learning activities. The interactive flow of communication leads to deepened knowledge through dialogue between students from different geographical locations (The SUNY Center for Collaborative Online International Learning, 2020). This form of online learning allows for increased proficiency in intercultural communication and the use of technology to connect with people in different locations, even if there are significant time differences (SUNY COIL Center, n.d.).

In COIL, interaction between institutions is highly beneficial to students' development in intercultural competence through virtual collaboration (Appiah-Kubi & Nichwitz, 2020; Hackett et al., 2023). COIL offers students the opportunity to examine multicultural perspectives and diverse information sources through shared learning spaces and group tasks. These differences in perspectives are highlighted as a way to learn about a topic (de Castro et al., 2019). Students learn to cooperate with peers who have a range of global perspectives on a subject, develop international relationships, and develop effective communication skills with little or no bias (Esche, 2018). Students also expand their awareness of how different cultural perspectives, worldviews, value systems, and contributions benefit interactive learning (Kim, 2015). Therefore, COIL can serve as a mechanism through which students are able to recognize and understand their own way of thinking and effectively interact with students from another country (Foronda et al., 2016).

In professions, such as public health, that seek to address global issues that affect people around the world, understanding other cultures and feeling connected to a global community is becoming increasingly important. According to the American Association of Colleges and Universities (AACU; 2009a, p. 1), "the call to integrate intercultural knowledge and competence into the heart of education is an imperative born of seeing ourselves as members of a world community." In the mid-

2000s, the AACU (2009b) developed 16 valid assessments of learning in undergraduate education (VALUE) rubrics to assess the achievement of essential skills on college campuses in the United States and abroad. Among them, the intercultural knowledge and competence VALUE rubric (IKCVR), purports that intercultural competence is crucial for seeing oneself as part of a global community (AACU, 2009b). Taking into consideration the developmental model of intercultural sensitivity (Bennet, 1993) and the intercultural framework (Deardorff, 2006), higher education experts identified six cognitive, affective, and behavioral skills of intercultural knowledge and competence (cultural self-awareness, knowledge of cultural worldview frameworks, empathy, verbal and nonverbal communication, curiosity, and openness) (AACU, 2009a; Bennett, 2008). The IKCVR has been adapted and used to assess intercultural knowledge across a range of classroom settings, including an undergraduate course in microbiology (Vemu et al., 2020), a first-year technology course for undergraduate students in the sciences, technology, engineering, and mathematics (Akdere et al., 2021), an undergraduate engineering course (Render et al., 2018), and an undergraduate health professions course in a short-term study abroad program (Richards & Doorenbos, 2016).

Guided by the IKCVR, public health instructors in two universities, one in the United States and one in the United Kingdom, sought to determine if their undergraduate students would experience a change in their intercultural competence and sense of belonging in a global community after exposure to a technology-based educational intervention: a 7-week COIL unit. The purpose of the COIL unit was to help students explore and critically analyze global health issues relating to the provision of healthcare and other challenges with healthcare systems. The COIL unit utilized introductions through Google MyMaps, a cultural geography assignment on Padlet, peer interviews to understand perspectives on healthcare systems in another country, written reflections, proposed plans for enhancing their own healthcare systems, and individual presentations (details about the COIL unit are under review in a separate publication).

Method

Study Design and Procedures

This study used a quasi-experimental pretest/posttest design with online surveys. The pretest survey was administered during Week 1 of the 7-week COIL unit and the posttest survey after completion of the unit. Students were provided a link to the survey via an online course management system (U.S.) or via email (U.K.).

Participants

The two schools collaborating on the COIL unit were a midsize regional comprehensive university in the midwestern U.S. and a large university in the central United Kingdom. The COIL unit was focused on comparison of international healthcare systems in two undergraduate courses, a consumer health education course (U.S.) and a global health course (U.K.). At the U.S. institution (where an undergraduate degree is completed in 4 years), students enrolled in the course are typically 3rd- and 4th-year students, though 2nd-year students can enroll. At the U.K. institution (where an undergraduate degree is completed in 3 years), students are typically 1st- and 2nd-year students. The combined enrollment for the two courses during the fall term was 50 students. The response rate was 76% ($n = 38$) for the pretest and 60% ($n = 30$) for the posttest.

Measures

The pretest and posttest online surveys (10 and 22 items, respectively) consisted of a mix of quantitative and qualitative self-report questions. Both surveys were administered as assignments in the course; no demographic questions were included. For the pretest, questions were designed to assess students' existing knowledge of COIL and cultural geography, including six questions aligned with the concepts of the IKCVR. For the posttest, students were asked the same 10 questions included on the pretest plus additional questions about what they learned and their overall learning experience.

Specific to the concept of “belonging” addressed in this study, the instructors used the IKCVR (AACU, 2009a) to develop a question to assess knowledge of cultural worldview frameworks as a variable. Central to such knowledge is an understanding of things important to another culture (AACU, 2009a). By understanding another culture and comparing similarities to and differences from their own cultures, students have a foundation for connecting to that culture and developing a sense of belonging in a global community. To assess changes in knowledge of cultural worldview frameworks, students were asked both before and after the COIL unit, “How would you describe your level of knowledge about what is important to people from other cultures (e.g., their history, values, politics, communication styles, economy, or beliefs)?” and were provided with four response options (*don't understand*, *somewhat understand*, *adequate understanding*, *sophisticated understanding*) that gauged their self-perceptions of the variable. In addition, students were asked to rate how strongly they agreed or disagreed that various technology-based learning approaches contributed positively to their overall experience with the COIL unit.

Statistical Analyses

Descriptive statistics were used to summarize perceptions of study participants. Pre- and posttest scores on the knowledge of cultural worldview frameworks (possible range of 1–4; theoretical mean of 2.5) were calculated. A *t* test was used to identify significant changes in the variable from before to after participation in the COIL unit. Cohen's *d* was used to determine whether the changes in magnitude were small ($d = 0.2$), medium ($d = 0.5$), or large ($d = 0.8$) in effect.

Results

Thirty students completed both the pre- and posttest surveys. After completing the COIL unit, all participants reported at least some understanding of other people's cultures, with 83% of participants reporting an adequate or sophisticated understanding of others' cultures, an increase of 39% from prior to the COIL unit (Figure 1). This change in students' knowledge of cultural worldview frameworks was significant between the two timepoints (pretest $M = 2.50$, $SD = 0.68$ vs. posttest $M = 2.93$, $SD = 0.52$, $p < .001$) with a moderate effect size ($d = 0.560$). Of the technology-based learning activities, students indicated the following had the most impact on their COIL experience (Figure 2): learning about healthcare in a different country (83.3%); getting to know someone from another country (80%); cultural geography Padlet assignment (70%); and cultural tour MyMaps assignment (47%).

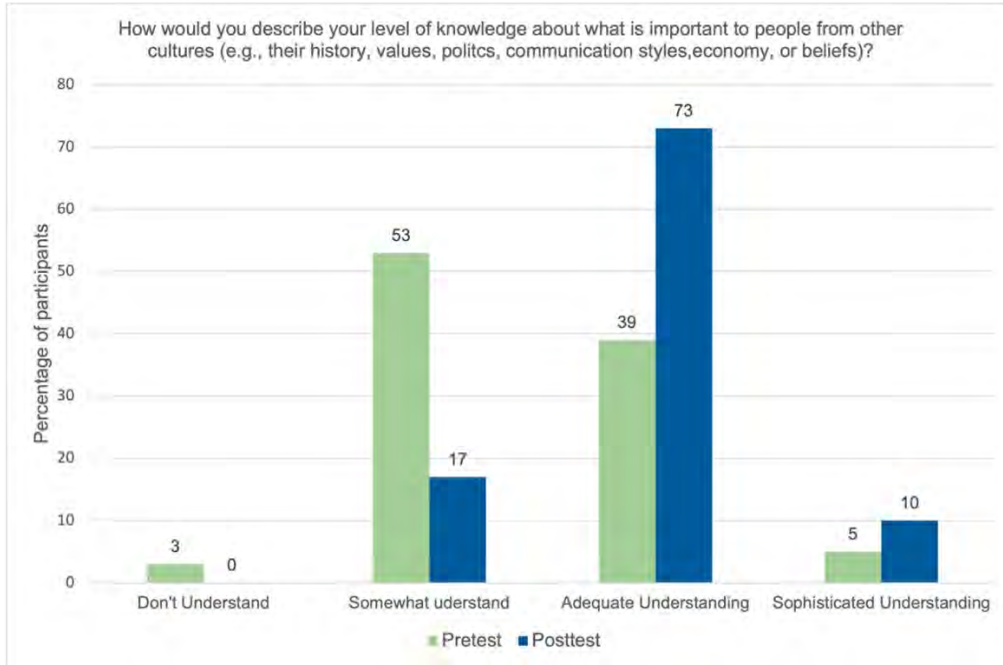


Figure 1. Change in students' knowledge of cultural worldview frameworks.

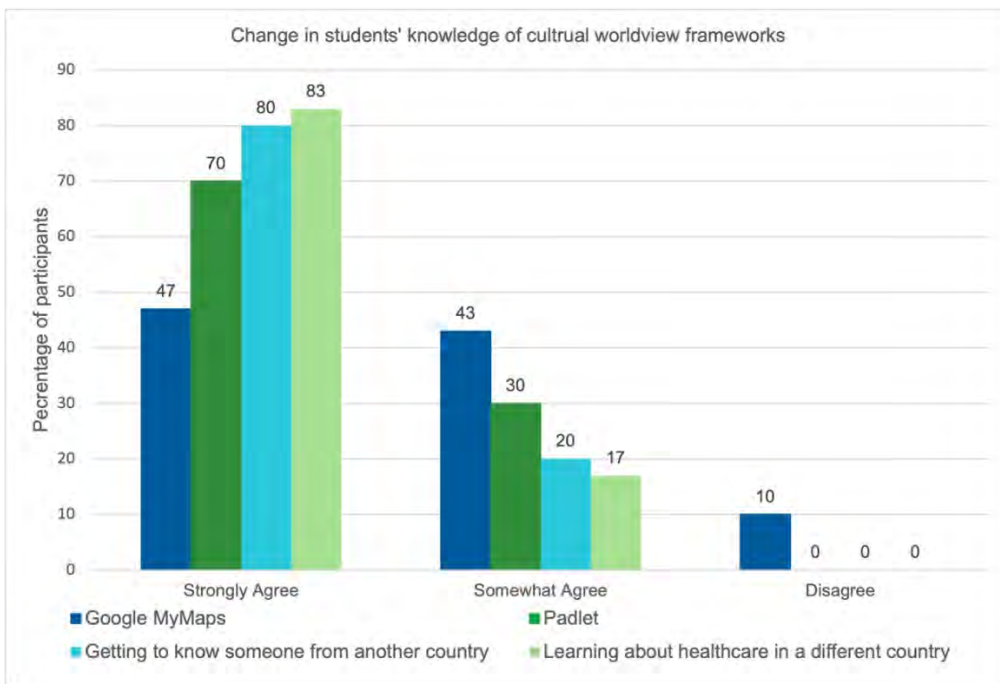


Figure 2. Percentage of students agreeing that various technological components of the Collaborative Online International Learning unit contributed positively to their learning experience.

Discussion

Internationalization is important for building intercultural competence (Deardorff, 2006), and COIL provides short-term (or longer) cross-cultural learning experiences that can be useful in all types of

higher education settings. As the global population becomes more diverse, interpersonal and intercultural competency development is an essential skill that can aid in areas of teamwork, cooperation, effective communication, navigating cultural differences, resolving conflicts, and negotiating shared goals. Using COIL as a bridge to develop intercultural competence is highly valued in today's interconnected world and prepares students for future professional and personal endeavors (Leung et al., 2014).

Richardson and Swan (2003) purported that online learning, and specifically COIL, can enhance belonging and congruence among diverse groups of students. The results of our educational intervention support their position. Furthermore, a COIL intervention can help participating universities meet accreditation standards and support their educational goals. Researchers have advocated for the use of COIL and the IKCVR to integrate intercultural knowledge and competence into public health and other degree programs to promote a sense of connection and belonging in a global community among undergraduate students (AACU, 2009a, 2009b).

The aim of the current study was to assess whether participation in a COIL unit could enhance a sense of global belonging/community for undergraduate public health students via changes in their intercultural competence. From before the COIL unit to after it, undergraduate public health students from the two collaborating universities in the United States and United Kingdom experienced significant changes in their knowledge of cultural worldview frameworks, with 100% of participants reporting at least some understanding of other people's cultures and most reporting more depth of knowledge. This aligns with findings that COIL is highly beneficial to undergraduate students' development in intercultural competence through virtual collaboration (Appiah-Kubi & Nichwitz, 2020; Hackett et al., 2023). As intercultural knowledge and competence is an imperative for people seeing themselves as members of a world community (AACU, n.d.), it makes sense that student knowledge of cultural worldview frameworks, or understanding others' cultures, can influence their intercultural competence and, ultimately, their sense of global belonging.

The use of the IKCVR was integral to the students' learning outcomes. It informed the design of the COIL unit, guided the selection of the variable being measured (knowledge of cultural worldview frameworks), and provided a conceptual framework for interpreting the results in the context of intercultural competence and belonging. This approach ensured that the study was grounded in established principles of intercultural competence, making the results meaningful and relevant within the context of the rubric's goals. The study measured students' knowledge of cultural worldview frameworks before and after the COIL unit, and the findings show a significant improvement in this aspect of intercultural competence. Taking part in the COIL unit provided students opportunities to build a sense of belonging through community networking, culture, acquiring knowledge, and collaborating with peers.

Previous research has shown that participation in technology-based learning is positively associated with a higher sense of belonging among college students (Long, 2016). One central aspect to creating a sense of belonging is the ability to engage and develop connections (Berry, 2019). COIL environments can be used to promote student engagement and connections by providing a safe environment for students to communicate and share experiences. In this study, use of technology for collaborative assignments was effective in helping undergraduate students learn about healthcare in a different country and getting to know someone from another country. Participants reported that the use of web-based tools (i.e., Padlet and MyMaps) contributed positively to their COIL experience. The assignments using these tools were designed to help students initiate and establish collaborative relationships with their peers at home and in the partnering international university by providing a virtual space to learn from others while also sharing details about their own cultural geography via images and maps. Faculty should strive to integrate technology, including high-impact practices such

as COIL and web-based tools, for the purpose of developing intercultural competence and promoting a sense of belonging in a global community among today's undergraduate students.

This study has limitations that may limit the generalizability of its finding to other populations or settings. The design was quasi-experimental as there was not a control group for comparison. The time between the surveys was relatively short (7 weeks) and long-term impacts were not assessed. The data were self-reported and consisted of students' perceptions, which may not accurately reflect the students' actual level of intercultural competence. All students were majors or minors in public health, and similar findings may or may not be found in students from other degree programs. With a small sample size and demographic information not part of the evaluation, researchers were not able to determine if there were any differences based on demographic factors. As such, the findings of this study may not be generalizable to other classes, students from other degree programs, or students from diverse backgrounds. Future researchers should consider long-term impacts on students, the use of a control group, and the collection of demographic data to improve the study design.

There are several potential research innovations that could be explored to further assess the impacts of COIL and technology-based learning interventions on the sense of belonging in the global community and higher education. Allen et al. (2021) suggested that conducting multilevel research is essential for understanding the social, neural, immunologic, and behavioral processes associated with belonging. To gain a deeper understanding of the long-term effects of COIL and technology-based learning interventions on students' sense of belonging, researchers could conduct longitudinal studies (Hackett et al., 2023). By collecting data from undergraduate students at multiple points throughout their academic careers, researchers could determine whether their sense of belonging changes as a result of participating in COIL interventions.

Comparing COIL outcomes to outcomes from other learning experiences could provide a rich vein of research. When it comes to cross-cultural learning, some researchers have stated that COIL cannot replace the experience of full immersion in a different country (Liu & Thomas, 2021). Other researchers have suggested that new technologies, such as virtual reality and augmented reality, provide authentic and engaging learning environments while fostering connection and presence among participants (Buchner et al., 2022). Comparing how participation in COIL versus participation in other learning experiences (e.g., short-term study abroad, long-term exchange, and new technologies) affects the sense of belonging is recommended. Modifying and adapting COIL to further enhance a sense of belonging among participants should be explored.

As technology and educational practices evolve, new approaches and methodologies may emerge to further assess the impacts of COIL and technology-based learning interventions on a sense of belonging among undergraduate students. Exploring COIL in different cultural contexts could help identify any cultural variations in the outcomes and inform the development of more inclusive approaches (Asojo et al., 2019). Considering socioecological perspectives and the intersectionality of students' identities and experiences can provide insights into how different factors affect the learning experience and sense of belonging (Johnson, 2022). Social network analysis techniques can be applied to examine the influence of COIL interventions on the formation of social connections and networks (Saqr et al., 2018). Overall, future research could help shed light on the potential of COIL and technology-based learning interventions to promote a sense of belonging among undergraduate students in the global community and higher education.

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