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Meaning-Making About a Sustainable Society Through Collaborative Online International Learning (COIL) Projects in Higher Education

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Abstract

In higher education, engaging students with topics concerning the present and the future of society is essential to bolster sustainability. Collaborative Online International Learning (COIL) is a pedagogical avenue to provide a space to discuss these issues and to gain new perspectives through international partnership. In courses offered at two universities, one in the United States and the other in Italy, university students collaboratively explored societal issues through technology-enabled interaction. This paper reports on the outcomes of COIL projects through the connectivism theory, focusing on how students' self-selected topics and discussions were reflective of internationally relevant societal concerns outlined in the Sustainable Development Goals developed by the United Nations. In addition, we report on how students navigated meaning-making on these social issues by using multimodal communication tools in an online space of the COIL projects. Recommendations for stakeholders in higher education are offered based on the findings.

Keywords:

Collaborative Online International Learning, COIL, multimodal communication, SDGs, sustainable future, meaning-making, connectivism

Promoting sustainability in higher education involves engaging students in topics related to the present and future of society. Professors play a key role in creating a learning environment in which students can develop and practice critical thinking and multimodal communication to explore, express, and negotiate meanings and ideas about societal topics. Collaborative Online International Learning (COIL) offers a space in which students can engage in these discussions while gaining new perspectives through collaboration with international peers (Rubin & Guth, 2022). In courses featuring a COIL component, international faculty collaborators design and facilitate projects in which students in different countries work together to construct knowledge about shared topics of inquiry (Rubin & Guth, 2022). Because perceptions of societal issues are shaped by individuals' cultural, political, and economic backgrounds and experiences, international dialogue can open windows into how these issues are interpreted and understood across contexts.

In this study, meaning-making is understood as a relational and dialogic process through which students interpret experiences and negotiate understanding in interaction with others. From a sociocultural perspective, meaning emerges through mediated dialogue rather than in isolation (Vygotsky & Cole, 1978).

Meaning-Making About a Sustainable Society *continued*

Collaborative learning scholarship similarly emphasizes that shared understanding develops through interaction and the joint construction of knowledge (Dillenbourg, 1999; Stahl, 2006), while sensemaking theory highlights how individuals collectively interpret complex issues in ways that inform action (Weick, 1995). Together, these perspectives frame meaning-making as a dynamic process shaped through intercultural dialogue and multimodal communication within the COIL environment. This understanding of meaning-making highlights the importance of creating structured-yet-open spaces for students to examine complex societal challenges from multiple perspectives and to position their interpretations within broader global conversations.

The Sustainable Development Goals (SDGs) developed by the United Nations (UN) provide a comprehensive overview (2015) of the objectives that governments, policymakers, and institutions worldwide consider indispensable for building a more sustainable future. These goals emphasize global priorities while recognizing the importance of local interpretation and action, an interplay often referred to as glocalization. Imaduddin et al. (2025) state, “glocalization demonstrates the fusion of global and local contexts, acknowledging the valuable contributions from diverse communities and cultural backgrounds” (p. 3). Given the increasing relevance of the SDGs in higher education, recent studies have examined the impact of including SDGs in university curricula, noting positive effects on students’ awareness, engagement, and critical thinking (Campoy-Cubillo & Jimenez-Estrada, 2025; Janík, 2024; Merchán-Rubiano & Chateau, 2024). However, despite this growing body of scholarship, relatively few studies have focused on the use of COIL as a pedagogical approach for engaging students in societal issues through the lens of the SDGs.

In alignment with our universities’ internationalization efforts and strategic goals, we created a COIL project connecting students in Florida, USA, and Marche, Italy. Rather than directly teaching the SDGs, the courses addressed critical societal issues relevant in multiple fields

of studies. We encouraged students to select topics they believed required attention to contribute to a more just and sustainable global future. The COIL projects offered opportunities for students to connect with an international partner and engage in online, sustained, intercultural dialogue about self-selected topics to develop and elaborate their perspectives and explore potential approaches toward meaningful solutions.

To understand students’ thought processes and their jointly negotiated meaning, we critically analyzed student-selected topics and their collaborative discussions, referencing the UN’s 17 SDGs as an analytical framework. Thus, the aims of the study is to explore how students’ self-selected societal topics and related discussions reflect internationally relevant issues as articulated in the SDGs, and how students navigated meaning-making through multimodal communication tools within a shared space created by a COIL project.

Literature Review

The examination and integration of the SDGs have become prominent in higher education institutions worldwide, showing a growing commitment to raising awareness among future generations and equipping them with the knowledge and competencies required to advance sustainable development. The process leading to the SDGs began in 2013, when the UN established Open Working Groups tasked with developing a proposal for a new global development framework to succeed the Millennium Development Goals. This multilateral process culminated in 2015 with the formal adoption of the 2030 Agenda for Sustainable Development, which includes 17 SDGs at its core (United Nations, 2015). These goals articulate targeted objectives to address pressing political, economic, environmental, and social challenges, with the intention of achieving them by 2030. They include areas such as “No Poverty,” “Zero Hunger,” “Good Health and Well-Being,” “Climate Action,” and “Reduced Inequalities,” among others (United Nations, 2015). Higher education institutions play a critical role in advancing the

Meaning-Making About a Sustainable Society *continued*

SDGs (Alcántara-Rubio et al., 2022; Ashida, 2022; Chankseliani & McCowan, 2021). However, despite increasing institutional alignment with the SDGs, recent scholarship continues to note uneven integration of these goals into curricula, pedagogical practices, and research initiatives across disciplines (Leal Filho et al., 2023). This gap highlights the need for intentional pedagogical approaches that move beyond aspirational commitments toward sustained, contextually grounded curricular engagement with sustainability goals.

In response to this need, international and technology-mediated pedagogical models have gained substantial traction over the past decade, particularly those that promote global collaboration, intercultural dialogue, and critical reflection (O'Dowd, 2018, 2022). Historically, however, relatively few educators had extensive experience with pedagogical networking and collaborative approaches to teaching and learning across borders (Rubin, 2017). Among these emerging models, COIL has experienced rapid and sustained growth, evolving from a niche internationalization strategy to a widely adopted pedagogical framework across disciplines and regions (Zolbanin & Gosalia, 2024). Coined in 2006, COIL refers to a virtual academic exchange model in which faculty and students from different countries co-create innovative learning experiences through sustained online collaboration (Rubin, 2017). As digital communication technologies expanded and structural barriers continued to limit student participation in traditional study abroad programs, COIL emerged as a cost-effective strategy for internationalizing curricula without requiring physical mobility (Gokcora, 2021; Vahed & Rodriguez, 2020). Its expansion has been supported by the broader integration of online technologies, the widespread use of social networks, and growing safety and accessibility concerns surrounding international travel (Dostál et al., 2018).

The COVID-19 pandemic served as a significant catalyst for this expansion, as it accelerated the normalization of virtual collaboration and prompted higher education institutions to

reconceptualize international engagement beyond physical mobility (Borger, 2022; Gokcora, 2021; Hackett et al., 2023; Liu, 2023). Post-pandemic COIL initiatives increasingly emphasize equity, access, sustainability, and long-term partnership building, positioning COIL not merely as a contingency solution but also as a transformative and enduring mode of internationalized learning (Collett & Slapac, 2024; Hackett et al., 2023; Nikula et al., 2022). As COIL consolidated its position within post-pandemic internationalization strategies, attention shifted toward examining how the model might contribute more explicitly to the advancement of the SDGs.

Sustainable Development Goals in COIL Projects

Recent COIL scholarship published between approximately 2018 and 2025 reflects both the exponential growth of COIL initiatives and a diversification of their thematic foci, including disciplinary expansion, pedagogical innovation, intercultural competence development, social justice, and sustainability-oriented learning (Collett & Slapac, 2024; Chan, 2025; Vega Chica, 2025). Within most institutional contexts, COIL functions as a faculty-initiated pedagogical strategy embedded within existing courses rather than as a permanently institutionalized disciplinary component, which partially explains its uneven thematic integration across semesters and subject areas. Nevertheless, much of the literature examining COIL's engagement with the SDGs continues to prioritize environmental and economic dimensions of sustainability, particularly within science, technology, engineering, mathematics, and business-related programs (Ekici, 2025; Vega Chica, 2025). This pattern is evident across peer-reviewed studies indexed in major academic databases (e.g., Scopus, ERIC, and Google Scholar). This review was designed as a focused narrative synthesis rather than a systematic review and is intended to illustrate prevailing thematic patterns rather than provide an exhaustive account.

Meaning-Making About a Sustainable Society *continued*

While recent literature demonstrates COIL's growing role in sustainability-oriented internationalization (Adefila et al., 2021; Membrillo-Hernández & Cuervo-Bejarano, 2022; Miralles-Garcia et al. 2025), the social and human-centered dimensions of the SDGs such as equity, social justice, cultural inclusion, and well-being remain comparatively underrepresented, particularly in disciplines such as education, the humanities, and the social sciences (Collett & Slapac, 2024; Furtado Guimarães et al., 2019). Recent empirical studies show that COIL can effectively engage students with sustainability themes, such as health equity (SDG 3), gender equality (SDG 5), and responsible consumption (SDG 12). These initiatives often remain focused on certain subject areas instead of being incorporated more broadly across disciplines. Despite promising examples (Campoy-Cubillo & Jimenez-Estrada, 2025; Kiegaldie et al., 2022; Vega Chica, 2025; Wiesner-Luna & Burgoa-Godoy, 2023), recent review and synthesis studies continue to note an imbalance and call for broader conceptualizations of sustainability within COIL that move beyond primarily technical or environmentally focused approaches and toward more structurally integrated social justice frameworks (Chan, 2025). Addressing this imbalance requires not only expanding thematic coverage but also rethinking the epistemological and relational foundations of COIL collaborations.

COIL as Transformative “Third Space”

This gap highlights the need for COIL to function as a transformative “Third Space,” a concept rooted in spatial, sociocultural, and applied linguistics scholarship, which enables learners to move beyond binary distinctions such as Global North/Global South, local/global, or home/abroad. Drawing on Soja's (1996) conceptualization of Third Space as a site where lived experiences, social relations, and power intersect, COIL can be understood as a pedagogical space that disrupts dominant epistemologies and legitimizes alternative ways of knowing and meaning-making within international collaboration. Similarly, Oldenburg's (1997) notion of “third places” as

informal, relational spaces outside home and formal institutional hierarchies offers a useful lens for understanding COIL environments as dialogic, low-threshold spaces that foster community, reciprocity, and sustained interaction across differences. From an intercultural and linguistic perspective, Kramsch (2009) further conceptualized Third Space as a symbolic and discursive site where language, culture, and identity are negotiated rather than transmitted. In this sense, COIL operates as a Third Space in which participants co-construct knowledge through dialogue, reflection, and cultural mediation, particularly within Global South–North and South–South collaborations (Furtado Guimarães et al., 2019; Wimpenny et al., 2022). At the same time, research on the intersection of COIL and the SDGs frequently documents projects embedded within existing internationalization infrastructures, including established institutional partnerships, networking platforms, and structured partnership-building initiatives, particularly in collaborations involving institutions in the Global South or broader international contexts. This structural tendency may shape not only the thematic focus of projects but also the conceptual framework through which sustainability is interpreted and enacted.

Although COIL provides rich opportunities for collaboration, there is potential for increased emphasis on the social priorities of the SDGs beyond COIL's earlier concentration within business and technical disciplines (Adefila et al., 2021; O'Dowd, 2022). The focus of some studies on global and contextual issues (Obersteiner et al., 2016; Sarkar et al., 2022) also points to the need to respect the intersectionality and diversity of social and cultural understandings in international collaboration, which is also relevant to the potential multidisciplinary use of COIL for advancing social goals. As a pedagogical approach in social sciences or humanities, COIL could meet social and sustainability goals by respecting contextual and pluralistic approaches.

Meaning-Making About a Sustainable Society *continued*

Connectivism Theory and Knowledge Construction in COIL

This study is grounded in connectivism theory (Siemens, 2005) to examine how students engage in collaborative meaning-making around globally relevant societal issues in a COIL context. As a learning theory for the digital age, connectivism offers a framework for understanding how knowledge is constructed across networks of people, ideas, digital tools, and information sources, rather than within isolated individuals (Bates, 2022; Siemens, 2006). From this perspective, learning is understood as a relational and networked process, which aligns with COIL as a pedagogical approach that facilitates international collaboration, dialogue, and shared inquiry around complex societal issues (Rubin, 2016; Rubin & Guth, 2022). Unlike earlier learning theories such as behaviorism, cognitivism, and constructivism, which primarily emphasize internal cognitive processes or individual meaning-making, connectivism foregrounds the distributed, technological, and relational dimensions of knowledge production (Hendricks, 2019). Connectivism differs from earlier learning theories by recognizing that knowledge is constantly evolving and distributed across a variety of ways, many of which exist outside the learner (Hendricks, 2019). Therefore, students in online environments should be able to find, assess, and integrate information from a variety of sources. Knowing how to learn can be as important as acquiring knowledge, and individuals should know how to recognize patterns, understand complex systems, and see the value of ideas as they adapt to them (Siemens, 2005). These skills are crucial for COIL projects that require students to explore a societal problem or phenomenon that is created or influenced by specific cultural, economic, and political conditions.

Connectivism, therefore, serves as a conceptual bridge linking COIL, meaning-making, and engagement with globally relevant challenges such as those articulated in the SDGs. If knowledge is distributed across networks and learning occurs through the formation of

connections among diverse nodes (Siemens, 2005), then pedagogical approaches that intentionally create transnational digital learning networks, such as COIL, become particularly appropriate contexts for collaborative meaning-making. Within COIL environments, students may select and discuss globally relevant societal issues, sometimes without explicit alignment with the SDGs, while engaging with themes that intersect with sustainability-related concerns. From a connectivist perspective, such engagement can be understood as emerging from transnational knowledge networks rather than from predefined curricular pathways. International dialogue allows learners to bring local, national, and disciplinary perspectives into conversation, which enables them to form new conceptual connections through negotiation and synthesis. These exchanges move beyond information sharing to processes of collective inquiry and epistemic co-construction, which are central to connectivist learning (Siemens, 2005, 2006). When learners engage in dialogue about complex societal issues, they participate in networked processes of interpretation and synthesis rather than isolated content acquisition. In this sense, COIL can be understood as operationalizing connectivist principles in practice.

A foundational assumption of connectivism is that learning happens with and through various viewpoints and open systems (Siemens, 2005). Within a COIL context, students engage with peers who bring different life experiences, academic disciplines, and cultural assumptions to the dialogue (Rubin 2016, 2017). These differences are points of tension and possibility, which at the same time encourage learners to question their assumptions and to reframe their own knowledge. The theory of connectivism values diverse perspectives because they enhance both idea generation and conceptual frameworks within learning networks (Chien et al., 2019).

Autonomy is another important dimension of connectivism (Siemens, 2005, 2006). Learners

Meaning-Making About a Sustainable Society *continued*

can choose a topic that is relevant to their value system and social context, as well as jointly create meaning through communication. Autonomy is therefore central in connectivism's focus on learner agency and placing the onus on learners to assume responsibility for learning as well as its value for navigating complex, interconnected knowledge ecologies in globally networked classrooms (Afroz, 2024; Mukhlis et al., 2024).

Recent research underscores the relevance of connectivism for digitally mediated, internationally networked learning environments such as COIL. Connectivist frameworks support networked communication, autonomous engagement with societal challenges (Jeny, 2024), and deeper participation across networks (Pandya et al., 2024). These frameworks address key challenges in digital education by drawing on online communication and knowledge mobilization (Goldie, 2016) and have been linked to sustainable development through flexible, relational learning structures that connect diverse knowledge nodes (Dziubaniuk et al., 2023; Omodan, 2023). In these contexts, individual and collective inquiry intersect to generate an emergent understanding dynamic central to COIL projects (Tschofen & Mackness, 2012). Together, these studies support connectivism as a theoretical framework for understanding learning in COIL as a digitally mediated, internationally networked pedagogical approach. With its emphasis on the use of different digital tools, promoting self-directed learning, and encouraging the synthesis of global perspectives, connectivism provides actionable strategies for engaging students in the co-construction of knowledge around complex, globally relevant societal issues.

Using a connectivist lens, this study examines how students navigate, connect, and make meaning of societal challenges, especially those relevant to the SDGs, in international digital learning environments. Connectivism, unlike traditional learning theories, is based on the idea that knowledge is not fixed or delivered by an instructor. Rather, it is built, experienced, and developed as an emergent, participatory, and networked process (Siemens, 2005). From

this perspective, COIL is not simply a space for exchanging perspectives but a structured environment in which students connect, negotiate, and synthesize diverse viewpoints to construct new shared understandings. Therefore, this approach provides a strong foundation to COIL settings, where students work together to explore the relationship between local issues and global priorities and engage in meaning-making through dialogue. Grounded in connectivist principles of distributed knowledge and relational learning, this study explores how students' topic selection and multimodal interactions reflect processes of networked knowledge construction in relation to globally relevant societal challenges. Building on this foundation, this study applies connectivism learning theory as a dynamic lens for exploring collaborative meaning-making within COIL contexts to answer the following questions:

1. Within a COIL project, to what extent do students' self-selected topics reflect globally relevant societal issues aligned with the SDGs?
2. To what extent do students perceive their learning in a COIL project to be affected by communication and collaboration with their international partners?
3. How do students engage in multimodal communication to negotiate, connect, and synthesize perspectives in the co-construction of knowledge about critical societal issues?

Methodology

Institutional Context and COIL Project

This study was conducted in four graduate courses across two semesters at two universities: a medium-sized, comprehensive public university in Florida, USA and a similarly sized public university in Marche, Italy. The students who participated in the COIL project were pursuing either a graduate degree in education or international tourism. The primary purpose of the COIL project was to enable students to examine critical societal issues from various

Meaning-Making About a Sustainable Society *continued*

perspectives and collaboratively negotiate their understanding with an international partner. For this study, we consider critical societal issues that are addressed in the UN 17 SDGs (United Nations, 2025). The specific course learning objectives addressed knowledge development about society, discussing topics such as power, accessibility to resources, education, demographic changes in society, and social trends. The expected learning outcomes also included skill development for effective intercultural communication about these critical societal issues, with the goal of enabling students to share their independently researched topic and engage in the co-construction of knowledge with their international partners. To accomplish these goals, students were encouraged to use different multimodal communication tools to support collaborative knowledge construction across national contexts.

The COIL project followed a structured sequence of steps. Teams of two, consisting of one student from Italy and one from Florida, were randomly created. First, each team member completed an icebreaker activity, which included a 2-minute video about their background, interests, and personal and professional goals. This activity was designed to help them get to know each other, and they engaged in some initial informal communication to develop a relaxed atmosphere for the upcoming work time together. During the following two weeks, each student developed a 5- to 6-minute presentation on a self-selected topic they deemed critical and important to discuss with an international partner using research and multimodal communication tools, such as a narrated PowerPoint. They chose which societal issue they wanted to explore further to expand their own knowledge, share it with their partner, and navigate an emerging shared understanding. After reviewing each other's presentations, the international team members came together online to jointly elaborate on different perspectives presented in each other's work, negotiate their understanding, and brainstorm possible solutions. The teams had the flexibility to decide which online platforms to use, such as Zoom, WhatsApp, Padlet, and Skype, and when to meet to discuss their projects. These online

dialogues between the two students were audio recorded. The collaborative learning experience concluded with an individual paper in which each student had the opportunity to reflect on how this internationally connected learning space impacted their understanding of critical issues in the two countries.

The COIL projects took place during the second half of the semester and spanned six weeks. The COIL component in the courses in Florida was a required course assignment, while in the courses in Italy, the students volunteered for this international experience. We, the instructors in Italy and Florida, co-designed and co-facilitated the COIL project and maintained regular communication before, during, and after the project. We provided structured guidelines to help students navigate the timeline and expectations, and we guided them in the completion of the tasks.

Participants

Ethical approval from the Institutional Review Board (IRB) was secured at Florida Gulf Coast University (IRB Protocol: 2022-79), and following the conclusion of the semester, we received signed informed consent forms from 24 students. Eleven students were enrolled in the graduate education courses in Florida, including five Hispanic students, five African American students, and one White student. The two male students, one non-binary student, and eight female students were between the ages of 35 and 50. All of these graduate students were pursuing a doctoral degree in education while working full-time as teachers, instructors, or administrative professionals in educational institutions. The 13 students in Italy included six Italian nationals and seven students from other countries, including Russia, Gambia, the Netherlands, and India. The eight female students and five male students were full-time students between the ages of 25 and 45 and enrolled in master's-level programs in international tourism and education. To keep the participants' identities confidential, we used the following coding system: IT1 for Italian student 1, and US1 for student 1 in Florida.

Meaning-Making About a Sustainable Society *continued*

Data Collection and Data Analysis

We included the following data sources: participants' presentation projects and audio-recorded online dialogues between the two team members, the end-of-semester reflection papers, and instructors' notes throughout the COIL project development and implementation. The narrated PowerPoint presentations were transcribed. All data were in English. After preparing the data for analysis, four researchers, including two course instructors and two unaffiliated researchers, analyzed the data independently and held several data sessions to check the codes, categories and themes in order to ensure an unbiased interpretation. For this single instrumental case study (Stake, 1995), we employed discursive research analysis (Gale, 2010) to analyze the data that represented different discourses, such as communicating about critical societal issues with international partners and reflective thoughts. Language and speech are the main instruments for building an understanding of reality; however, there are other modes of communication, such as visual representation of thoughts; therefore, we used multimodal discourse analysis (Kress & Bezemer, 2023) to include communication tools beyond language that students used to express or negotiate their understanding. Through a detailed thematic analysis of discourses, and the examination of the multimodal tools, we identified jointly developed meanings that emerged from students' written and virtual oral exchanges (Creswell & Poth, 2018), while also taking into consideration students' cultural and societal backgrounds (Bray et al., 2014).

Specifically, to understand the relationship between the participants' discourses on critical societal topics and the SDGs, we used the students' PowerPoint presentations, reflection papers, and the audio-recorded dialogues. We began by closely examining the data to identify recurring words, designated as keywords, which captured a wide range of topics that participants addressed in their discourses. Then, we used the keywords to create codes, which were assigned to segments of the discussions. We then organized the codes into meaningful categories, which resulted in themes aligned with student-selected

social issues and connectivism-related concepts (Naeem et al., 2023). Next, these themes were compared with (1) the SDGs to develop insights into students' critical understanding of these issues and their relationship to the SDGs and (2) connectivism theory to determine whether related concepts were fundamental to student learning through the COIL projects. During the data analysis process, we noted the negotiation, synthesis, and integration of knowledge that emerged due to the collaborative nature of this project. Regarding the second research question, which addresses the ways students created meaningful understanding with their international partner, we used multimodal discourse analysis to explore how students communicated and created new understandings through various modes of communication beyond language. We treated the various modes of discourse, such as images, different forms of linguistic writing and oral expression, and auditory messages, as equally capable of contributing meaning to complex topics. As Kress and Bezemer (2023) argued, language is only one of the many resources for meaning making.

We examined the students' projects and identified various modes they used in expressing their thinking about their chosen social issues. In addition, using the reflection papers and the audio-recorded dialogues, we examined how the students utilized these different multimodal tools to build the connections between team members, and to generate and negotiate their understanding of the critical societal issues.

Findings

In this section, we outline the findings in relation to the research questions. First, the participants' selected topics are discussed in connection with the SDGs. Second, student reflections are shown to indicate a deeper understanding of the issues through their engagement with an international partner via the COIL project and, thus, through learning how these societal issues are understood and manifested differently across national contexts. Then, the participants' use of multimodal communication tools to

Meaning-Making About a Sustainable Society *continued*

foster meaningful understanding of the selected topics is reported. The thematic findings are presented through a connectivist lens by examining how knowledge emerged through ongoing interaction among students, ideas, and multimodal forms of communication within the international learning network, rather than solely at the individual level.

Connection Between Self-Selected Topics and SDGs

In the context of international collaboration, students' self-selected topics indicated connections to educational and societal issues that hold global relevance. Project topics were grouped into four themes: (a) race, ethnicity, poverty, and gender in education; (b) rights of newcomers in education; (c) politics and perspectives in higher education; and (d) vulnerability of women in society. Although these themes are presented as four distinct themes for analytic clarity, the data revealed that they functioned as interconnected nodes within a broader learning network. Across projects, recurring concepts such as representation, structural inequality, policy influence, and human rights emerged as shared points of connection linking students' inquiries across national contexts.

Race, Ethnicity, Poverty, and Gender in Education

Student project topics reflected global connections and intersected with a variety of SDGs. Project topics included issues surrounding the marginalization of diverse students based on income, ethnicity, race, gender, sexual orientation, and academic achievement as well as issues related to the recruitment and retention of teachers in lower-income schools and of women in educational leadership roles. Topics intersected with SDGs of "No Poverty," "Quality Education," "Gender Equality," "Reduced Inequalities," and "Peace, Justice, and Strong Institutions." One student from Italy addressed the marginalization of low-income students in educational settings and the role of education in reducing inequities:

Democracy intentionally created poverty as a means of control of social and economic balances.... The western democracies exploited the marginalities and poverty to consolidate the government of upper classes.... Starting from marginality means consider[ing] this phenomenon as a personal and social condition with specific educational needs. (IT1)

The students discussed the topic of representation in higher education in relation to academic achievement, with the insight that students of color often do not see themselves reflected in their professors. One student stated, "Representation of faculty of color is a critical step towards helping students of color graduate and succeed. Faculty of color provide a cultural aspect and understanding that cannot be obtained from White professors alone" (US7). Through interaction with international partners, these discussions evolved beyond individual national examples. Students began referencing each other's educational structures and demographic realities, linking local experiences of marginalization to broader structural patterns. In this way, race and inequality became central nodes within the learning network, as students connected multiple projects across borders, which contributed to a shared understanding rather than merely engaging in parallel comparison.

Rights of Newcomers in Education

Another group of students' projects focused on newcomers, especially immigrants, refugees, and their experience in schools, demonstrating intersections with SDGs related to "Quality Education and Peace," "Justice," and "Strong Institutions." One student examined the predominant views of people in the United States about immigrants:

A majority of Americans support immigration of high-skilled people.... In recent surveys, more than 60% of American citizens have expressed support as they see them as people who contribute and strengthen the country with their hard work and talents. However, there are others who say they are

Meaning-Making About a Sustainable Society *continued*

a burden because they take American jobs, abuse welfare, and bring crime and violence to the country. (US6)

Another student considered culture and cross-cultural communication in education, the prevalence of diversity, and the importance of strategies for promoting effective communication. This student described some of the challenges and stresses faced by immigrant children in the United States:

Unfortunately, children who migrate from other countries or the children of immigrants who attend school, face challenges constantly, such as the stress caused by immigration status, language barriers, social, cultural, and academic isolation, financial struggles, and lack of access to health care. (US6)

Another student focused on informal educational segregation, or lack of inclusion, from the Italian perspective. She described this kind of segregation as “one of the worst cases of discrimination and a serious violation of social and civil rights that threatens children’s learning opportunities... and undermines the future employment and earning opportunities of many children and young people” (IT4). Through dialogue, students increasingly understood immigration as a shared human rights concern, not primarily a national debate. Students drew connections between segregation in Italian schools and systemic inequities in U.S. education. They also recognized common structural challenges despite different national contexts. As they engaged with one another’s perspectives, their analyses expanded from local observations to more integrated understandings. This shift suggests that knowledge developed through connection and exchange within the international learning network.

Politics and Perspectives in Higher Education

The third grouping of chosen topics focused on politics and perspectives in higher education and included topics related to students from different backgrounds, first-generation college students, and the intersection of governmental

priorities and higher education. These topics intersect with the SDGs of “Quality Education,” “Reduced Inequalities,” and “Peace, Justice, and Strong Institutions.” An asset-based perspective on first-generation college students, though less common than seeing them through a deficit-based lens, was presented as a pathway to enhance their success (US8). After reviewing past legislation supporting access to higher education, one student (US10) expressed concerns about the effects of governmental priorities on academic freedom in higher education (US10). Overall, students’ projects reflected a shared concern about the availability of quality higher education for all. Across these projects, the politicization of education emerged as a shared theme. Students recognized that legislation, funding priorities, and public discourse influence access and equity in both national contexts. As they compared policy environments, they began to notice patterns that extended beyond individual countries, which broadened their understanding through dialogue and exchange.

Vulnerability of Women in Society

Women’s vulnerable position, as reflected in student-selected topics and international connections, included female genital mutilation, early arranged marriages in India, human trafficking, women’s rights, and gender inequality in higher education leadership. These topics aligned with the SDGs “Gender Equality,” “Decent Work and Economic Growth,” “Reduced Inequalities,” and “Peace and Justice.” Noting the fundamental violation of women’s human rights, one Italian student stated,

Female genital mutilation (FGM) is a violation of basic human rights, is medically unacceptable,...[and is a form of] discrimination against girls and women. All forms of FGM remove and damage healthy tissue and interfere with the biological foundation of girls’ bodies. (IT12)

Connections to Deeper Meaning-Making

Students attributed deeper learning to the networking opportunities afforded them by the

Meaning-Making About a Sustainable Society *continued*

COIL projects, negotiating diverse perspectives to autonomously make meaning of similarities and differences between related issues in different societal and educational contexts. One student's assumptions were challenged when discussions with the Italian partner revealed "more freedom... as part of the LGBTQ+ community" in Italy than in the United States, although there is a lag in "Italy... behind the US on LGBTQ+ policies" (US3). Another student expressed deeper learning about similarities as well as nation-specific information because of the connection with the Italian partner: "Although the socio-political reasons that pushed the waves of migration are different in the United States and in Italy, we have many things in common... such as... perceptions that citizens have of immigrants... and other issues that arise from them (such as racism)" (US6). This student also expressed experiencing broadened learning through connection, such as regarding "nationalities of immigrants arriving in Italy, the migration routes, and the initiatives implemented in Italian schools to support both immigrants and the educators who work with them." Furthermore, some connections revealed different educational foci. For example, one student stated, "[The] University of Milan has the Gender Equality Plan which is a strategic plan that focuses on getting more women into STEM fields and more men into humanities fields, ... [yet] resources or support for first-generation college students [were nonexistent]" (US8).

Some students' reflections indicated that their connected learning created deep and lasting effects. One student, reflecting on child marriages, stated,

It is one thing to read about a tragedy that happens on the other side of the world [and another] to speak to someone who knows a victim intimately and personally. Had I never interacted with my partner, I would still be very naïve and shut out of such worldly problems. Hearing his voice, hearing his compassion, and seeing the emotional toll this topic took on him impacted me very personally. While I may never speak or work

with him again, his story carries on in my mind. (US11)

Another student reflected on her broader and deeper knowledge as well as her ongoing questions from connecting with her Russian partner: "The common denominator... is the way in which politicians in [the US and Russia both] use legislation to hinder possible solutions to problems of social injustice.... I had (and still have) so many questions!" (US10). Yet another student reflected that connecting internationally through the COIL project provided a fundamental connection relating both to humanity and back to her profession:

Often, I only hear about international issues from news outlets. Many times, I hear in the media this is not 'America's issue;' however, this is a human race problem. It also allowed me to reflect on current practices within schools when students move from another country into American schools. (US9)

Connections made with international partners deepened student learning, and the COIL project provided meaningful, autonomous, meaning-making opportunities with partners.

Multimodal Communication for Meaning-Making

Participants in the COIL project aimed to express their thinking about the selected societal issues with clarity, using evidence from reliable sources. In joint online communication, it was also essential to ensure that the international partners would develop an understanding of the issues, regardless of their different cultural, linguistic, and experiential backgrounds. Therefore, participants used various modes of communication, including language and multimodal forms of representation. The analysis resulted in the following themes: (a) narrative discourse, (b) visuals, and (c) auditory modes. The analysis indicated that these diverse modes were not used in isolation; rather, the interplay among them contributed to creating and navigating meaning-making about complex societal issues.

Meaning-Making About a Sustainable Society *continued*

Narrative Discourse

The narrative discourses indicated two different dimensions: (a) interpretation of evidence-based information related to the societal issue, and (b) personal stories narrating the relevance and experience with the selected topic.

Evidence-Based Information. Participants frequently referenced research studies and reports to validate their descriptions and arguments. For example, to describe the depth and breadth of human trafficking, one student (US11) used current scholarly articles focusing on human trafficking and sexual exploitation. In addition, an Italian student (IT11) shared narratives including data from UNICEF sources to depict the widespread presence of child marriage in certain countries (IT11). To provide a detailed and objective overview of the recent legislative changes in Florida's education system, the narrative drew upon interpretations of specific House and Senate Bills and their impact on students, teachers, and curricula. Similarly, Italian students (IT9 and IT10) validated their narrative about immigrants and refugees with recent scientific literature. These narrative sources were first shared in the PowerPoint presentations. In online conversations, students often revisited the narrative sources to clarify or emphasize the details of the selected topic. Ultimately, these narrative sources contributed to the shared knowledge production.

Personal Stories for Relevance and Experience. Some participants included narrative texts describing their own experiences (e.g., being a first-generation college student or being an African American male teacher). Most topic selections were also justified by their lived experiences, adding their voice to highlight their concern. For example, one Latina student (US11) discussed how recent legislative changes heightened her concern about maintaining safe places for all students and ensuring their voices are heard. An Italian student (IT3) complemented her research-based narrative with a personal commitment statement:

I had the opportunity to interface with foreign students at school, and I perceived the

difficulty of teachers when they were unable to transmit knowledge easily and when, despite their efforts, they didn't receive feedback from these students. However, I strongly believe that these students, if welcomed, included, and stimulated in the right way, show the same interest as Italian students. I believe that we all, as human beings, have the same rights, which must be respected in the same way.

By combining research-based information with personal experiences, students showed that they were not only studying societal issues but also reflecting on how those issues touched their own lives. This combination of evidence-based resources and lived experience strengthened their arguments and encouraged a more meaningful connection within international collaboration.

Visuals

Participants used images to express, solidify, and supplement the information they presented verbally in their PowerPoint presentation. Two distinct types of visuals, scientific and illustrative, supported meaning making. These visuals stemmed from different media sources.

Visuals from Scientific Sources. Tables, graphs, and diagrams from scientific sources provided additional evidence-based information to deepen understanding of the topics. Participants also frequently incorporated maps, graphs, and charts with demographic or statistical data to inform their partners about the widespread nature of the issue. For example, students used charts from the Pew Research Center and the U.S. Census to show immigrant diversity by ethnicity and languages. For example, one student inserted a map from UNICEF indicating the percentage of populations affected by female genital mutilation in African countries into the PowerPoint to emphasize the widespread nature of this issue. In addition, to visually demonstrate the disparities in higher education enrollment by race, several students utilized charts and graphs from the National Center for Educational Statistics. In the reflection paper, several students commented on how their team

Meaning-Making About a Sustainable Society *continued*

partners' visuals deepened their understanding of the specific issue.

Images from Non-Scientific Sources. Students used images, such as photographs, and art-based visuals from non-scientific sources to foster the meaning-making process and evoke emotions and empathy. Some participants used authentic photos of, for example, rallies supporting immigrants featuring verbal messages such as "Immigrants make America great," and "I love this country. I just want to stay." Many participants used commercial images, probably to visually support their narrative. Some examples would be an image of a scale to demonstrate justice, a classroom picture with students to illustrate cultural diversity in schools, and an image of graduating students to emphasize the idea of successful college completion for first-generation students. A few participants included artful visuals, such as a painting representing human diversity. Among them, some images appeared more decorative than informational, with limited communicative intent. Overall, visual elements helped students clarify complex information while also encouraging empathy and a sense of shared understanding across cultural contexts.

Auditory Modes

Participants used various auditory modes of communication to negotiate meaning with their international partners. These included self-made videos, published videos in the PowerPoint presentation, and synchronous online conversations between team members to expand and clarify the meaning of the societal issues.

Narrated PowerPoint and Videos. Some participants decided to use a self-made video recording rather than creating written presentation projects. One student (US3), who selected the topic of LGBTQ+ students in schools, first described their own identity as a transgender, non-binary individual who experienced bullying as a high school student and concluded the video message with recommendations for teachers to create an environment that embraces all students with respect. Their partner

commented on how this video expanded her understanding on challenges which LGBTQ+ youth experience. Also, one Italian student (IT6) included two YouTube videos of young refugees describing their struggles and challenges as they settled down in Italy. Her partner in Florida noted, "Before this project, I never understood the disparities many refugees face in Europe" (US5). Another student (IT10) included Human Rights Watch videos, BBC, and Russian media outlets to provide a comprehensive overview of the extent and brutality of domestic violence against women in Russia. The student in Florida commented on these images from videos, "The type of violence displayed... was shocking, frustrating, and terrifying" (US10). The materials generated rich and deep conversation between the two students. These authentic voices added emotional strength and increased relatability.

Synchronous Online Conversation. Participants used synchronous virtual meetings for further discussion and clarification of their topics, after reviewing each other's PowerPoint presentations. These interactions often lasted 30–45 minutes and included active exchanges, questions, and reflections on each other's projects. The analysis of these recorded online dialogues showed how students used this time to expand beyond the information included in their presentations. For example, a student in Italy (IT10), who provided a shocking insight into the domestic violence against women in Russia, described how COVID and the war between Russia and Ukraine had worsened conditions for women and limited access to support. Several participants used these conversations to compare perspectives across countries such as India, Ghana, Russia, Italy, and the United States on the selected issues, which included human rights, immigration, access to higher education, and cultural diversity. Several students noted that these online conversations with international partners fueled their curiosity, made them reconsider their prior perception or image of a country or issue, and made them aware of the need for joint brainstorming for some solutions. Many stated that they felt that this online joint thinking created a long-lasting bond between them, and that they intended to keep in touch. This part of the COIL project cemented the connection between these young professionals.

Meaning-Making About a Sustainable Society *continued*

It is important to note that most participants used diverse modes of communication, including those discussed above, to emphasize the importance and complexity of their selected societal issue. This variety of multimodal communication contributed to building professional relationships across borders, deepening mutual understanding about societal issues, and engaging in joint exploration of possible solutions. The participants' reflection papers discussed the benefits and excitement of being involved in an international conversation on topics that mattered to them and that had broader implications for improving the future of societies.

All together, these multimodal exchanges show how meaning did not simply pass from one student to another but grew through ongoing interaction and shared dialogue. By combining narrative, visual, and auditory modes, students were able to clarify ideas, respond to one another's perspectives, and build on each other's insights. In this way, learning developed through connection and collaboration within the COIL experience.

Discussion

This study explored the outcomes, through the lens of connectivism learning theory, related to (a) the extent to which students participating in the COIL project self-selected topics that reflected global connections concerning educational and societal issues, (b) the extent to which students perceived their learning to be affected by their international collaboration, and (c) how students used multimodal communication tools to construct meaningful understanding of critical social issues with their international partners. The results support the effectiveness of COIL as a pedagogical practice, especially when implemented with a connectivism foundation to promote learner autonomy and build knowledge and engagement across networks (Jeny, 2024), integrate various ways of knowing and promote relational learning (Omodan, 2023), and support the intersection of students' personal experiences with collective inquiry across diverse settings to support emerging ways of

knowing (Tschofen & Mackness, 2012).

Given participants' different cultural, linguistic, and experiential backgrounds, it is significant that the findings indicated that students' self-selected topics aligned with the SDGs, demonstrating a global interest in and connection to educational and societal issues such as race, ethnicity, poverty, and gender in education, the educational rights of newcomers to a country, politics and perspectives in higher education, and the vulnerability of women in society. These connections reflected consideration of both their personal/local context as well as their articulation within broader frameworks (United Nations, 2015) using plural worldviews to promote and assist relational networks of cooperation (Mukhlis et al., 2024) centered on topics within internationally determined goals. COIL created a supportive, technology-mediated space to engage with international partners who brought different experiences (Rubin, 2016) and facilitated the discussion of critical and complex issues aligned with UN priorities (2015). The autonomy and interconnectivity observed in students' topic selection within digital social settings, which are central tenets of connectivism learning theory (Mukhlis et al., 2024; Siemens, 2005, 2006), align with the SDGs and directly address calls for the inclusion of the SDGs in higher education (Leal Filho et al., 2023) in a manner that is personally meaningful to learners (Afroz, 2024). COIL can serve as a transformative laboratory for reconceptualizing knowledge and perceptions around cultural traditions, paths of emancipation, and contemporary conflicts.

Students used synchronous and asynchronous modes of communication, combining scientifically supported and personal connections expressed through both visual and auditory means, to connect with their international partners, thus making meaning of their learning in different types of programs of study. Students reflected on social and ethical responsibilities by taking into account their own knowledge and judgments as well as evidence-based information. The context of such interpretive interaction on relevant social narrations includes individual stories of everyday life, descriptions of

Meaning-Making About a Sustainable Society *continued*

private lives, work experiences, and community life, along with representations of exclusion and marginalization. The awareness of historical and geographic contexts became intertwined with empathy and emotional insight. This resulted in a rich and multifaceted perception and understanding of social dynamics, cultural norms, linguistic expressions, and institutional frameworks.

Participants navigated communication with international partners, whose heritage language, cultural backgrounds, and experiences differed from their own, using multimodal discourse approaches to negotiate meaning (Kress & Bezemer, 2023). These included evidence-based narratives, personal reflections, both scientific and non-scientific images (e.g., photographs, visual art), and auditory formats that included narrated PowerPoint presentations, videos, and synchronous online conversations. The combination of evidence-based sources and personal insights and experiences allowed students to approach their topics from various angles, strengthening their arguments and enhancing their resonance with their international partners (Chen, 2024; Kress & Bezemer, 2023). Such learning supports a core concept in connectivism learning theory: knowing how to learn is more critical than information or knowledge (Siemens, 2005). Participation in the COIL experience validated both the benefits of interdisciplinarity for curricula addressed to a particular professional field and offered the opportunity for teachers and students to gather direct socio-historical evidence. Students' individual evaluative reflections confirm the effectiveness of implementing transnational projects. COIL was recognized by participants as an educational approach capable of stimulating solidarity, reshaping physical and mental boundaries, and enhancing critical thinking.

Interdisciplinary Applicability

Connectivism theory emphasizes knowledge production across networks of people, ideas, and information, mediated through multimodal tools rather than knowledge located within isolated individuals (Bates, 2022; Siemens, 2006). The transferability of this design lies not

in the specific SDG topics selected but in the epistemic processes it activates (i.e., distributed inquiry, negotiated meaning-making, and collaborative knowledge construction across contexts). Complex societal challenges, many of which are articulated through the SDGs, require collaborative problem-solving that integrates multiple disciplinary perspectives. Accordingly, the connectivist COIL design employed in this study, centered on dialogue, negotiation, and autonomous topic selection within international networks, demonstrates strong potential for interdisciplinary transfer across higher education contexts. Although participants in this study were education and tourism majors, whose disciplinary orientations may explain their focus on SDG topics like education, race, gender, and immigration, the underlying instructional design framework demonstrates potential for application beyond the disciplines represented in this study. The design principles of distributed inquiry, cross-border comparison, multimodal knowledge construction, and negotiated meaning-making can be adapted across fields while preserving disciplinary rigor.

Implications and Conclusions

This study contributes to the growing body of knowledge on the use of COIL in the exploration of social issues addressed by the SDGs in higher education. Due to the research design, this study has limitations in terms of the small number of participants; therefore, there was no intention to offer generalizable findings. However, the data analysis provides new and valuable insights into the use of COIL in higher education classrooms, particularly when the purpose is to offer authentic avenues for exploring societal issues through international partnerships. In addition, the theoretical framework, connectivism, and methodological approach of multimodal communication analysis to explore the social construction of knowledge can be useful and applicable in studies in various disciplines.

Exposing students in higher education to complex, real-world, critical issues in society is essential, as they are conscientious critical thinkers who want to address these challenges

Meaning-Making About a Sustainable Society *continued*

and explore potential solutions. As such, incorporating SDG-related topics and dialogues around them in local contexts emerges as a meaningful component of higher education. In this study, the richness of the student projects showed that the participants' intellectual engagement with complex and critical topics generated deep, cross-cultural discussions between students from diverse countries and backgrounds, and students perceived their learning to be deeper due to these connections. Therefore, COIL, which is considered a cost-effective way of exposing students to new knowledge and skills through international collaboration (Gokcora, 2021; Vahed & Rodriguez, 2020), can serve as a pedagogical approach for broadening student perspectives, enhancing their global understanding, and deepening their learning through collaborative connections.

Instructors across disciplines in higher education should consider implementing COIL projects to cultivate students' openness toward a plurality of languages, and systems of social representation, and to promote ongoing exercise of critical thinking, which is essential to collective negotiation, inquiry-based decision making, and internationalization. Students should be encouraged to use multimodal tools not only to communicate but also to co-construct meaning and critically reflect on global challenges. Specifically, the combination of various evidence-based sources with tools that allow for personal expression can deepen students' understanding and highlight the value of diverse discourse modalities. Professors are recommended to both allow and encourage students to use these various ways of expression and also to provide flexible platforms for students to creatively and critically engage in global issues together.

Meaning-Making About a Sustainable Society *continued*

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